Sampling and Analysis Plan

Volunteer Water Quality Monitoring

IVSWCD WQM 2024-6

May 2025

State of Oregon
Department of Environmental Quality

This document was prepared by
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1. Project Management

1.1. Distribution List

The following personnel will be emailed regarding all aspects of this sampling and analysis plan (SAP). Deviations from this SAP must be communicated in writing (email is acceptable) to all individuals identified in Table 1. Final reports from the DEQ Laboratory will be emailed and/or mailed to the project manager, regional monitoring coordinator and laboratory monitoring coordinator/data manager.

Table 1 Distribution List

Name	Phone	Email
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1.2. Project/task organization

Sampling Organizations:

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Illinois Valley Watershed Council
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Analytical Organizations:

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Contact: Damien Gadomski, PhD; Project Manager

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Ph: 573-441-2970
Contact: David Alvarez, PhD; Supervisory Research Chemist

1.3. Problem definition/background

The Illinois Valley has a marked lack of historical baseline water quality data. The water quality monitoring program is intended to document agricultural impacts on the water quality in the Illinois River Basin.

The quality of the data collected is intended to be Oregon Department of Environmental Quality (DEQ) Level A. As such, it can be used for decision-making by governmental agencies on the local, state, and federal levels.

The project's goal is to extend and expand the Illinois Valley Water Quality Monitoring project portfolio to develop a robust baseline of water quality data in the watershed that is quantifiable, beneficial, and actionable. The data will inform watershed condition and restoration initiatives, make crucial data publicly accessible, and support improving source water quality for the community and habitat conditions for ESA-listed Southern Oregon/Northern California Coast coho salmon and other conservation plan-identified species.

1.4. Project/task description

The project scope will include 4 tasks:

Action #1: Conduct Grab Sampling

Grab sampling is to be conducted twice a month for six months between mid-April and mid-October and once in the winter months (November or December) during or soon after a high-water flow event noted in this document as the “fall flush.” Fall flush is defined as when USGS 14377100 gage near Kerby reads 1000 cubic feet per second or greater. Samples are to be collected at consistent locations so that changes in observed values can be noted.

Samples will be tested for Conductivity, pH, Turbidity, Total Suspended Solids (TSS), chemicals (Total Nitrogen and Phosphorus), pH, temperature, and biologics (Coliform and E. coli). Sample collection and field testing will be done by volunteers or paid personnel. Laboratory testing is to be conducted by an independent testing laboratory with The Oregon Environmental Laboratory Accreditation Program (ORELAP) accreditation, The National Environmental Laboratory Accreditation Program (NELAP), or internationally recognized standards, such as ISO/IEC 17025.

Action #2: Conduct Passive Sampling

Four passive monitoring units will be strategically placed in the Illinois River Basin as outlined in the ‘Conduct Passive Water Quality Monitoring Map’ attachment. These units will be located in areas with no public access to minimize vandalism risk. After collection, the units will be sent to USGS for processing and analysis of the study's chemical classes. USGS will calculate the time-weighted average water concentrations of the chemicals and assess quality controls. Partners will then compare the chemical concentrations to state water quality standards, EPA aquatic life benchmarks, and other regulatory guidelines.

Flow velocity will be measured during passive sampling device (SPMD and POCIS) deployments and retrievals at deployment site using a Global Water Instruments Flow Probe (Model FP111), which is accurate to 0.03 m/s and has a range of 0.1–6.1 m/s. Velocities will be recorded at six-tenths of the water depth to estimate the mean vertical velocity in the column (technical guidance source: https://www.usbr.gov/tsc/techreferences/mands/wmm/index.htm.)

Action #3: Conduct Continuous Temperature Monitoring

Temperature data will be gathered at 14 sites across the watershed using Onset Pendants, logging water temperature at 15-minute intervals from June to October. These units are placed on private or public land, with expert advice to prevent theft and tampering. Three pendants will be deployed alongside the passive samplers. Flow and temperature data will be accounted for in the study's analysis.

Action #4: Develop Salient Documents

The IVSWCD will publish, in collaboration with USGS and IVWC, a final report/manuscript detailing the findings of the passive sampler data. As research collaborators, USGS and IVWC will be included in any authorship of presentations and/or publications resulting from this work.

The IVWC, in close collaboration with the IVSWCD, ODA, and DEQ, will develop a comprehensive Pesticide Management Plan. This plan will be formulated in the year following the publication of the final report on passive water quality monitoring.

Table 2 Project Gantt Chart

Tasks to be completed	January 2025 – January 2027											
	1	2	3	4	5	6	7	8	9	10	11	12
Sampling planning and revision	x	x	x									
Sampling equipment quality control testing	x	x	x							x		
Action #1				x	x	x	x	x	x	x	x	x
Action #2							x	x	x	x	x	
Action #3	x	x	x	x	x	x	x	x	x	x	x	x
Action #4	x	x	x	x	x	x	x	x	x	x	x	x
Data entry	x	x	x	x	x	x	x	x	x	x	x	x
Data analysis and reporting	x	x	x	x	x	x	x	x	x	x	x	x

1.5. Quality objectives and criteria

Grab sampling data quality levels are defined within the most current DEQ Volunteer Monitoring Quality Assurance Project Plan (QAPP), July 2021. Table 4 of the DEQ Volunteer Water Quality Monitoring QAPP (DEQ04-LAB-0047-QAPP) lists Accuracy and Precision Targets.

Table 3: Grab Sampling Parameters and Measurement Range

Sample Type	Parameter	Measurement Range	Reference Method
Surface Water	*E. coli*	0 - >2,419 organisms per 100mL	SM 9223B
Surface Water	*Coliform Bacteria*	0 - >2,419 organisms per 100mL	SM 9223B
Surface Water	N+N	MDL/PQL: 0.002 mg/L	EPA 353.2
Surface Water	Total Phosphorous	MDL/PQL: 0.002 mg/L	EPA 365.1
Surface Water	TSS	MDL/PQL: 0.50 mg/L	EPA 160.2

Sampling can occur at any time during the day so long as the water/aqueous sample holding time limitation (24 hours for biological samples; 28 days for N+N, Total P, TSS) from when the sample is taken to when laboratory analysis is complete is not violated. Further discussion can be found in Section 2.3.

Passive monitoring will be conducted in alignment with the practices outlined in Guidelines for the Use of the Semipermeable Membrane Device (SPMD) and the Polar Organic Chemical Integrative Sampler (POCIS) in Environmental Monitoring Studies (USGS): pubs.usgs.gov/tm/tm1d4/pdf/tm1d4.pdf

Flow velocity will be monitored in alignment with the practices outlined in the Water Measurement Manual (Bureau of Reclamation): https://www.usbr.gov/tsc/techreferences/mands/wmm/index.htm

1.6. Training Requirements and Certification

- The Illinois Valley SWCD Water Quality Monitoring Team has been routinely conducting grab sampling for the past two years. During this time, they have gained experience deploying and operating

continuous water quality monitoring devices (ex. Onset Pendants). The team regularly operates and troubleshoots YSI Exo II multiparameter datasondes in partnership with the Oregon State University Forest Ecohydrology and Watershed Science (OSU FEWS) Lab.

