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Phone: 480-312-5685
ScottsdaleAZ.gov/Water

June 2, 2020
Central Arizona Project
23636 N. 7th St.
Phoenix AZ, 85024

Re: Draft Document of the Water Quality Guidance For the Introduction of Non-Project Water into the Central Arizona Project

Dear CAWCD Staff and Leadership,

Scottsdale Water is very appreciative for the opportunity to give input and comments to the draft document, The Water Quality Guidance for the Introduction of Non-Project Water in the Central Arizona Project. Like all other stakeholders, we think it's important to have a voice in this effort. We recognize that due to COVID-19 concerns, the presentation was made electronically, which made interactive comments during the presentation more awkward and lacking in-depth dialogue. We would encourage CAP to continue the dialogue with its customers and partners as the development of the Guidance Manual continues.

General Comments

The opening comments in paragraph 2.1 reflect poorly on CAP understanding of water quality when in the second sentence it states, talking about CAP water, that "It meets most (if not all) established primary drinking water standards, and requires minimal treatment prior to delivery for potable uses". This is clearly an incorrect and misleading statement. Valley cities have spent hundreds of millions of dollars designing treatment facilities that treat CAP water to meet drinking water standards. While CAP staff was quick to recognize their error with this comment and have proposed new language – a credit to CAP staff – it is still an overall indicator of CAP staff's limited understanding of water quality.

While drinking water standards are mentioned, the document seems to have diverged from these standards to include an alphabet soup of potential contaminants, many with standards designed for soil and solid waste analysis. Scottsdale Water would like to encourage CAP to reevaluate this and place the emphasis back to drinking water standards and methods. Ultimately, drinking water standards are what each of the municipal customers need to meet to serve their residents. It seems contradictory to be able to meet new source approval standards from the Arizona Department of Environmental Quality for a drinking water well, and yet be unable to introduce this water into the CAP. Nevertheless, that is a circumstance the current introductory standards could create.

Technical Comments

We also believe that it's important that the technical water quality procedures and standards are correct as well as feasible. We asked our water quality and laboratory staff to review the document in its entirety but focus on the sampling and analysis sections as well as Tables A-1 and A-2. The feedback we are receiving from this staff is significant and concerning. Many of our concerns can be categorized into a few major groups that are outlined below:

1. Analytical methods Based on Sample Matrix – Analytical methods in the water industry are classified into three main categories: drinking water (Safe Drinking Water Act), wastewater (Clean Water Act) and hazardous waste/soil. When a sample is delivered to a laboratory it must be understood which of these programs the sample is trying to fulfill so that the laboratory knows what method(s) to use. It would seem that samples associated with the WQGM would fall under the drinking water program. If this is the case, then all analytical methods must be drinking water methods. This requires the lab to follow certain quality assurance criteria and achieve MRL needs. Some of the methods listed in Table A-2 are not drinking water methods and therefore cannot be used on drinking water samples. In section 3.4.1.2 of the WQGM there is a reference to use analytical methods listed in 40CFR 136. This section of the Code of Federal Regulation pertains to sampling for the Clean Water Act. Section 3.4.1.2 of the WQGM also references a section for methods listed in the laboratory licensure section of the Arizona Administrative Code, which will be referenced in the next discussion.
2. Laboratory Licensure – In section 3.4.1.2 of the WQGM it states that "A test result is valid only if the sample is analyzed by a laboratory that is licensed by the Arizona Department of Health Services ...". The ADHS licensed laboratories for contaminants that are required/regulated by an agency such as the USEPA or ADEQ. ADHS will not license laboratories for analyses that are not regulated by an agency. It was referenced on the conference call about the WQGM that data would only be reported to CAP and not to ADEQ, who has primacy over the SDWA in Arizona. Section 3.4.1.2 of the WQGM references AAC R9-14-610 related to analytical methods for licensure. These sections clearly outline that licensing is done first by matrix (i.e. drinking water) and then by analyte/method. For methods that can analyze for more than one analyte, the list of analytes available for license is listed. In Table A-1 and A-2 there are multiple contaminants listed that are not regulated, therefore ADHS will not grant a license to any laboratory. In addition, methods designated under the hazardous waste/soil program are not listed in the laboratory licensure section for drinking water and therefore a laboratory cannot be licensed. If the requirement for laboratory licensure is maintained for this program, the unregulated contaminants will need to be removed from the Tables.
3. Basis of Introductory/Delivery Standards – Table A-1 lists many contaminants that do not have an Introductory or Delivery standard. The preamble of Table A-1 states to use 3X the MRL or the current MCL as the standard if one is not listed. For unregulated contaminants, an MCL does not exist. For some of the contaminants listed, 3X the MRL is lower than the listed concentration currently in the canal. For some contaminants there is no historical data for the canal. How does any system



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interested in using this program know what standard they will be held to before starting work? For unregulated contaminants, systems are not required to treat for these contaminants prior to serving the water into the drinking water system. Why should a raw surface water be held to a higher standard?

