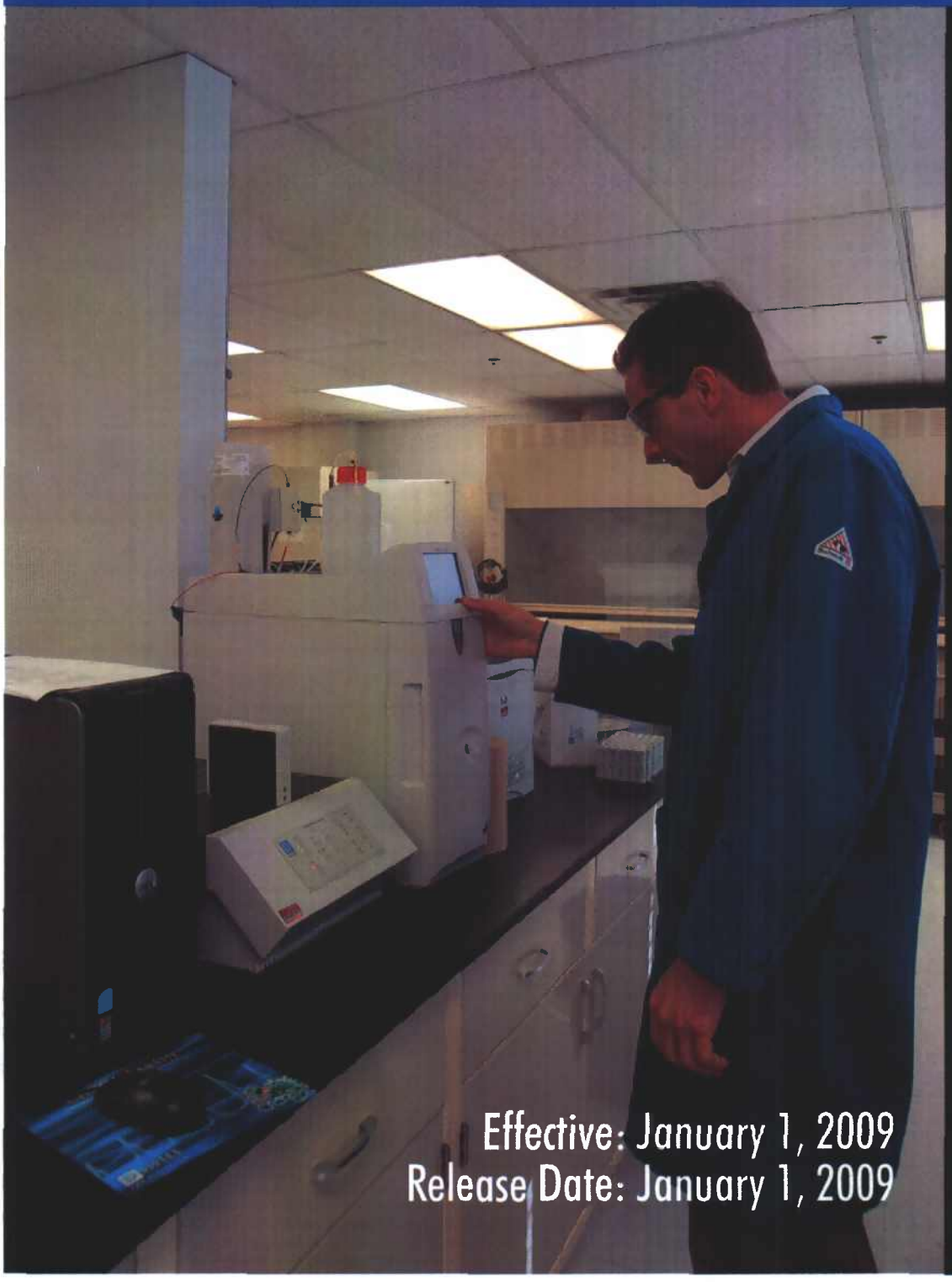
QUALITY ASSURANCE PLAN



STATE ENVIRONMENTAL LABORATORY
DEPARTMENT OF ENVIRONMENTAL QUALITY

Effective: January 1, 2009
Release Date: January 1, 2009

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OKLAHOMA
DEPARTMENT OF ENVIRONMENTAL QUALITY
...for a clean, attractive, prosperous Oklahoma

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4.2.4 Preservation

Samples may require chemical or temperature preservation prior to delivery or shipment to the laboratory and should undergo preservation procedures immediately following collection unless otherwise noted in the following tables or per special instruction from the laboratory. The type of preservation is dependent upon the requested parameter. Reference the tables in Section 4.3 for additional guidance regarding preservation.

If temperature preservation is required by the analytical method, immediately after collection the sample should be packed with sufficient ice to reach and maintain the appropriate preservation temperature. It is recommended such samples be hand delivered, mailed overnight, or shipped via expedited service to the Sample Management Unit to ensure the sample is received at the proper temperature. The laboratory will measure and document the temperature of the sample when it arrives. Samples will be accepted if properly packed with ice and received within 24 hours of collection. The use of "blue ice" as a means of preservation is highly discouraged because it generally does not maintain the sample at the required proper temperature of 4° ($\pm$ 2°C) or $\leq 42.8^{o}$F. Also see Section 5.4.6

4.2.5 Holding Times

Samples should be delivered to the laboratory as soon as possible after collection. Timely delivery is extremely important, as many samples are stable only for a short period of time following collection. The technical holding times listed in the following tables are the maximum lengths of time that samples may be held from the time of collection to the time of analysis and still be considered valid. Samples that exceed these holding times may not be valid. Sample rejection may occur and re-sampling could be required. Non-PWS contractual samples exceeding the holding times may be analyzed and final data qualified as such at the request of the contractor\client.