- The Illinois Valley SWCD Water Quality Monitoring Team will be trained in person by skilled USGS personnel on proper QA/QC procedures for passive water quality monitoring.
- The Illinois Valley SWCD will coordinate with the Illinois Valley Watershed Council, USGS, DEQ, and BLM staff to gain experience in proper QA/QC procedures regarding flow measurement.

1.7. Documentation and Records

Revisions to this SAP may be made at any time. Revisions are to be written into an addendum and then sent to DEQ via email. Approved versions of this SAP will be distributed to those listed in table one by the DEQ QAO.

Duplicates of the field data collection sheets are to be retained by the Illinois Valley SWCD for a period of 10 years minimum. Originals of the field data collection sheets are to be retained by the testing laboratory in accordance with The Oregon Environmental Laboratory Accreditation Program (ORELAP), The National Environmental Laboratory Accreditation Program (NELAP), or internationally recognized standards, such as ISO/IEC 17025.

Table 4 Controlled Documents

Document or Record Name and Description	Storage Location	Storage Time
DEQ Quality Assurance Project Plan (QAPP) (3.0)- DEQ04-LAB-0047-QAPP project description and assurance procedures.	DEQ Internet Page	10 years
Our Sampling Analysis Plan**-** specific sampling information for each groups activities.	DEQ Laboratory and Illinois Valley SWCD office	10 years
DEQ Laboratory Mode of Operations Manual- Methods manual	Illinois Valley SWCD office	10 years
Equipment Notebooks - records of quality control checks, calibrations and maintenance.	Illinois Valley SWCD office	10 years
Field Data or Chain of Custody Sheets/Electronic Files – Field forms containing sampling meta data and raw field data.	Illinois Valley SWCD office	10 years
Guidelines for the Use of the Semipermeable Membrane Device (SPMD) and the Polar Organic Chemical Integrative Sampler (POCIS) in Environmental Monitoring Studies (USGS)	Illinois Valley SWCD office	10 years
Water Measurement Manual (Bureau of Reclamation)	Illinois Valley SWCD office	10 years

2. Data Generation and Acquisition

2.1. Sampling Process Design

Sampling design, collection, methods, and handling will be managed by the sampling organization identified in section 1.2. The sampling organization will ensure that all samples will be collected in the appropriate sample containers, preserved as identified in the appropriate reference methods and transported to the analytical organization within the appropriate sample holding times, with the appropriate documentation, and under the appropriate sample transport conditions. Analytical laboratories assume no responsibility for the quality of data resulting from samples that were collected, shipped, or stored under inappropriate conditions.

Grab sampling locations were strategically chosen to give a broad glimpse of what agricultural constituents are flowing through key agricultural areas of the Illinois River watershed.

Locations for the temperature monitoring units were strategically chosen to minimize risk of tampering and theft (common occurrences with these units so far in the program). A major consideration was based on willingness of local landowners to allow the district to deploy and retrieve these devices from their stream-adjacent private properties. Public properties where deployments occur are in areas where temperature monitors are easily hidden and have not experienced occurrences of theft or tampering to date. Continuous temperature monitoring is meant to give a glimpse of surface water temperature trends during the hottest months of the year.

The locations for the passive monitoring units (SPMD and POCIS) were chosen to understand what constituents are flowing through the watershed during the fall flush event. These units are to be strategically placed adjacent to private properties. Four sites were chosen (East Fork Illinois River near confluence with the West Fork Illinois River at Illinois River Mainstem, Deer Creek, and Illinois River Mainstem).

A numerical sequence starts at the lowest point in the drainage under consideration, for instance, just above the confluence of the East Fork into the Illinois at the Illinois River Forks State Park. The next upstream location is given a number that is increased by the count of five. This sequence is continued until a point where sampling is no longer considered. In the future, if a point of interest is found between two stations, then it will be assigned a number between 0 and 5, for example station 612 would be located between stations 610 and 615.

The four major drainages in the Illinois Valley that are included in this SAP are: Deer Creek, East Fork of the Illinois, West Fork of the Illinois, and the Illinois River. Sample locations are from public access roadways or private lands where the owner's permission has been granted.

Samples are to be tested for microbiological and chemical analysis, see Section 2.3. Possible sample locations are given in Appendix B. Appendix C "Summary of Data Results" provides a proposed reporting form of actual sampling dates and locations. Measurement parameters are given in Section 1.5, Table 2.

Attributes of specific sites are a general description of the location, latitude, and longitude, a note on parking availability, a description of access to the water, an estimated time to take a sample (not driving time), method of sampling (from a bridge, from shore or wading), ownership (public or private), and any other useful notes are included in Appendix B. Included with the description are pictures of each location. In general, sampling sites have public access, but property owner permission is granted before entry if not.

Each sample will be tracked using a Chain-of-Custody (CoC) form provided by The Water Lab (biological grab samples) and IEH Analytical (chemical grab samples). The unique ID, assigned by The Water Lab, is located on the UPC code. The site number will be written on the bottle under the UPC code. The corresponding bottle ID will be written on the COC form in the row of the respective site.

Each sample will have a unique code that defines the date of the sample and location.

Example for sample bottle labeling protocol: XZZ

- X = Major Drainage
  - 2 - Deer Creek
  - 4 - East Fork of the Illinois River
  - 6 - West Fork of the Illinois River

- 8 - Illinois River Mainstem
- ZZ = Site of Sample

Duplicates when taken will have a numerical designator as part of the sample code; XZZ DUP1, XZZ DUP2, *etc*.

Numerical designations will be included on the label if multiple sampling rounds occur in one month. For example, if a sample is taken in the first sampling week of a month, its label will be 'XZZ-1'.

A complete list of the sample locations is given in Appendix B.

The project managers at the Illinois Valley Watershed Council and the Illinois Valley Soil and Water Conservation District will determine which sampling locations are of interest and will communicate this list to the sampling team.

The locations to be sampled are summarized in Table 5.