The individual comments related to the above discussion for Tables A-1 and A-2 are too numerous to provide in detail in this letter. We have provided comment to some sections of the main document and those are outlined in the appendix of this document. Due to the numerous concerns and questions over so much of this document, we request that CAP convene a sub-committee comprised of stakeholders including water quality and laboratory experts to discuss the concerns related to this document. We are concerned that the inaccuracies and feasibility in the details of this document would hinder that actual likelihood of being able to put non-project water in the system. We do understand that keeping the integrity of the system is paramount to CAWCD and its many stakeholders, but we would like the opportunity to talk through our concerns to ensure that the system can feasibly wheel non-project water.

Sincerely,

A handwritten signature in blue ink, appearing to read "B. Biesemeyer", written over a horizontal line.

Brian K. Biesemeyer
Executive Director, Scottsdale Water

Appendix

Section 2.1 CAP Water Quality

"It [CAP water] meets most (if not all) established primary drinking water standards and requires minimal treatment prior to delivery for potable uses."

Comments: It is not true that CAP water requires minimal treatment prior to delivery for potable systems. Every drinking water entity performs significant treatment on this water.

Section 2.3 Establishing Water Quality Standards

"Table A-2 – Includes primary and secondary EPA regulated contaminants, EPA unregulated contaminants, EPA recognized disinfection byproducts, and pathogens of concern that have rarely or never been found in the CAP. The Introduction and Delivery Standards are equivalent to the Method Reporting Limit (MRL) historically recognized by CAWCD."

Comment: there is no historical data for many of the compounds, and many compounds are not currently licensable by ADHS. There are several compounds in Table A2 that are naturally occurring and/or ubiquitous in the environment, i.e. silicon (silica), total coliform, E. coli, etc. We believe the MRLs and associated standards for several of these compounds in this list need to be vetted to determine what is applicable once background data in the canal is obtained.

"Table A-3 – Includes constituents that have the potential to be detected but are rare in most water supplies and there is currently no standard EPA analytical method for testing. Status of these constituents will be continually monitored and may be re-characterized at any time."

Comment: If there are no EPA standard methods for these constituents, it is not accurate to state that "the constituents have the potential to be detected".

Comment: Continually monitored implies real time monitoring capabilities, which we do not believe is the intent. Periodically monitored is a more accurate description.

Section 3.3 Applicant Financial Requirements

"Costs and expenses include but are not limited to the environmental clearances, permitting, facilities used to introduce and transport water into the CAP System, and the associated water quality testing and monitoring described in this document."

Comment: We agree that many of the testing cost need to be born on the deliverer, however the concern here is to what extend the monitoring and data sharing be the responsibility of the non-project water deliverer. If at any point a more robust water quality monitoring system be developed and utilized by more then the non-project water deliverers those cost should be shared with all that utilize that data.

Section 3.4.1.1 Physical Sampling Procedures

"Non-Project source water must be sampled by the Applicant using approved procedures outlined by the United States Environmental Protection Agency (EPA; SESDPROC-301-R4) or as amended. Similarly, Non-Project surface water must be sampled by the Applicant using approved procedures outlined by the EPA (SESDPROC-201-R4) or as amended"

Comment: These documents were developed by EPA Region 4's Science and Ecosystem Support Division for sampling projects in that region. It's unclear whether they are appropriate here. We believe a conversation needs to be had as to the applicability in this context and if there are other more appropriate procedures.

Section 3.4.1.2 Laboratory

"Laboratories must use analytical methods as prescribed in A.A.C. R9-14-610, 40 CFR 136.3, or an alternative analytical method approved under A.A.C. R9-14-610(C). A test result is valid only if the sample is analyzed by a laboratory that is licensed by the Arizona Department of Health Services, an out-of-state laboratory licensed under A.R.S. § 36-495.14, or a laboratory exempted under A.R.S. § 36-495.02, for the analysis Performed"

Comments: This section references 40 CFR 136.3 which are methods approved for wastewater or hazardous waste. Some of these methods are not able to be licensed for drinking water. This section also requires for a test result to be considered valid that laboratories must be licensed by ADHS. If ADHS does not license wastewater or hazardous waste methods on drinking water this requirement is not achievable. This section references A.A.C R9-14-610(C) which allows for ADHS to license for alternative methods if required by EPA or ADEQ. This project does not fall under the either of these agencies, therefore this section is not available to use to obtain a license. This point concerns us, and we believe a bigger conversation needs to be had as to what's appropriate laboratory licensing for this application and make sure that all parties understand the implications of an erroneous statement such as this.

Section 3.4.1.3 Chain of Custody

"After generating the laboratory data report for the client, samples will be stored for a minimum of 30 days in a secured area of the lab prior to disposal."

