Glacier Laboratories, Inc
Providing Industrial & Environmental Water Treatment Solutions Since 1987

CLOSED-LOOP GLYCOL SYSTEM INSPECTION CHECKLIST

A field-ready guide for fluid condition, freeze protection, corrosion control, and maintenance planning.

Customer / Facility: _____	**Inspection Date:** _____
System / Location: _____	**Inspector:** _____
System Type: Heating / Chilled Water / Snow Melt / Process	**Glycol Type:** PG / EG / Unknown
Estimated System Volume: _____	**Last Lab Analysis:** _____

1 | SYSTEM WALK-THROUGH

- ■ Inspect pumps, valves, fittings, vents, heat exchangers, and expansion tanks for leakage.
- ■ Check for wet insulation, damaged pipe covering, staining, or visible corrosion around equipment.
- ■ Verify system pressure and temperature appear consistent with normal operating conditions.
- ■ Confirm drain, fill, sample, and isolation points are accessible and identifiable.
- ■ Inspect strainers, filters, and side-stream filtration equipment where installed.
- ■ Listen for abnormal pump noise, cavitation, vibration, or flow-related concerns.
- ■ Ask whether repairs, fluid additions, shutdowns, or freeze events occurred since the prior inspection.

Field note: Document leak locations, pressure concerns, repair history, and any evidence of frequent makeup water.

2 | FLUID CONDITION REVIEW

- ■ Fluid is clear or lightly tinted, consistent with the approved glycol product and dye tracer.
- ■ No heavy haze, mud, suspended solids, sludge, scale, or sediment is observed.
- ■ No oily film, persistent foam, biological growth, slime, or floating debris is present.
- ■ No sharp, sour, burnt, or rotten-egg odor is detected at the sample point.
- ■ Sample point is clean and capable of providing a representative system sample.
- ■ Fluid color and visual condition are consistent with prior service history, if known.

Field note: Cloudy, dark, black, odorous, or contaminated fluid should be sampled and evaluated promptly.

3 | CONDITIONS REQUIRING PROMPT ACTION

- ■ Active leak, recurring pressure loss, or repeated unexplained makeup-water demand.
- ■ Visible corrosion products, biofilm, unusual debris, or suspected cross-contamination.
- ■ Fluid condition outside the expected appearance or odor profile.
- ■ Known use of an unapproved glycol product or uncertain inhibitor package.
- ■ Unexpected system performance changes, freezing concerns, or heat-transfer complaints.

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4 | GLYCOL PROTECTION VERIFICATION

- ■ Test glycol concentration using a clean, calibrated refractometer.
- ■ Record the indicated freeze-protection temperature.
- ■ Compare the result with the facility design requirement and the approved treatment program.
- ■ Flag insufficient concentration that may expose equipment to freeze damage.
- ■ Flag excessive concentration that may reduce heat-transfer efficiency or increase pumping demand.

Glycol concentration: _____ %	**Freeze protection:** _____ °F
Required protection: _____ °F	**Product / inhibitor package:** _____

5 | WATER CHEMISTRY SCREENING

- ■ Measure pH and compare with the glycol manufacturer or treatment-program target range.
- ■ Measure reserve alkalinity where applicable to evaluate glycol degradation and buffering condition.
- ■ Check corrosion-inhibitor condition using the applicable field method or laboratory result.
- ■ Measure conductivity or other agreed control indicators when part of the service program.
- ■ Compare current results with prior field reports and laboratory data.
- ■ Document abnormal trends and recommend corrective action or laboratory confirmation.

pH: _____	**Reserve alkalinity:** _____	**Conductivity:** _____ µS/cm
Inhibitor result: _____	**Prior result reviewed:** Yes / No	**Sample collected:** Yes / No

6 | SYSTEM HEALTH & EQUIPMENT

- ■ Review corrosion coupon condition and replacement schedule, when coupons are installed.
- ■ Confirm air elimination equipment and expansion tank operation are appropriate.
- ■ Inspect filter condition; clean or replace filters as required.
- ■ Evaluate signs of oxygen ingress, corrosion activity, or fresh-water dilution.
- ■ Record any equipment repair, service limitation, access issue, or safety concern.

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7 | WHEN TO SUBMIT A LAB SAMPLE

- ■ At commissioning of a new glycol system or after a major fluid replacement.
- ■ At least annually for critical closed-loop systems, or as required by the treatment program.
- ■ After significant makeup-water addition, fluid loss, repairs, contamination, or freeze exposure.
- ■ When glycol age, product type, inhibitor package, or fluid history is uncertain.
- ■ Whenever field readings are out of range or fluid appearance suggests degradation or contamination.

8 | PROFESSIONAL ANALYSIS MAY INCLUDE

- ■ Confirmed glycol concentration and freeze-point verification.
- ■ Glycol degradation indicators, pH, and reserve alkalinity.
- ■ Corrosion-inhibitor analysis and corrosion-metal screening.
- ■ Chloride and contamination indicators that may affect system integrity.
- ■ Microbiological analysis when biological activity, slime, or odor is suspected.
- ■ Recommendations for inhibitor adjustment, filtration, cleaning, partial replacement, or full fluid replacement.

9 | FINDINGS & RECOMMENDATIONS

- ■ Condition rating: Acceptable / Monitor / Corrective action needed / Urgent attention needed.
- ■ Customer has been advised of significant findings and recommended next steps.
- ■ Follow-up sampling, treatment adjustment, filtration service, or repair has been recommended where needed.

Recommended action / observations:

Target completion date: _____ **Customer representative:** _____

Glacier Laboratories technician: _____ **Date:** _____

This checklist is a field-screening resource. Final corrective actions should be based on system conditions, manufacturer guidance, and laboratory analysis when indicated.