Table 5 Summary of the sampling locations

DEQ Station ID *	Organizational Site ID	Latitude/Longitude	Station Description	Parameters
TBD	210	42.27688, -123.64643	Siskiyou Field Institute (SFI)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous, Passive Monitoring
TBD	214	42.29677, -123.61550	Clear Creek	Temperature
TBD	215	42.27106, -123.61844	US-199 Bridge (Selma, OR)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	220	42.27220, -123.53717	Dryden Lane Bridge	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	225	42.27004, -123.51364	Lake Shore Drive Bridge	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	230	42.26317, -123.46205	White Creek	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	405	42.156377, -123.64885	US-199 Bridge (Forks State Park)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	406	42.15522, -123.64720	East Fork Passive Deployment	Current pesticides, combustion byproducts, herbicides, industrial intermediates, legacy pesticides, PCBs, velocity, temperature
TBD	410	42.148151, -123.64154	Old Stage Park	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous

TBD	420	42.129715, -123.60660	Holland Loop (Sucker Creek)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	423	42.14209, -123.46141	Grayback Campground (Sucker Creek)	Temperature
TBD	425	42.123756, -123.60684	Takilma Road (Althouse Creek)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	434	42.05407, -123.62312	East Fork Temperature Monitoring Site	Temperature
TBD	435	42.065916, -123.61960	Waldo Road Bridge (Takilma, OR)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	444	42.01956, -123.62956	Downstream from Long Gulch (East Fork)	Temperature
TBD	445	42.011866, -123.62776	Green Bridge Upstream of Long Gulch	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	605	42.152384, -123.659499	Mystic Meadows (West Fork)	Temperature
TBD	610	42.148973, -123.663450	Power Pole and Fire Pump (West Fork)	Temperature, Passive Monitoring
TBD	620	42.121339, -123.67246	US-199 Bridge (West Fork)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	625	42.092917, -123.70711	Rough and Ready Creek	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	627	42.07335, -123.68964	Waldo Road BED Location	Temperature
TBD	630	42.062685, -123.70711	Brown Road Bridge (O'Brien, OR)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	635	42.045973, -123.74711	Lone Mountain Road	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	640	42.07230, -123.68681	Waldo Road Bridge (O'Brien, OR)	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	641	42.01565, -123.72747	Elk Creek (O'Brien)	Temperature
TBD	805	42.24566, -123.68899	$8 Mountain Green Bridge	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous
TBD	810	42.24135, -123.68493	Josephine Creek	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous

TBD	820	42.21779, -123.65435	Mainstem Passive Deployment	Current pesticides, combustion byproducts, herbicides, industrial intermediates, legacy pesticides, PCBs, velocity, temperature
TBD	825	42.193731, -123.658931	Finch Road Bridge	Coliform, Conductivity, E. Coli, Temperature, TSS, Turbidity, N+N, pH, Total Phosphorous

*If a Station ID number is not available during QAPP/SAP development, the DEQ Laboratory will generate the unique identifier prior to data processing.

2.2. Sampling methods

Both Grants Pass Water Lab and IEH Analytical Laboratories will provide sterile sample containers.

Do not touch the inside of the bottle cap or bottle of the microbiological sampling containers.

All grab samples will be sampled from shore. An open container will be attached to a rope and then pitched into the water some distance from shore, into the thalweg when possible.

Care will be used to not disturb the streambed or set sediment into motion while taking samples. Calm spots and eddies are to be avoided. The target area will be where the main water flow is observed. If disturbance is noted the container shall be brought back to shore and rinsed. A new sampling site upstream of the initial location will be used.

Decontamination of the sampling container between sampling sessions will be by one of the following methods:

- Rinse with surface water.
- Rinsing with potable water that has been filtered and exposed to UV light
- Wiping with food-grade hydrogen peroxide at 3% concentration
- Wiping with cleaning vinegar > 3% concentration

At each site, the open container is to be rinsed two times with the surface water prior to filling, the primary sampling containers are also rinsed prior to filling, though sample water is used both for rinsing and filling.

No materials are to be stored in the container during the sampling process.

Continuous samples will be set to a 15-minute recording interval.

IVSWCD monitoring will use two commonly used passive samplers for organic contaminants: the semipermeable membrane device (SPMD) and the polar organic chemical integrative sampler (POCIS), specifically for the sampling of surface water. These samplers accumulate chemicals from the water column over extended field deployments typically ranging 30-60 days. Field deployments will be limited to approximately 2 to 3 months. The primary aim of the IVSWCD is to capture the pulse event(s) associated with the first rains of the August – November timeframe.

The passive samplers will be provided by USGS in air-tight containers ready to be deployed in the field. Details for the deployment of the passive samplers can vary and will be determined by the site-specific waterbody parameters such as accessibility, flow, depth, debris, etc. The most important factor in the site selection is that the passive samplers remain submerged throughout the entire deployment period. If the samplers become exposed to air during the deployment, the possibility for contamination from airborne

chemicals and loss of sampled chemicals to the surrounding air exists, in addition, estimation of ambient water concentrations will be impossible as it will not be known how many days the samplers were actually in the water. Passive monitoring will be conducted in accordance with Guidelines for the *Use of the Semipermeable Membrane Device (SPMD) and the Polar Organic Chemical Integrative Sampler (POCIS) in Environmental Monitoring Studies* (Alvarez).

2.3. Sample handling and custody

Table 6 Summary of sampling parameters

Sample Type	Container	Preservation	Holding Time
E. Coli	Sterile 120ml Water Bottle with Sodium Thiosulfate	Refrigeration (2°C - 8°C)	24 hours
Coliform	Sterile 120ml Water Bottle with Sodium Thiosulfate	Refrigeration (2°C - 8°C)	24 hours
Total Suspended Solids (TSS)	Sterile 1L IDEXX Water Bottle	Refrigeration (2°C - 8°C)	28 days
N+N	Sterile 1L IDEXX Water Bottle	Refrigeration (2°C - 8°C)	28 days
Total P	Sterile 1L IDEXX Water Bottle	Refrigeration (2°C - 8°C)	28 days

Grab sample Handling and Custody includes a standard Chain of Custody (CoC) form with each sample container for analysis. This form is filled out by field personnel, including the bottle code described in Section 2.1, the bottle ID code, the time when the sample is collected, and the method used for collection, and field parameters as applicable.

An example is given in Appendix A.

The sample code described in Section 2.1 will need to be written on the bottle. Also include the time, method used for collection, and the ID number of the sampler. An example is given in Appendix A.

After collection, samples are packaged in ice in an insulated shipping container and delivered to Grants Pass Water Lab (biological samples) or shipped via a shipping service (ex. FedEx, USPS, UPS, etc.) to IEH Analytical Laboratories. Samples are to remain at a reduced temperature until delivered to the laboratory or a laboratory representative with an appropriate container.

Biological samples are to be received by the laboratory within a 24-hour window. TSS, N+N, and Total P samples must be delivered within the 28 day holding time period.