Comment: Do samples need to be stored in chilled environments that match any required sample preservation temperatures?

Section 3.4.1.4 Initial Analysis Sampling – Groundwater

"A sample of each well that is proposed as a Non-Project source is required and must be collected during the initial analysis phase"

Comment: This does not address blending procedures of a well field (several wells). Do all wells need to be sampled? Same time and procedure or is there alternate schedules based on a blending protocol?

Section 3.4.1.5 Initial Analysis Sampling – Surface Water

"If historic data is not available, current conditions must be tested and stability in water quality must be demonstrated."

Comment: Water quality stability should be defined as it is used in this paragraph as it is possible that concentrations of some contaminants already exist in the canal.

Section 3.4.2 Modeling of Introduction Standards

"For groundwater, if multiple wells are to be blended prior to introduction into the CAP, the Applicant is responsible for demonstrating (through modeling) that the blended composition of well water will meet established Introduction Standards"

Comment: Can we just take a sample of the combined water and analyze it. Do we need to do modeling? Is a simple numeric blending analysis considered to be a model?

Comment: Would a model still be required to prove blending would meet standards when there is also a requirement for a permanent sampling station at the canal turn in structure (section 4.2.1)? The last paragraph of this section needs clarification: "For blending purposes, values of constituents that are reported by a laboratory as "non-detect" should be considered to be 50% of the Method Reporting Limit (MRL) as listed in Appendix A." Question: If groundwater is blended and sampled at the permanent station located at the turn in, this requirement that ND must be reported as 50% of MRL does not make sense.

Section 3.4.4 CAWCD System-wide Modeling of Delivery Standards

"This model will include water quality and volume from all previously approved sources of Non-Project Water, a shortage-reduced Project Water supply of one million acre-feet, and additional CAP operational data. Results of the model will determine if the proposed introduction of Non-Project Water will meet established Delivery Standards over a range of operational scenarios."

Comment: When developing a project, it would be useful of its viability if the range of operational scenarios was made known. Investing millions of dollars without understand the effects of model parameters brings with it a level of uncertainty that is difficult to plan for and understand the financial scale of a project.

Section 3.4.5 Exceedance of Modeled Delivery Standards

"This may include reducing the relevant Introduction Standard(s) applicable to both the proposed and all previously approved Non-Project Water supply projects"

Comment: Does "reduce" in this section mean some delivery concentration standards could be increased?

Comment: This is of concern that projects that come first and invest millions of dollars could be affected by newer projects with the potential of incurring higher cost for the initial project or reduction or loss of that water. It's understandable that it's not a first come first serve system, but also the uncertainty built into this statement is concerning. It would be good to have a bigger conversation about some level of stability to projects that heavily invest in infrastructure. Existing projects should have some time protection for capital investment, provided water quality has not degraded significantly over that same time period.

Section 4.2.1 Physical Sampling Procedures

"A permanent water sampling station will be constructed within the turn-in structure/pipeline that will allow for an accessible and consistent point of obtaining a representative grab sample for analysis by the Wheeling Entity."

Comment: Does this sampling point have to be on CAWCD property? If so, what about access requirements? Would a permanent sampling station located in the discharge pipeline upstream of the canal turn-in (downstream of any pipeline blending point) be acceptable? This suggested location would provide better and safer access for staff collecting samples.

Section 4.2.3 Chain of Custody

Comment: Do samples need to be stored in chilled environments that match any required sample preservation temperatures?

Comment: Holding samples so long doesn't seem reasonable when many containments likely will expire before the end of that timeframe.

Section 4.3.1 Proving Period

Comment: Recommend following an amended drinking water, new groundwater source monitoring scheme. First year of monitoring will be quarterly for A-1 and semi-annual for A-2. If there are no concerns over any results, the second year is semi-annual for A-1 and annual for A-2.

Section 4.3.2 Supply Classification

Comment: The water classification would be determined "during" the proving period. Should the classification determination be made at the "end" of the proving period. Regarding real-time or monthly sampling: What duration would be required (one years' worth)?

Recommend following drinking water monitoring scheme.

Type A - Annual testing for A-1 and A-2 for three years. If no concerns, then decrease to every three years. If any contaminant exceeds a limit, then that contaminant is placed on quarterly monitoring.

Type B - Annual testing for A-1 and A-2. If any contaminant exceeds a limit, then that contaminant is placed on quarterly monitoring

Type C - as drafted

Section 5.2.1 Water Quality Reporting – Test Results

Comment: Recommend the following change of language: "These results will be transferred electronically in a format approved by the CAWCD Water Transmission Group within 2 weeks of receiving all final results from the laboratory. Any exceedance of an established water quality Introduction Standard will be reported by email within 48 hours of receipt of data and will be identified in the final report. All submitted water quality data will also be made available to Reclamation."

It makes sense to have a quick reporting time for an exceedance, but if the laboratory doesn't detect an exceedance the 48-hour time frame is unrealistic for all sampling data.

