

Metadata List for Salt Dilution Methods

| Instrumentation | | | | |
|--------------------------|--|--|---------|--------------------------|
| Sensor ID: | Make: | Model: | Serial: | Metadata |
| Temperature Compensation | Non-Linear (25°C) Linear (25°C) | <input type="checkbox"/> <input type="checkbox"/> | | <input type="checkbox"/> |
| EC Sensor Resolution | EC _T measurements < _____ μS/cm EC _T measurements > _____ μS/cm | Resolution: _____ μS/cm Resolution: _____ μS/cm | | <input type="checkbox"/> |
| EC Sensor Calibration | Standard: _____ μS/cm Expiry Date: _____ | Calibration Date < 6 months Date: _____ | | <input type="checkbox"/> |
| Temperature Verification | Sensor Reading _____ °C Manual Reading _____ °C | Temp Verified < 6 months Date: _____ | | <input type="checkbox"/> |

| Tracer Data | | | |
|--|---|--------|---|
| Maker: | Brand: | Lot #: | Metadata |
| Tracer Composition | Are salt tracers of food grade quality? | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Tracer Weight | Scale recently calibrated (< 1 year)? Scale Calibration Date: _____ Measured to _____ % or +/- _____ g | | Y <input type="checkbox"/> / N <input type="checkbox"/> <input type="checkbox"/> |
| | | | |
| Tracer Volume (Relative Concentration) | Measured with _____ rated to +/- _____ ml | | <input type="checkbox"/> |

| Field Procedures – Channel Reach Properties | | | |
|--|---|-------|---|
| Stream: | Stage (m): | Date: | Metadata |
| Mixing Reach Properties | Pictures: <input type="checkbox"/> _____ | | <input type="checkbox"/> |
| | Is there a lack of additional water inputs (streams, ditches, groundwater) within measurement reach? Describe: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Channel properties that facilitate lateral mixing and enhance turbulence at the stage measured are present? Describe: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Channel does not contain substantial storage, pool volumes, and re-circulating streamflow? Describe: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Channel does not contain any vegetation or other features that could affect the storage and release of the tracer? Describe: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Are there at least 2 constrictions or other mixing features to promote lateral mixing? Describe: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Injection Point Properties | Pictures: <input type="checkbox"/> _____ | | <input type="checkbox"/> |
| | Injection point is located above a feature (e.g., constriction) that promotes lateral mixing? Description: _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Measurement Point Properties and Sensor Placement - Slug Injection | Pictures: <input type="checkbox"/> _____ | | <input type="checkbox"/> |
| | Were all measurement points (sensors) located in areas lacking back eddies, recirculating flow, and aeration? | | Y <input type="checkbox"/> / N <input type="checkbox"/> |

| | | |
|---|--|---|
| | _____ m from Point of Injection (estimate) (probe 1) _____ m from Point of Injection (estimate) (probe 2) _____ m from Point of Injection (estimate) (probe 3) | <input type="checkbox"/> |
| | Was complete mixing confirmed and mixing length > 7 wetted channel widths? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Average Reach Width _____m Wetted Channel Width Equivalent _____m Description: _____ | <input type="checkbox"/> |
| Measurement Point Properties and Sensor Placement - Constant Rate | Pictures: <input type="checkbox"/> _____ | <input type="checkbox"/> |
| | Were all measurement points located in areas lacking back eddies, recirculating flow, and aeration? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Describe all locations measured and approximate distances from injection point _____ _____ _____ | <input type="checkbox"/> |
| | Were each of these points measured at least 3 times to confirm a stable exceedance level over background? If no, describe why _____ _____ | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Average Reach Width _____m Wetted Channel Width Equivalent _____m | <input type="checkbox"/> |

| Field Procedures | | Run # |
|---------------------------|--|---|
| Stream: | Stage: | Date: |
| Tracer Dose: General | No permissions or permits were required? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | No sensitive species were present? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Was dosing designed to be below BC Water Quality guidelines for chloride for most sensitive designated use? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Tracer Dose: Mass Balance | Estimated Flow _____ m ³ /sec Estimated Flow(2) _____ m ³ /sec Dose Ratio _____ kg/m ³ /sec Mass Injected _____ kg | <input type="checkbox"/> |