2.4. Analytical methods

Table 7 Summary of analytical parameters and methods

Sample Type	Parameter	Reference Method (required)
Surface Water	*E. coli*	SM 9223B
Surface Water	*Coliform Bacteria*	SM 9223B
Surface Water	*N+N*	EPA 353.2
Surface Water	*Total Phosphorous*	EPA 365.1

Surface Water	*TSS*	EPA 160.2
Surface Water	*Conductivity*	DEQ Laboratory Mode of Operations Manual vol. 4
Surface Water	*Temperature*	DEQ Laboratory Mode of Operations Manual vol. 4
Surface Water	*Velocity*	DEQ Laboratory Mode of Operations Manual vol. 4
Surface Water	*Turbidity*	DEQ Laboratory Mode of Operations Manual vol. 4
Surface Water – Passive Sampling	*Field and Data use*	Environmental Monitoring Studies Section D, Water Quality Book 1, Collection of Water Data by Direct Measurement Techniques and Methods 1-D4
Surface Water – Passive Sampling	*PAHs*	Alvarez, 2008
Surface Water – Passive Sampling	*Chlorinated Pesticides, Total PCBs, PBDEs*	Alvarez, 2008
Surface Water – Passive Sampling	*PFAS*	Beisner, 2024; adapted from EPA Method 1633
Surface Water – Passive Sampling	*Tire wear chemicals*	Unpublished method, adapted from EPA Method 1634
Surface Water – Passive Sampling	*Current-use pesticides*	Van Metre, 2017

Analytical methods, quality control, instrument testing, and calibration are to be the responsibility of both The Water Lab and IEH Analytical Laboratories in accordance with ORELAP requirements and/or ISO/IEC 17025:2017.

2.5. Quality control

2.5.1 Grab Sampling & Continuous Monitoring

Grab sample duplicates shall be taken at a minimum rate of 10%; one duplicate for every ten samples taken. In addition, duplicates will be taken within the first three and last three sampling periods (see Appendix C for calendar dates) to verify that the data is consistent for that location and date. A review of the sampling methods will be made if inconsistencies are found, and a new set of duplicates will be taken to confirm that corrections have been effective. Duplicates may also be used at random times and locations within the sampling window described above.

Duplicate comparisons for bacteria need to meet the precision thresholds listed in the DEQ Data Quality matrix. For Data Quality Level A the absolute difference between log transformed values shall be $P \leq 0.6$ log.

For nutrient analysis, duplicates should be within a 20% relative percent difference.

The precision of grab samples shall be evaluated by measuring the difference in duplicate samples- samples collected within 15 feet and 15 minutes of each other. Each sampling team collects duplicates for all grab water quality measurements at a minimum of 10% of the total number of monitoring sites (1 duplicate for every 10 sites) during each sampling survey.

Duplicates are required even for parameters measured in the waterbody, like temperature or conductivity. When parameters are measured in the waterbody, measurement procedures should be repeated to record two readings to serve as a duplicate.

- Ex. two continuous temperature monitors will be installed at 10% of continuous temperature monitoring sites.

Accuracy checks for equipment measuring pH, conductivity, turbidity and dissolved oxygen (electrometric) will be conducted at the beginning and end of each sampling day. If accuracy checks at the start of the day show inaccuracy outside of the limits from the DQM for "A" level data, then the equipment should be calibrated and retested for accuracy. If an accuracy check at the end of the day shows a meter is not reading within these limits for accuracy, then data from that day should be downgraded as stated in Section 3.1.1 of the DEQ volunteer monitoring QAPP. The meter should be calibrated before being used again.

Continuous data precision is measured by collecting a grab sample at the monitoring site and comparing the results of the grab and the continuous monitoring device result at the time the grab sample was collected. For continuous monitoring devices, a minimum of one audit at the time of deployment and one at the time of retrieval are required to assess data quality. Additional audits during continuous device deployment are recommended.

Accuracy of continuous data requires pre- and post-deployment accuracy checks. For continuous temperature data loggers, the procedures described in the DEQ20-LAB-0021-SOP, continuous water monitoring procedures for warm and cold-water baths monitored with a NIST traceable thermometer will be followed. For multi-parameter datasondes the accuracy check requirements should be outlined in the CBO's approved SAP.

2.5.2 Passive Sampling

The passive samplers, processing, and analytical methods used with this study follow established and published procedures widely accepted by the international passive sampling community. A series of quality control measures are incorporated into every study and are outlined below and in the document "*Guidelines for the Use of the Semipermeable Membrane Device (SPMD) and the Polar Organic Chemical Integrative Sampler (POCIS) in Environmental Monitoring Studies" (*Alvarez, 2010). USGS works under a Quality Management System which is a policy that defines the quality requirements for all laboratory work. Each laboratory is reviewed annually for compliance (the partnering USGS lab completed its review 1/31/2024 and is currently undergoing the 2025 review).

Analytical chemistry will be used to determine the presence and concentrations of several classes of contaminants including current-use pesticides and metabolites, per- and polyfluoroalkyl substances (PFAS), tire wear chemicals (including 6PPD-quinone), chlorinated pesticides, polychlorinated biphenyls (total PCBs), polybrominated diphenyl ether flame retardants (PBDEs), and polycyclic aromatic hydrocarbons (PAHs).

Performance Reference Compounds (PRCs)

Environmental factors such as water flow, temperature, and the buildup of a biofilm on the sampler's surface can affect the rate at which chemicals are sampled. These factors are site-specific and can greatly reduce the accuracy of the estimated water concentrations. In an effort to account for these effects, the performance reference compound (PRC) approach was developed (Alvarez, 2010).

A PRC is a chemical with moderate to high fugacity (escaping tendency) that is added to the SPMD during fabrication. By measuring the amount of PRC loss during deployment in the field, adjustments to the theoretical or experimentally derived sampling rates of targeted chemicals can be made to reflect the site-specific sampling rates thereby increasing the accuracy of water concentration estimates. The PRCs to be used in this study include phenanthrene-d_{10}, pyrene-d_{10}, and the PCB congeners 14, 29, and 50 which are added to all field and blank SPMDs.

In addition to adding PRCs, we add dibenz[*a*,*h*]anthracene-d_{14} as a photolysis surrogate, a chemical that can degrade upon exposure to sunlight but has a low fugacity, therefore, it will not be lost because of diffusion out of the SPMD during the field exposure. Many PAHs are sensitive to exposure to sunlight in the ultraviolet A and B bands (UVA and UVB). The low-density polyethylene membrane of the SPMD is transparent to UVA and UVB; therefore, photosensitive chemicals can degrade in clear waters. Recoveries of less than 60% of dibenz[*a*,*h*]anthracene-d_{14} is suggestive of the occurrence of photodegradation of sensitive chemicals in the field.

In general, the PRC approach has not been successfully applied to POCIS which the exception for a few small groups of chemicals. It is unknown if this potential PRC can be applied universally to other target chemicals with vastly different molecular structures and properties.