Section 5.2.4 Water Quality Reporting – Annual Report

Comment: for clarification purposes amended language to read "the previous Calendar Year".

Section 6.2 Modeling

"All modeling will be performed by CAWCD and shared with Reclamation results may be made available to Wheeling Entities and water users upon request."

Comment: Just as CAWCD has asked for annual reporting by it's wheeling entities, it seems fit that CAWCD will publish modeling results based on this data to the stakeholders without the statement "upon request". This statement makes it seem like the modeling data is not readily accessible to the stakeholders. This tool and its results should be blatantly transparent.

Section 7.2 Requirements

Comment: Would like to discuss the practical turn around time of a second sample of an exceedance. 5 days possess a challenge and since this is a verification sample a 7-10 business day sampling is asked for.

Section 7.2.2 Exceedance of Introductory Standards

Comment: Request clarification of the following statement in section *"If, at the time of cessation, the cumulative volume of Non-Project Water introduced by Wheeling Entity, after accounting for any applicable losses, exceeds the amount delivered by CAWCD to that point in time, CAWCD will continue to satisfy the Non-Project Water delivery schedule up to the point where the Wheeling Entity's delivered water, less applicable losses, is equal to the volume of introduced water."*

From: [Baumgardner, Gretchen](#)
To: [Water Quality Guidance Document](#)
Cc: [Biesemeyer, Brian K](#); [Grendahl, Suzanne](#)
Subject: RE: Scottsdale's Comments to the Water Quality Guidance Document
Date: Monday, June 29, 2020 7:49:48 AM
Attachments: [image001.png](#)
[SCOTTSDALE's CAP Water Quality Guidance Comments 2020 followup.pdf](#)

Good Morning,

Scottsdale would like to submit an addendum to our comment document. Please find attached a PDF of the excel file that tabulates individual comments on Table A-1 and A-2 of the Draft Water Quality Guidance Document. Although we know last Thursday was the deadline, we have been told that this addition is acceptable and welcomed. We appreciate the ability to do so.

We look forward to the conversation regarding our comments and concerns and findings ways to build a path forward. We believe it's important to understand the implication of new water into the canal and findings ways to ensue that future needs of all parties are considered and realistic solutions are found.

We patiently await CAP and The Bureau's response and dialogue.

Thank you,

Gretchen Baumgardner

Water Policy Manager | Scottsdale Water
(480) 312-5009



From: Baumgardner, Gretchen
Sent: Tuesday, June 2, 2020 4:22 PM
To: WQGuidanceDoc@cap-az.com
Cc: Biesemeyer, Brian K <BBiesemeyer@Scottsdaleaz.gov>; Grendahl, Suzanne <sgrendahl@Scottsdaleaz.Gov>
Subject: Scottsdale's Comments to the Water Quality Guidance Document

To Whom It May Concern,

Please find attached Scottsdale's comments to the CAP Water Quality Guidance Document. While we know that many conversations and hard work went into getting to this point, we believe there are still further issues that need to be addressed, and work to be done to ensure the feasibility of

wheeling non-project water in the CAP canal. We site several specific concerns in our comments, however, we believe that before considering finalizing this document more conversations need to be had to address our concerns. We appreciate CAP staff's dedication to this process and do hope for more dialogue to come.

Please reach out if you have any questions and we look forward to continuing this conversation.