4.2.6 Volumes

Volumes are specified with the receipt of DEQ sampling containers by the Sample Management unit of the Laboratory Customer Assistance section at the time of the analytical request, if not specified in individual program QAPPs. These are the minimum volumes required for adequate analysis while allowing for laboratory quality control activities. If insufficient volumes are collected, the analysis of all requested parameters and quality control determinations may not be possible. Volumes presented in the following tables should be used as guidance and should be confirmed with Sample Management prior to project onset to reduce collection activities as multiple analyses may be performed using a larger sample volume.

4.2.7 Sample Labels

It is recommended that field personnel use adhesive labels for sample identification before transfer to the SEL. When sample labels are not utilized, containers must be marked with indelible ink to cross-match accompanying forms. The information on the sample container must include the date and time of collection, the collector's initials and a description that can be cross-referenced back to the specific collection site and the laboratory form. Pre-labeling of sampling containers is strongly discouraged by the SEL as changes to planned sampling events frequently occur.

Table 4-3, Environmental Microbiology; Drinking Water Program (SDWA) & Other Programs

PARAMETER	METHOD #	CONTAINER[1]	PRESERVATIVE[2, 3]	MAXIMUM HOLDING TIME[4]
E. coli (*Escherichia coli*)[*,†]	SM 9223 B	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Coliform, Fecal	SM9221 E/F	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Coliforms, Total	SM 9222 B	P, 100mL, sterile	25°C, 0.008%$Na_2S_2O_3$	30 hours
Coliforms, Total	SM 9223 B	P, 100mL, sterile	25°C, 0.008%$Na_2S_2O_3$	30 hours
Enterococcus	ASTM D6503	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Fecal Streptococcus	SM 9230 C	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Heterotrophic Plate Count (HPC)	SM 9215 B	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Salmonella	SM 9260 B	P, 200mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
Shigella	SM 9260 E	P, 200mL, sterile	4°C, 0.008%$Na_2S_2O_3$	6 hours
E. Coli (LT2 enumeration)[‡]	SM9223B-QT	P, 100mL, sterile	4°C, 0.008%$Na_2S_2O_3$	30 hours

Table 4-4, Organic Contaminants; Drinking Water Program (SDWA)[5]

CATEGORY	METHOD #	CONTAINER[1]	PRESERVATIVE[2, 3]	MAXIMUM HOLDING TIME[4]
EDB/DBCP/123TCP	504.1	3 x 40mL glass vials, Teflon lined septa	Cool, 4°C, Sodium thiosulfate	14 days, analyze extract within 24 hours post extraction
Nitrogen-Phosphorous Pesticides	507	3 x 1liter amber glass bottles	Cool, 4°C, Dark, Sodium thiosulfate	14 days[§]
Chlorinated Pesticides	508	3 x 1liter amber glass bottles	Cool, 4°C, Dark, Sodium thiosulfate	7 days to extraction, analyze extract w/in 14 days post extraction
Herbicides, Dalapon	515.3	1-125 mL amber glass jar	Cool, 4°C, Dark, Sodium sulfite	14 days
Glyphosate	547	1-125 mL amber glass jar	Cool, 4°C, Dark, Sodium thiosulfate	14 days
Haloacetic Acids (HAA5)	552.2	2 x125mL amber glass jars,	Cool, 4°C, Dark, ammonium chloride	Analyze w/in 14 days of collection, analyze extract w/in 7 days at 4°C or 14 days ≤ 10°C
Haloacetic Acids (HAA5)	552.3	2 x125mL amber glass jars	Cool, 4°C, Dark, ammonium chloride	Analyze w/in 14 days of collection, analyze extract w/in 21 days ≤ 10°C post extraction
Trihalomethanes (THMs)	524.2	3 x40mL glass vials & 1 blank per entry site, Teflon lined septa[▽]	Ascorbic acid, 1:1 HCl pH<2 Cool, 4°C	14 days
			If sample foams, discard. Collect 2nd sample. Ascorbic acid, Cool, 4°C (mark as "unacidified")	Analyze within 24 hours of collection
Volatile Organic Compounds (VOCs)	524.2	3 x40mL glass vials per entry site & 1 blank, Teflon lined septa[▽]	Ascorbic acid, 1:1 HCl pH<2 Cool, 4°C	14 days
			If sample foams, discard. Collect 2nd sample. Ascorbic acid, Cool, 4°C (mark as "unacidified")	Analyze within 24 hours of collection

[*] Colilert 18 and 24 hours
[†] Colisure 24-48 hours
[‡] For EPA Long Term 2 Enhanced Surface Water Treatment Rule compliance
[§] See method for exceptions
[▽] Zero headspace is allowed (no air bubbles)