Blanks

The types of blanks to be used with the passive samplers include Fabrication and Field Blanks. On occasion, additional procedural blanks or reagent blanks and instrument or procedure-specific blanks also can be used.

Fabrication Blanks

Fabrication blanks occasionally are referred to as Day 0 (zero) blanks. They are fabricated concurrently with the field deployed samplers and are stored under argon in sealed solvent-rinsed metal cans at <-20 degrees Celsius (°C) until they are processed along with the field samplers. Fabrication blanks account for interferences or contamination incurred from the SPMD or POCIS components, storage, processing, and analysis. For this study, a minimum of one fabrication blank for each sampler type and each chemical analysis will be prepared.

Field Blanks

Field blanks are stored in airtight containers and are transported to the field sites in insulated containers filled with blue ice or wet ice sealed in plastic bags. During the deployment and retrieval operations (the time the field passive samplers are exposed to air), the lids to the field blank containers are opened allowing exposure to the surrounding air. Field blanks account for contamination during transport to and from study sites, exposure to airborne contaminants during the deployment and retrieval periods, and from storage, processing and analysis. For this study, one field blank for each sampler type and each chemical analysis will be used and exposed to site air at a site to be determined.

Spikes

Spikes are used to determine the recovery of targeted chemicals and potential interferences which may affect the analyses of the samplers. Matrix spikes are SPMDs or POCIS spiked with a known quantity of targeted chemicals and carried throughout the whole processing scheme to determine the percent recovery of the targeted chemicals at the laboratory during analysis. Spikes will be performed with all analyses conducted in-house at USGS (PAHs, chlorinated pesticides, PCBs, PBDEs, PFAS, and tire wear chemicals). If possible, spikes will be included with the current-use pesticides, but the ability to do so will be limited by the availability of spiking solutions from the eventual lab selected to conduct this analysis. If USGS is not able to conduct a current-use pesticide spike, historical spike data will be provided for comparison.

Other Quality Controls used in passive sampler processing and analysis

Additional quality controls are used by USGS to determine method performance at various steps of sample processing. These controls include: 1) Instrument checks verified using recovery spikes, calibration standards, and daily user verification of operation. 2) Use of surrogate standards added to the samples and/or sample extracts to evaluate method performance at specific steps of a procedure and to determine potential issues of quantifying target chemical(s) due to matrix or field contamination issues. 3) Two-level data review of all results involving an initial analyst review followed by a final review by a knowledgeable person not associated with the generation of that data set.

2.6. Field instrument/equipment testing, inspection, and maintenance requirements

All reagents and supplies will be checked at the start and end of each sampling survey for expiration dates, damage, contamination or degradation. Problems with any supplies or equipment will be communicated to the DEQ as soon as possible to allow sufficient time for corrective action before the next sampling survey. CBO's must follow the maintenance and inspection recommendations below for all equipment lent as part of the volunteer monitoring program's equipment loan program. As a rule, all equipment should be cleared of any foreign material and rinsed with clean tap water or deionized water (never distilled water) at the end of a sampling day, prior to storage.

Table 8 equipment maintenance schedule

Equipment Type	Inspection Frequency	Type of Inspection
NIST Thermometer	Each monitoring day and annual accuracy check	Cable and batteries
pH Meter	Each monitoring day	Accuracy checks at start and end of each monitoring day, pH probe connections, and reference solution and storage solution fluid levels.
Conductivity Meter	Each monitoring day and annual temperature accuracy check	Accuracy checks at start and end of each monitoring day, cables and batteries
Turbidity Meter	Each monitoring day	Accuracy checks at start and end of each monitoring day, batteries and look for scratches or smudges on vials. Clean and lightly oil sample and standards vials.

2.7. Field instrument calibration and frequency

Table 9 instrument calibration schedule

Equipment	Calibration Frequency	Standard	Responsible Party
NIST Thermometer	Annually or when >0.5°C difference from NIST Certified Thermometer	NIST-Certified Thermometer at 5, 10, 15, 20, and 25°C	Field personnel
pH Meter	Daily or when > 0.1 S.U. from buffer value	Standard buffers 7 and 10	Field personnel
Conductivity Meter	Annually or when >7% difference from standard	Certified Primary Standard	Field personnel
Hach 2100Q Turbidity Meter	Annually or when ≥ 5% difference from secondary standard	HACH StablCal (<0.1, 20. 100 and 800 NTU)	Field personnel

2.8. Non-direct measurements

Streamflow and weather data may be retrieved by CBO's online or by contacting directly the USGS, OWRD, and Oregon Climate Center for analysis and presentation purposes. Unless noted otherwise in the retrieved data, the quality of these results will be assumed to be of sufficient quality to use when analyzing CBO data. The limitations of all data collected will be referenced in any reports or presentations. Streamflow or weather data acquired from third parties will not be uploaded into AWQMS.

For DEQ, data acquisition is the primary, measurable benefit of the volunteer monitoring program. Data management and submission procedures defined in section 2.10 of the volunteer water quality monitoring QAPP outline how data is acquired by the DEQ from CBO's.

2.9. Data management

All water quality data, including quality control results, generated by the Community Based Organization (CBO) using equipment or supplies purchased by the state will be submitted to the DEQ for inclusion in the AWQMS database. Data must be submitted to the DEQ in electronic format described and approved in the CBO's SAP.

Data collected as part of Action #1 and Action #3 will be submitted to the DEQ water quality monitoring database. Data collected as part of Action #2 and #4 will be submitted to the USGS water quality monitoring database. These protocols will be adhered to avoid dual reporting.

Data Path from Recording to Analysis and Presentation

1. Field Data Recording:
    - Data is collected in the field using standardized forms or digital devices.

2. Data Entry:
    - Field data is entered into an electronic database system.

3. Data Validation:

- Data is checked for completeness and accuracy.

4. Data Analysis:
- Validated data is analyzed using statistical and analytical software.

5. Data Presentation:
- Analysis results are presented in reports, charts, and maps.
- Data anonymization processes will be implemented at landowners' requests. In this case, the general data collection area will be referenced instead of the exact coordinates for public presentation.

Data Storage
- Field Sheets: Used for initial data recording.
- Electronic Storage: Data is digitized and stored in a secure database.

Data Responsibility
- Field Technicians: Responsible for data collection.
- Data Entry Staff: Responsible for entering data into the database.
- Data Managers: Oversee data validation, storage, and backup.
- Analysts: Handle data analysis and presentation. This will include building and maintaining an AGOL Agricultural Water Quality Dashboard.

Electronic Format and Metadata
- Electronic Format: Data is stored in a relational database (e.g., SQL, Access).
- Metadata: Includes information such as site number, coordinates, data collection date, and collection method.