Much Appreciated,

Gretchen Baumgardner

Water Policy Manager | Scottsdale Water
(480) 312-5009



Table A-1
Sorted by Analytical Method

Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
Turbidity	EPA 180.1 / SM2130B	NTU	0.3	9	6	1.1	Lower MRL is not necessary based on CAP average
Potassium, Total	EPA 200.7	mg/L	1	TBD	Characterize	4.9	ADHS will not license laboratories for drinking water
Strontium	EPA 200.7	mg/l	0.01	TBD	Characterize	1.1	
Boron	EPA 200.7	mg/l	0.05	1	0.5	--	ADHS will not license laboratories for drinking water
Calcium, Total	EPA 200.7	mg/L	1	200	160	72.6	
Iron, Dissolved	EPA 200.7	mg/l	0.02	1000	100	ND	
Sodium, Total	EPA 200.7	mg/l	1	350	110	92.6	
Aluminum, Total	EPA 200.8	µg/l	20	TBD	Characterize	--	
Beryllium	EPA 200.8	µg/l	1	TBD	Characterize	ND	
Cadmium	EPA 200.8	µg/l	0.5	TBD	Characterize	ND	
Cobalt, Total	EPA 200.8	µg/l	2	TBD	Characterize	--	
Germanium	EPA 200.8	µg/l	0.3	TBD	Characterize	--	ADHS will not license laboratories for drinking water
Molybdenum	EPA 200.8	µg/l	2	TBD	Characterize	--	
Nickel	EPA 200.8	µg/l	5	TBD	Characterize	ND	
Vanadium	EPA 200.8	µg/l	3	TBD	Characterize		
Antimony	EPA 200.8	µg/l	1	6	Characterize	--	
Arsenic	EPA 200.8	µg/l	1	10	5	2.9	
Barium, Total	EPA 200.8	µg/l	2	2000	230	123.2	
Chromium	EPA 200.8	µg/l	1	100	10	ND	
Copper, Dissolved	EPA 200.8	µg/l	2	64	64	--	
Lead	EPA 200.8	µg/l	0.5	15	3	ND	
Manganese, Total	EPA 200.8	µg/l	2	250	27	5.7	
Selenium	EPA 200.8	µg/l	5	50	20	ND	
Silver, Total	EPA 200.8	µg/l	0.5	100	20	ND	
Thallium	EPA 200.8	µg/l	1	1	Characterize	ND	
Uranium	EPA 200.8	ug/L	0.7	30	5	4.1	Analyzed as total uranium by EPA 200.8 therefore non-radioactive
Zinc	EPA 200.8	µg/l	20	1	0.03	ND	Method reporting limit is greater than introductory and delivery standards.
Hexavalent Chromium	EPA 218.7	µg/l	0.05	16	3	0.05	
Mercury	EPA 245.1 / 200.8	µg/l	0.2	TBD	Characterize	ND	
Bromide	EPA 300.0	µg/l	25	TBD	Characterize	81.7	Lower MRL is not necessary based on CAP average
Nitrite as Nitrogen	EPA 300.0	mg/L	0.2	TBD	Characterize	--	Nitrate and Nitrite are always reported as nitrogen
Chloride	EPA 300.0	mg/l	10	450	170	91.5	Lower MRL is not necessary based on CAP average
Nitrate as Nitrogen	EPA 300.0	mg/l	0.5	10	1	0.12	
Sulfate	EPA 300.0	mg/l	10	400	250	237.4	Lower MRL is not necessary based on CAP average
Fluoride	EPA 300.0/SM4500F C	mg/l	0.2	4	0.7	--	
Perchlorate	EPA 314	µg/l	2	15	Characterize	ND	
Ammonia Nitrogen	EPA 350.1	mg/l	0.5	0.5	0.5	0.04	ADHS will not license laboratories for drinking water
Phosphorus, Total-P	EPA 365.1	mg/l	0.1	0.1	0.025	0.02	ADHS will not license laboratories for drinking water
Alpha, Gross	EPA 900.0	pCi/l	3	TBD	Characterize	--	
Beta, Gross	EPA 900.0	pCi/l	3	TBD	Characterize	--	
Dissolved Oxygen	Field	mg/L		---	---		
pH	Field			6.5-9.5			
Temperature	Field	°C		---	---		
Radium-226+228	GA Tech	pCi/l	1	TBD	Characterize	--	
Alkalinity in CaCO3 units	SM2320B	mg/l	20	250	170	122.3	Lower MRL is not necessary based on CAP average
Total Dissolved Solids (TDS)	SM2540C	mg/l	20	1150	747	629.7	Lower MRL is not necessary based on CAP average
Total Organic Carbon	SM5310C	mg/l	0.5	6	4	--	Lower MRL is not necessary based on CAP average