| | | |
|---|--|---|
| Tracer Dose: Relative Concentration – Salt in Solution | Batch # _____ Estimated Flow _____ m ³ /sec Estimated Flow(2) _____ m ³ /sec Solution Concentration _____ kgs / _____ L Dose Ratio _____ L/m ³ /sec Volume Injected: _____ L | <input type="checkbox"/> |
| Tracer Dose: Relative Concentration – Constant Rate | Batch # _____ Estimated Flow _____ m ³ /sec Estimated Flow2 _____ m ³ /sec Dose _____ L/m ³ /sec Solution Concentration _____ kgs / _____ L Injected Rate: _____ ml/s | <input type="checkbox"/> |
| Derivation of k Constant for Relative Concentration Methods | In Situ _____ <input type="checkbox"/> | <input type="checkbox"/> |
| | Were separate k constants developed per EC sensor, per injection solution batch? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Site Specific (automatic salt injection) _____ <input type="checkbox"/> | <input type="checkbox"/> |
| | Were site-specific k constants developed per EC sensor, per site that were confirmed > 2 times (i.e., start and end of injection solution batch)? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Derivation of CF_T Constant for Mass Balance Method | In Situ _____ <input type="checkbox"/> | <input type="checkbox"/> |
| | Were separate CF_T constants developed per EC sensor? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Site Specific _____ <input type="checkbox"/> | <input type="checkbox"/> |
| | Were site-specific CF_T constants developed per EC sensor, per site that were confirmed > 5 times? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Lab Derived: _____ <input type="checkbox"/> | <input type="checkbox"/> |
| | Were all EC sensors recently calibrated (< 6 months) and demonstrated to produce a value that was close to the lab-derived CF_T ? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Sampling Interval | Manual: every _____ secs Automatic Data Logging: _____ sec Point (constant rate only) _____ locations, _____ times Breakthrough Curve Duration _____ mins | <input type="checkbox"/> |
| EC_T Measurements (outside of range) | Were all stream temperatures > 2°C and electrical conductivities measured > 3 µS/cm? | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Background EC_T Sensor (optional if data correction method applied) | Placed above injection point or measured above POI before and after salt run? | Y <input type="checkbox"/> / N <input type="checkbox"/> |

| | | |
|--|---|---|
| Measurement Sensor(s) Placement | See <i>Channel Reach Properties</i> form | <input type="checkbox"/> |
| Shifting Background/ Variable Background/Exceedance over Background | Water Level Start: _____ m Start EC_{BG} _____ $\mu\text{S/cm}$ Water Level End: _____ m End EC_{BG} _____ $\mu\text{S/cm}$ Level Change _____ m/hr EC_{BG} Change _____ $\mu\text{S/cm}$ Max. Exceedance over Background _____ $\mu\text{S/cm}$ | <input type="checkbox"/> |
| | Was the EC_{BG} steady? If no, list range: _____ $\mu\text{S/cm}$ to _____ $\mu\text{S/cm}$ | Y <input type="checkbox"/> / N <input type="checkbox"/> |

| Data Calculations and Assessment | | | |
|--|---|-------|---|
| Stream: | Stage: | Date: | Metadata |
| Data Spikes, Errors and Outliers | Were more than 5 measurements or 0.5% of the data set adjusted? If yes, describe _____ _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Shape of Break- through Curve | Image/ File Name: _____ | | <input type="checkbox"/> |
| Shifting Background | Were corrections for a shifting EC_{BG} applied? Method description: _____ _____ _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Variable Background: Breakthrough Curve Detection and Separation | Were methods applied to define the start and end of the breakthrough curve due to a variable EC_{BG} ? Method description: _____ _____ _____ | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Difference between EC Probes per Runs | Were two or more EC Probes used per tracer run? Probe 1 _____ m^3/sec , Probe 2 _____ m^3/sec Probe 3 _____ m^3/sec , Probe 4 _____ m^3/sec | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Is the % difference between sensors, per run > 7%? | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| Number of Salt Runs per Discharge Measurement | Were two or more runs used per derived discharge value? Run 1 _____ m^3/sec , Run 2 _____ m^3/sec Run 3 _____ m^3/sec , Run 4 _____ m^3/sec | | Y <input type="checkbox"/> / N <input type="checkbox"/> |
| | Is the % difference between the runs > 7%? | | Y <input type="checkbox"/> / N <input type="checkbox"/> |