Example:

Site_ID	Date	Location (Lat, Long)	Parameter	Value
OR001	2025-01-22	45.523, -122.676	pH	7.5
```

Data Fields
- Core Data Fields: Site ID, Date, Location, Parameter, Value.
- Metadata Fields: Collector's Name, Collection Method, Weather Conditions.

Data Quality Checks
- Completeness: Ensure all required fields are filled.
- Reasonableness: Compare data against expected ranges.
- Transcription Errors: Double-check data entry.
- Calculation Errors: Use automated tools for calculations and verify manually.

Data Storage and Backup
- Primary Storage: Secure cloud storage or local database server.
- Backup: Regular backups to an off-site location or cloud-based backup service.

Hardware and Software
- Hardware: Servers, field laptops, handheld GPS devices.
- Software:
  -Database Management: SQL, Access.
  -Analysis: R, Python, Excel.
```

- GIS: ArcGIS, QGIS.

Data Submission to DEQ
- Format: CSV, Excel, or DEQ-specific data templates.
- Content: Includes all core data fields and metadata.
- Submission Schedule: Data submitted quarterly.
- Map: An accurate map showing station locations (e.g., using ArcGIS).

Data Analysis Software
- Primary Tools: R, Python, Excel.
- GIS Tools: ArcGIS, QGIS.

3. Assessment and Oversight

Project assessment and oversight, including field activities, will be the responsibility of the Water Quality Program Manager who will report to the District Manager.

3.1. Assessment and response actions

The quality assurance procedures defined above are essential to document the quality of the data collected; however, improving the quality of the data can only be achieved by continually assessing quality control test results and taking appropriate response actions when problems arise. Field or lab personnel should report to the CBO project manager whenever quality control results do not meet the “A” level data quality objective and quality control results should be reviewed by the project manager after each survey is completed to assign overall data quality levels to the data being collected.

3.1.1 Accuracy

CBO’s will determine accuracy for pH, dissolved oxygen, turbidity, and conductivity grab data by measuring standards before and after each sampling. Deviation from the expected value for the standard will be compared to accuracy ranges defined in the DQM (DEQ04-LAB-0003-QAG) to assign an accuracy classification for samples collected on that day for each parameter. Field personnel should assign accuracy DQL’s based on the equipment they have used. Lab results not covered by the DQM should be assigned accuracy based on control samples, blanks, and matrix spikes as appropriate for the method. For continuous data, pre and post-accuracy checks will be used to determine the accuracy of data. The CBO’s QAO will determine the accuracy for the continuous data based on deployment conditions.

3.1.2 Precision

Duplicate sample results will be used by CBO’s to determine the precision of grab water quality measurements by each sampling team. Field and lab personnel will compare differences between duplicate values against precision requirements outlined in the DQM (DEQ04-LAB-0003-QAG) to assign data precision classifications. The grab data R scripts generate summaries of duplicate performance and are used during data review. Having a space for assigning precision data quality levels on field sheets reminds field personnel to consider data quality at the time of analysis. Comparison between macroinvertebrate field and lab duplicates will be used to assess sampling and sub-sampling variability, respectively. Re-identification of macroinvertebrates by

a second taxonomist will assess variability between taxonomists. Results should be compiled by the CBO's QA officer and reported with the data.

3.1.3 Laboratory Analytical Data

Samples analyzed by laboratories should report results to the CBO with a minimum of a method blank and LCS results for each batch of data analyzed. Method blanks should be less than the method reporting limit, and LCS results should be within the control limits identified in the CBO's approved SAP. Analytical reports submitted to the CBO should be reviewed immediately by the project manager or QA officer to make sure that the laboratory is meeting the project's data quality objectives. Data not within the control limits should be downgraded to "B" level data or lower.

3.1.4 Split Sample Data

Field and lab results will be compared between samplers and follow-up actions taken immediately if values for a group do not compare within "B" level precision limits defined in the DQM (DEQ04-LAB 0003-QAG). If comparisons do not meet the expectations of the DEQ Volunteer Monitoring Coordinator or the CBO staff, then additional training, equipment maintenance or other corrective action will be taken.

3.2. Reports to management

Each CBO's project SAP should identify how the results of quality control tests and other project assessments will be reported including to whom the information will be reported and when. Reporting should include the following:

- CBO field staff conducting accuracy and precision tests each day of sampling and should report the results on the field sheet unless noted otherwise in their approved SAP.

- Performance assessment results conducted by the CBO QAO will always be communicated immediately to field staff and the project manager.

- The DEQ volunteer monitoring specialist will complete summaries of QC data and provide the information to the CBO project manager and the DEQ QAO. For split sampling field trips, a short report on the results will be submitted to the CBO within 4 weeks of the data becoming available.

4. Data validation and usability

Data quality levels (DQL) will be assigned in accordance with DEQ guidance document *Data Validation and Qualification* (DEQ09-LAB-0006-QAG). Generally, only targeted DQLs of "A", or "B" will be acceptable unless the basis for the data acceptability is approved and documented by the project manager and DEQ Volunteer Monitoring Coordinator. All data verification, validation, and assessment activities for project purposes are the responsibility of the project manager.

4.1. Data review, validation, and verification

All data generated by the CBO will be reviewed by the CBO's project officer, QAO or technical committee to determine if it meets the group's objectives stated in their SAP. The CBO's SAP should clarify who will be

reviewing the data. At the discretion of the CBO, state agency staff may be asked to review and comment on the data. A CBO's decisions to accept, qualify, or reject data will be made by the CBO's project manager or QAO.

Data received from CBO's by the volunteer coordinator should be recorded in the volunteer data database as a submission. Tracking of the data submission through processing, review and publishing in AWQMS (See Table 12) will be tracked in the volunteer data database.

The DEQ Volunteer Monitoring Specialist and the DEQ QAO will determine if the data collected meets the objectives of this QAPP. All data will be reviewed to assess the reasonableness of results, performance against available QC limits, and available QC data by volunteer program employees following the procedures in DEQ06-LAB-0027-SOP. Decisions to accept, qualify, or reject data will be made by the volunteer monitoring specialist and/or the DEQ QAO. Additional information regarding the assessment of CBO-generated data is described in section 2.10.