Table A-2

Sorted by Analytical Method

Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
HPC	ADEQ SIM Plate Methods	MPN/mL	1	TBD	TBD	--	Standard of 1 MPN/100mL is unreasonable on undisinfected water. The canal as an open body of water will have vey high numbers so there will be no degradation from groundwater.
Cryptosporidium	EPA 1623	oocysts/L	0.1	0.1	0.1	0.05	
Giardia	EPA 1623	cysts/L	0.1	0.1	0.1	0.05	
Silicon as SiO ₂	EPA 200.8	mg/l	1.1	TBD	TBD	--	Background CAP is 8.6 so standards need to be adjusted
Total Kjeldahl Nitrogen	EPA 351.2	mg/l	0.1	0.1	0.1	--	ADHS will not license laboratories for drinking water
Alachlor	EPA 505	µg/l	0.05	0.05	0.05	ND	
Chlordane	EPA 505	µg/l	0.1	0.1	0.1	--	
Total PCB	EPA 505	µg/l	0.1	0.1	0.1	--	
Toxaphene	EPA 505	µg/l	0.5	0.5	0.5	--	
Aldrin	EPA 505	µg/l	0.01	0.01	0.01	--	
Aroclor 1016	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1221	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1232	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1242	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1248	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1254	EPA 505	µg/l	0.1	0.1	0.1	--	
Aroclor 1260	EPA 505	µg/l	0.1	0.1	0.1	--	
Dieldrin	EPA 505	µg/l	0.01	0.01	0.01	--	
2,4,5-TP (Silvex)	EPA 515.4	µg/l	0.2	0.2	0.2	ND	
2,4-D	EPA 515.4	ug/L	0.1	0.1	0.1	0.07	
Dalapon	EPA 515.4	µg/l	1	1	1	ND	
Dinoseb	EPA 515.4	µg/l	0.2	0.2	0.2	ND	
Pentachlorophenol	EPA 515.4	µg/l	0.04	0.04	0.04	ND	
Picloram	EPA 515.4	µg/l	0.1	0.1	0.1	ND	
2,4,5-T	EPA 515.4	µg/l	0.2	0.2	0.2	ND	
2,4-DB	EPA 515.4	µg/l	2	2	2	ND	
3,5-Dichlorobenzoic acid	EPA 515.4	µg/l	0.5	0.5	0.5	ND	
Acifluorfen	EPA 515.4	µg/l	0.2	0.2	0.2	ND	
Bentazon	EPA 515.4	µg/l	0.5	0.5	0.5	ND	
Dicamba	EPA 515.4	µg/l	0.1	0.1	0.1	ND	
Dichlorprop	EPA 515.4	µg/l	0.5	0.5	0.5	ND	
Total DCPA Mono- and Di-acid Degradate	EPA 515.4	µg/l	0.1	0.1	0.1	0.05	
N-nitrosodiethylamine (NDEA)	EPA 521.1	µg/l	2	2	2	--	Analytical method 521 is outdated due to requiring old laboratory instrumentation and it is no longer possible for laboratories to analyze this method and achieve licensing with current instruments. A modified version of EPA 521 is available to generate data without licensing.
N-nitrosodimethylamine (NDMA)	EPA 521.1	µg/l	2	2	2	--	"
N-nitroso-di-n-propylamine (NDPA)	EPA 521.1	µg/l	2	2	2	--	"
N-nitrosopyrrolidine (NPYR)	EPA 521.1	µg/l	2	2	2	--	"
1,4-Dioxane	EPA 522	µg/l	0.07	0.07	0.07	--	
1,1,1-Trichloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,1,2-Trichloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	

Table A-2

Sorted by Analytical Method

Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
1,1-Dichloroethylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2,4-Trichlorobenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2-Dichlorobenzene (1,2 DCB)	EPA 524.2	µg/l	0.5	0.5	0.5	--	
1,2-Dichloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2-Dichloropropane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,4 Dichlorobenzene (1,4 DCB)	EPA 524.2	µg/l	0.5	0.5	0.5	--	
Benzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Carbon Tetrachloride	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Chlorobenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
cis-1,2-Dichloroethylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Dichloromethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Ethyl benzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Hexachlorobutadiene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Styrene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Tetrachloroethylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Total Trihalomethanes	EPA 524.2	µg/l	3.0	3.0	3.0	ND	MRL is additive of MRLs of four THM compounds
Trichloroethylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Vinyl Chloride	EPA 524.2	µg/l	0.5	0.5	0.5	ND	0.5 is recognized MRL for regulated VOCs
1,1,1,2-Tetrachloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,1,2,2-Tetrachloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,1-Dichloroethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,1-Dichloropropene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2,3-Trichlorobenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2,3-Trichloropropane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,2,4-Trimethylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,3,5-Trimethylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,3-Dichlorobenzene (1,3 DCB)	EPA 524.2	µg/l	0.5	0.5	0.5	--	
1,3-Dichloropropane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
1,3-Dichloropropene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
2,2-Dichloropropane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
2-Butanone (MEK)	EPA 524.2	µg/l	5	5	5	ND	
4-Methyl-2-Pentanone (MIBK)	EPA 524.2	µg/l	5	5	5	ND	
Bromobenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Bromochloromethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Bromodichloromethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Bromoethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	Contaminant not listed in EPA 524.2 therefore a laboratory cannot receive a license.
Bromoform	EPA 524.2	µg/l	1.0	1.0	1.0	ND	Compound not stable at lower levels; experience background interference
Bromomethane (Methyl Bromide)	EPA 524.2	µg/l	2.0	2.0	2.0	ND	Compound not stable at lower levels; experience background interference
Carbon Disulfide	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Chlorodibromomethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Chloroethane	EPA 524.2	µg/l	2.0	2.0	2.0	ND	Compound not stable at lower levels; experience background interference
Chloroform (Trichloromethane)	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Chloromethane(Methyl Chloride)	EPA 524.2	µg/l	0.5	0.5	0.5	ND	

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Sorted by Analytical Method

Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
Dibromomethane	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Dichlorodifluoromethane	EPA 524.2	µg/l	1.0	1.0	1.0	ND	Compound not stable at lower levels; experience background interference
Di-isopropyl ether	EPA 524.2	µg/l	3	3	3	ND	Contaminant not listed in EPA 524.2 therefore a laboratory cannot receive a license.
Isopropylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
M/P-Xylenes	EPA 524.2	µg/l	1.0	1.0	1.0	ND	MRL is additive of MRLs of two isomers of xylene
Methyl Tert-butyl ether (MTBE)	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Naphthalene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
N-Butylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
N-Propylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
o-Chlorotoluene	EPA 524.2	µg/l	0.5	0.5	0.5	--	
o-Xylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
p-Chlorotoluene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
p-Isopropyltoluene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
sec-Butylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Tert-Butylbenzene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Toluene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
trans-1,2-Dichloroethylene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
trans-1,3-Dichloropropene	EPA 524.2	µg/l	0.5	0.5	0.5	ND	
Trichlorofluoromethane-Freon11	EPA 524.2	µg/l	1.0	1.0	1.0	ND	Lower MRL is difficult to achieve analytically
Xylenes (total)	EPA 524.2	µg/l	1.5	1.5	1.5	ND	MRL is additive of MRLs of three isomers of xylene
Atrazine	EPA 525.2	µg/l	0.05	0.05	0.05	ND	
Benzo(a)pyrene	EPA 525.2	µg/l	0.02	0.02	0.02	ND	
Di-(2-Ethylhexyl)adipate	EPA 525.2	µg/l	0.6	0.6	0.6	ND	
Di(2-Ethylhexyl)phthalate	EPA 525.2	µg/l	0.6	0.6	0.6	ND	
Endrin	EPA 525.2	µg/l	0.2	0.2	0.2	ND	
Heptachlor	EPA 525.2	µg/l	0.04	0.04	0.04	ND	
Heptachlor Epoxide (isomer B)	EPA 525.2	µg/l	0.05	0.05	0.05	ND	
Hexachlorobenzene	EPA 525.2	µg/l	0.05	0.05	0.05	ND	
Hexachlorocyclopentadiene	EPA 525.2	µg/l	0.05	0.05	0.05	ND	
Lindane	EPA 525.2	µg/l	0.04	0.04	0.04	ND	
Methoxychlor	EPA 525.2	µg/l	0.1	0.1	0.1	ND	
Metolachlor	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Simazine	EPA 525.2	µg/l	0.05	0.05	0.05	ND	
4,4'-DDD	EPA 525.2	µg/l	0.1	0.1	0.1	--	
4,4'-DDE	EPA 525.2	µg/l	0.1	0.1	0.1	--	
4,4'-DDT	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Acetochlor	EPA 525.2	µg/l	0.1	0.1	0.1	--	
alpha-Chlordane	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Gamma-Chlordane	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Molinate	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Thiobencarb	EPA 525.2	µg/l	0.1	0.1	0.1	--	
trans-Nonachlor	EPA 525.2	µg/l	0.1	0.1	0.1	--	
Permethrin	EPA 525.3	µg/l	0.04	0.04	0.04	--	
alpha-Hexachlorocyclohexane	EPA 525.3	µg/l	0.01	0.01	0.01	--	
Dimethipin	EPA 525.3	µg/l	0.2	0.2	0.2	--	