4.2. Validation and verification methods

Validation and verification procedures for CBO's and DEQ personnel should include the following basic steps:

- Completeness: Each step of the data generation and management should be assessed for completeness as soon as possible. Both missing parameter results and sample information, like time, collector, equipment, etc., should be reviewed. Missing information may warrant qualifying data (i.e. "B" data).
- Reasonableness: Data generated should be reviewed for reasonableness to help catch any significant errors in result values and sample information. Data which appears unreasonable should be investigated and qualified when appropriate. At a minimum a comment should be added to explain unusual values.
- QC Data Review: All available QC data should be analyzed to estimate the accuracy and precision of generated results. All result values will be classified with a data quality level based on the Oregon DEQ's Data Quality Matrix Version 5.0 or later for field data (http://www.deq.state.or.us/lab/techrpts/docs/DEQ04-LAB-0003-QAG.pdf) or the Data Quality Classification for Volunteer Monitoring Grab Water Quality quality assurance guidance document DEQ06-LAB-0027-SOP.
- Data Transfer Errors: At least 10% of data should be verified against original records whenever data is transferred either electronically or manually from one system to another. This includes transcribing field sheet data to databases at the CBO, or when DEQ reformats submitted data for upload into LIMS and then AWQMS.

The DEQ Volunteer Monitoring Specialist will verify that these validation procedures are completed.

The DQLs are used to simplify database queries of quality data and as a simplified indicator of data suitability for the Volunteer Monitoring Program (the suitability of the data by others must be determined based on their own individual data needs). Data not meeting the data quality indicator control limits will receive a DQL other than "A". If a QC measure fails to meet control limits, personnel evaluating the QC must flag all results associated with the particular QC failure. The DQL will be set to "B" or "C" depending on the severity of the failure. Comments will be linked to the results explaining QC failures. If the CBO's QAO determines the data does not meet the data quality objectives described in section 1.6, the DQL of all affected results will be adjusted to the appropriate code defined in the DQM, DEQ04 LAB-0003-QAG, Version 5.01.6.1.

4.3. Reconciliation with data quality objectives

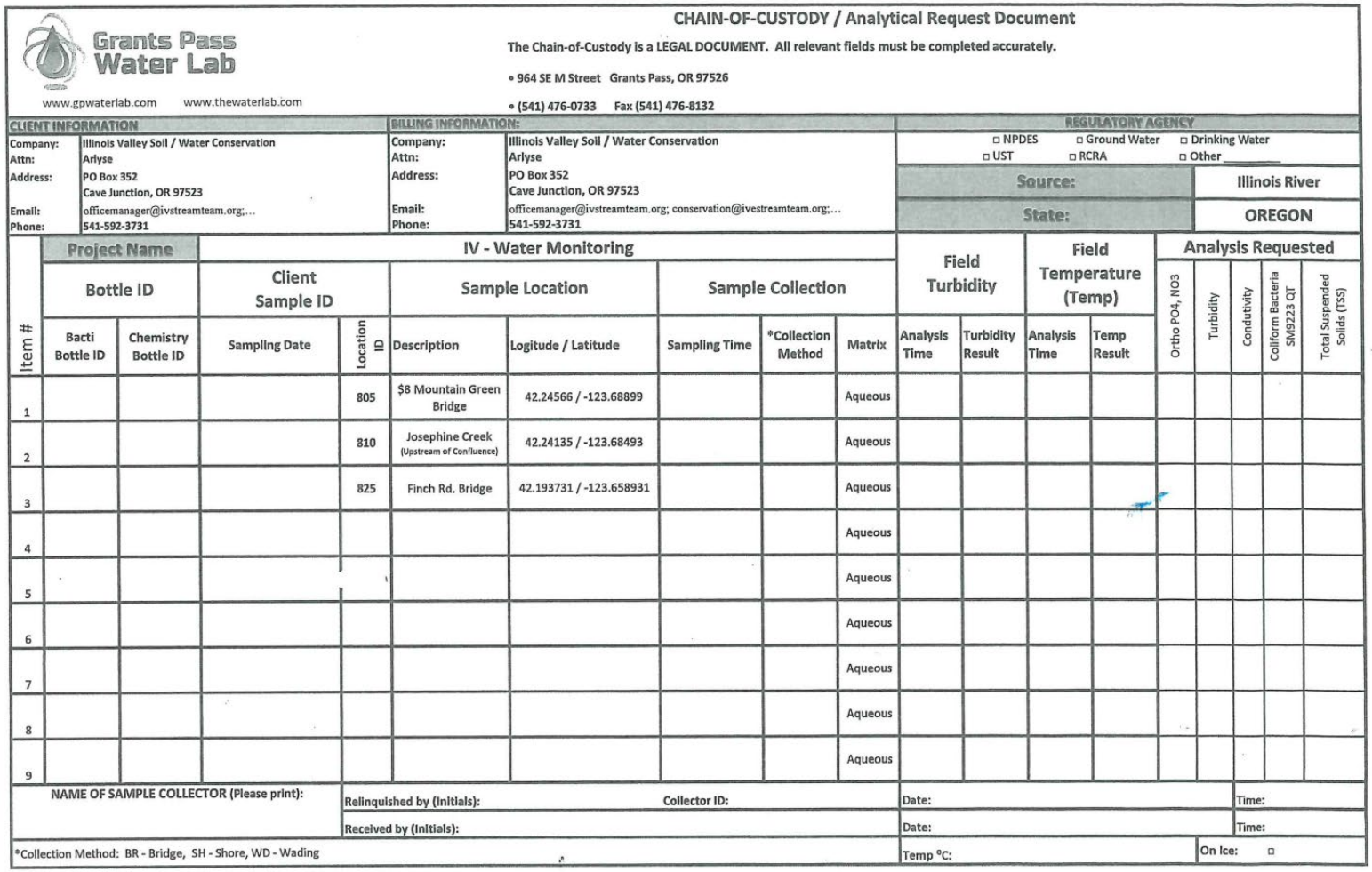
CBO's are ultimately responsible for determining how they use data that does not meet their data quality objectives. The DEQ strives to use only the highest quality of data and generally only use "A" level, and sometimes "B" level data. Data that is designated as "E" level may be used to assist planning additional monitoring or other uses that do not make a determination about a site's water quality. If the data generated by a CBO is discovered to not sufficiently address a CBO's monitoring objectives, then the SAP should be revised or appended to describe any changes to the monitoring program to help the group better achieve their objectives.