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Sorted by Analytical Method

Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
Ethoprop	EPA 525.3	µg/l	0.03	0.03	0.03	--	
Oxyfluorfen	EPA 525.3	µg/l	0.05	0.05	0.05	--	
Profenofos	EPA 525.3	µg/l	0.3	0.3	0.3	--	
Tebuconazole	EPA 525.3	µg/l	0.2	0.2	0.2	--	
Tribufos	EPA 525.3	µg/l	0.07	0.07	0.07	--	
Butylated hydroxyanisole	EPA 530	µg/l	0.03	0.03	0.03	--	
o-Toluidine	EPA 530	µg/l	0.007	0.007	0.007	--	
Quinoline	EPA 530	µg/l	0.02	0.02	0.02	--	
Carbofuran (Furadan)	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Oxamyl	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
3-Hydroxycarbofuran	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Aldicarb (Temik)	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Aldicarb sulfone	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Aldicarb sulfoxide	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Baygon	EPA 531.2	µg/l	0.5	0.5	0.5	--	
Carbaryl	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Methiocarb	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Methomyl	EPA 531.2	µg/l	0.5	0.5	0.5	ND	
Acetochlor ethanesulfonic acid (ESA)	EPA 535	µg/l	0.1	0.1	0.1	--	
Acetochlor oxanilic acid (OA)	EPA 535	µg/l	0.1	0.1	0.1	--	
Alachlor ethanesulfonic acid (ESA)	EPA 535	µg/l	0.1	0.1	0.1	--	
Alachlor oxanilic acid (OA)	EPA 535	µg/l	0.1	0.1	0.1	--	
Metolachlor ethanesulfonic acid (ESA)	EPA 535	µg/l	0.1	0.1	0.1	--	
Metolachlor oxanilic acid (OA)	EPA 535	µg/l	0.1	0.1	0.1	--	
NEtFOSAA	EPA 537.1	ng/l	2	2	2	--	
NMeFOSAA	EPA 537.1	ng/l	2	2	2	--	
Perfluorobutanesulfonic acid (PFBS)	EPA 537.1	ng/l	2	2	2	--	
Perfluorodecanoic acid (PFDA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorododecanoic acid (PFDoA)	EPA 537.1	ng/l	2	2	2	--	
Perfluoroheptanoic acid (PFHpA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorohexanesulfonic acid (PFHxS)	EPA 537.1	ng/l	2	2	2	--	
Perfluorohexanoic acid (PFHxA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorononanoic acid (PFNA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorooctanesulfonic acid (PFOS)	EPA 537.1	ng/l	2	2	2	--	
Perfluorooctanoic acid (PFOA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorotetradecanoic acid (PFTA)	EPA 537.1	ng/l	2	2	2	--	
Perfluorotridecanoic acid (PFTrDA)	EPA 537.1	ng/l	2	2	2	--	
Perfluoroundecanoic acid (PFUnA)	EPA 537.1	ng/l	2	2	2	--	
Equilin	EPA 539	µg/l	0.004	0.004	0.004	--	
Estradiol (17-beta estradiol)	EPA 539	µg/l	0.0004	0.0004	0.0004	--	
Estriol	EPA 539	µg/l	0.0009	0.0009	0.0009	--	
Estrone	EPA 539	µg/l	0.0008	0.0008	0.0008	--	
Ethinyl estradiol (17-alpha ethynyl	EPA 539	µg/l	0.0009	0.0009	0.0009	--	
1-Butanol	EPA 541	µg/l	2	2	2	--	
2-Methoxyethanol	EPA 541	µg/l	0.4	0.4	0.4	--	
2-Propen-1-ol	EPA 541	µg/l	0.5	0.5	0.5	--	
Glyphosate	EPA 547	µg/l	6	6	6	--	

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Constituent	Recommended Analytical Methods	Units	Method Reporting Limit	Introduction Standard	Delivery Standard	CAP 5 Year Average (2015-2019)	Comments
Endothall	EPA 548.1	µg/l	5	5	5	--	
Diquat	EPA 549.2	µg/l	0.4	0.4	0.4	--	
Paraquat	EPA 549.2	µg/l	2	2	2	--	
1,2-Dibromo-3-Chloropropane (DBCP)	EPA 551.1	ug/L	0.01	0.01	0.01	--	
Ethylene Dibromide	EPA 551.1	µg/l	0.01	0.01	0.01	--	
Bromochloroacetic Acid	EPA 552.3	µg/l	0.3	0.3	0.3		
Bromodichloroacetic Acid	EPA 552.3	µg/l	0.5	0.5	0.5	--	
Chlorodibromoacetic Acid	EPA 552.3	µg/l	0.3	0.3	0.3	--	
Dibromoacetic Acid	EPA 552.3	µg/l	0.3	0.3	0.3	--	
Dichloroacetic Acid	EPA 552.3	µg/l	0.2	0.2	0.2	--	
Monobromoacetic Acid	EPA 552.3	µg/l	0.3	0.3	0.3	--	
Monochloroacetic Acid	EPA 552.3	µg/l	2	2	2	--	
Total Haloacetic Acids (HAAS)	EPA 552.3	µg/l	0.2	0.2	0.2	--	
Trichloroacetic Acid	EPA 552.3	µg/l	0.5	0.5	0.5	--	
Acetaldehyde	EPA 556/556.1	µg/l	1	1	1	--	
Formaldehyde	EPA 556/556.1	µg/l	5	5	5	--	
Methanol	EPA 8015	µg/l	0.1	0.1	0.1	--	ADHS will not license laboratories for 8000 Series methods for drinking water
Acrolein	EPA 8260B	µg/l	25	25	25	--	ADHS will not license laboratories for 8000 Series methods for drinking water
HCFC-22	EPA 8260B	µg/l	2.5	2.5	2.5	--	ADHS will not license laboratories for 8000 Series methods for drinking water
Hexane	EPA 8260B	µg/l	2	2	2	--	ADHS will not license laboratories for 8000 Series methods for drinking water
Aniline	EPA 8270C	µg/l	20	20	20	--	ADHS will not license laboratories for 8000 Series methods for drinking water
Ethylene glycol	GC/FID	mg/l	5	5	5	--	ADHS will not license laboratories for 8000 Series methods for drinking water
Coliform, Total	SM9223	MPN/100mL	1	TBD	TBD	--	Standard of 1 MPN/100mL is unreasonable on undisinfected water. The canal as an open body of water will have vey high numbers so there will be no degradation from groundwater.
E. coli	SM9223	MPN/100 mL	1	TBD	TBD	--	Standard of 1 MPN/100mL is unreasonable on undisinfected water. The canal as an open body of water will have vey high numbers so there will be no degradation from groundwater.