5. Revision History

Table 10 Revision History

Revision	Date	Changes	Editor
1.0	3/27/2035	Initial document	John Bellville

Figure 1 Grants Pass Water Lab Chain of Custody Form



Grants Pass Water Lab

www.gpwaterlab.com www.thewaterlab.com

CHAIN-OF-CUSTODY / Analytical Request Document

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

• 964 SE M Street Grants Pass, OR 97526

• (541) 476-0733 Fax (541) 476-8132

CLIENT INFORMATION		BILLING INFORMATION:	
Company:	Illinois Valley Soil / Water Conservation	Company:	Illinois Valley Soil / Water Conservation
Attn:	Arlyse	Attn:	Arlyse
Address:	PO Box 352 Cave Junction, OR 97523	Address:	PO Box 352 Cave Junction, OR 97523
Email:	officemanager@ivstreamteam.org;...	Email:	officemanager@ivstreamteam.org; conservation@ivestreamteam.org;...
Phone:	541-592-3731	Phone:	541-592-3731

REGULATORY AGENCY: ☐ NPDES ☐ Ground Water ☐ Drinking Water ☐ UST ☐ RCRA ☐ Other _____

Source: Illinois River

State: OREGON

Project Name: IV - Water Monitoring

Item #	Bottle ID		Client Sample ID	Sample Location			Sample Collection			Field Turbidity		Field Temperature (Temp)		Analysis Requested				
	Bacti Bottle ID	Chemistry Bottle ID	Sampling Date	Location ID	Description	Logitude / Latitude	Sampling Time	*Collection Method	Matrix	Analysis Time	Turbidity Result	Analysis Time	Temp Result	Ortho PO4, NO3	Turbidity	Condutivity	Coliform Bacteria SM9223 QT	Total Suspended Solids (TSS)
1				805	$8 Mountain Green Bridge	42.24566 / -123.68899			Aqueous									
2				810	Josephine Creek (Upstream of Confluence)	42.24135 / -123.68493			Aqueous									
3				825	Finch Rd. Bridge	42.193731 / -123.658931			Aqueous									
4									Aqueous									
5									Aqueous									
6									Aqueous									
7									Aqueous									
8									Aqueous									
9									Aqueous									

NAME OF SAMPLE COLLECTOR (Please print):

Relinquished by (Initials): Collector ID: Date: Time:

Received by (Initials): Date: Time:

*Collection Method: BR - Bridge, SH - Shore, WD - Wading

Temp °C: On Ice: ☐

Figure 2 Continuous Temperature Monitoring Log Sheet

DO LOGGER SITE VISIT INFORMATION										
Site ID:				Logger ID:						
Site Name:										
Analyst(s):				Audit Meter Type:						
				Audit Meter ID:						
Logger Condition Comments:										

Post Deployment DO Calibration Verification										
Date:		Location:					Analyst:			
Barometric Pressure Source:					Verification Standard Start Time:					
Verification Standard		Logger Readings		Baro.Pres	Optional DO Audit Meter				Theoretical Value	
Time	Std Type	Temp(°C)	DO (mg/L)	mmHg	Temp(°C)	DO (mg/L)	DO % Sat	Stable?	DO (mg/L)	Diff (mg/L)
Document stabilit of standard by recording temp and DO every 5 minutes after suspected equilibration until neither change by more than 0.1 unit										
1.										
2.										
3.										
4.										
5.										
6.										
7.										
Comments:										

Post Deployment Temperature Calibration Verification										
Date:		NIST Thermometer:				Analyst:				
Bath 1	Logger	NIST				Bath 2	Logger	NIST		
Time	Temp(°C)	Temp(°C)	Diff (°C)	DQL		Time	Temp(°C)	Temp(°C)	Diff (°C)	DQL

Download Information					
Computer		Logger		Diff >	Timeshift comments:
Date	Time	Date	Time	15 min?	

Figure 3 IEH Analytical Sample Submission Form

IEH Laboratories & Consulting Group

Sample Submission Form

F81/GN021/02

Customer Information			
Technical Contact:	John Bellville (conservation@ivstreamteam.org)	Completed and signed sample submission form indicates agreement with IEH terms and conditions and authorizes IEH to perform the requested test(s). To protect the confidentiality of customer information, IEH will only include a unique **Customer ID** and **Job ID** on final reports instead of the customer name and address.	
Invoicing Contact:	Arlyse DeLoyola (officemanager@ivstreamteam.org)		
Company Name:	Illinois Valley Soil and Water Conservation District	Please check preferred option(s) for receiving results (Electronic documents will be provided in Adobe Acrobat (PDF) format).	
Phone:	(541) 592-3731	☐	**Fax to:**
Street Address:	PO Box 352	☑	**E-mail to:** conservation@ivstreamteam.org
City, State, Zip:	Cave Junction, OR, 97523	☐	**Mailed** — **Page** ___ **of** ___
Purchase Order #:		**Turn around time requested*:** ☐ **Routine** ☐ **Expedited** ☐ **Emergency**	

Item #	Customer Sample ID	Sample Type (e.g. air, water, meat, surface wipe, etc.)	Analyses Requested** (e.g. Quantitative Tests (QNT) : APC; TCC; ECC; LAB; AnPC; PSYCH; AnPSYCH; Y&M; ST Total; ST Fungi; Viable Fungi; Env. Bact; Ent. Bact, Qualitative Tests (QL): ECO157; Salm; List; Lm, Other (describe))	Total Volume/Area (as applicable)	Comments (Write below as you want them to appear on the final report (Please use separate sheet if you would like to provide additional information about your samples).	IEH Use Only
e.g.	RX-112233	Water	QNT: APC+TCC + ECC	N/A	Purified Water Sample	IEH Lab Sample #

Sample Condition: ☐ Frozen ☐ Refrigerated ☐ Other (describe): Date/Time Sample(s) Shipped:

* Emergency Services require prior notification and sample arrival by 9:00 AM PST, Mon - Sat. Please call our Service Representative at 206-522-5432 for more information regarding turn around time, price and other conditions.
** Definitions for abbreviations: **APC**=Aerobic Plate Count (Total Plate Count);**TCC**=Total Coliform Count; **ECC**=Coliform/*E. coli* Count; **LAB**=Lactic Acid Bacteria Count; **AnPC**=Anaerobic Plate Count; **PSYCH**=Aerobic Psychotrophic Count; **AnPSYCH**=Anaerobic Psychotrophic Count; **Y&M**=Yeast & Mold Count; **ST Total** =SporeTrap (Zefon or equiv.) Total Dust; **ST Fungi**=Spore Trap (Zefon or Equiv.) Fungi only; **Viable Fungi**=Viable Fungi (2 STD Media Bulk or Swab); **Env. Bact**=Envir. Bacteria, 30°C Incu.; **Ent. Bact**=Entero Bacteria, 37°C Incu; **ECO157**=*E. coli* O157:H7 Detection; **Salm**=*Salmonella* spp. Detection; **List**=*Listeria* spp. detection and **Lm**=*L. monocytogenes* detection.

Customer Special Instructions:

Submitted By (print):
Authorized Signature:

IEH Use Only	Customer ID #:	Job ID # / IEH Project #:	File Name / Sample Set #:
Date/Time Received:	Due Date/Time:	☐ Send Results to IEH Project Manager:	
IEH Special Instructions/ Customer Follow up:		Received By (print):	
		Authorized Signature:	

13741 Lake City Way NE, Seattle WA 98125 | P 206.466.1758 | F 206.306.8883 | info@iehinc.com | www.iehinc.com
IEH Sample Submission Form © 12/22/2021

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