

Asset Risk & Underwriting Audit Form

Purpose: collect the asset, operational, sediment, risk, installation, and dashboard inputs required to underwrite each tank, basin, lagoon, digester, or storage asset for Bristol's recurring Capacity Assurance Program — and to populate the program dashboard database.

1. Audit Control Information

Client / Facility Name	
Client ID / Account #	
Facility Address	
GPS Coordinates (lat, long)	
Primary Contact / Title	
Phone / Email	
Audit Date	
Bristol Auditor	
Asset Name	
Asset ID (dashboard key)	
Industry Segment	☐ WWTP ☐ Anaerobic Digester ☐ Crude/Oil Storage ☐ Industrial ☐ Other:
Program Being Considered	☐ Monitoring & Advisory ☐ Capacity Assurance ☐ Enterprise Reliability
Confidentiality / NDA Confirmed	☐ Yes ☐ No Notes:

2. Asset Type & Physical Configuration

Standard Units Used	Volume: ☐ gal ☐ CY ☐ bbl ☐ m ³ Length: ☐ ft ☐ m Flow: ☐ gpd ☐ gpm ☐ bbl/d
Asset Type	☐ Digester ☐ Clarifier ☐ Lagoon ☐ EQ Tank ☐ Sludge Storage ☐ Crude Oil Tank ☐ Process Tank ☐ Other
Tank / Basin Shape	☐ Circular ☐ Rectangular ☐ Lagoon ☐ Irregular ☐ Other
Diameter / Length / Width	
Sidewall Height / Liquid Depth	
Total Design Volume	
Normal Operating Volume	
Freeboard / Headspace	
Floor Type	☐ Flat ☐ Sloped ☐ Cone ☐ Channel floor ☐ Unknown
Roof Type	☐ Open ☐ Fixed roof ☐ Floating roof ☐ Double roof ☐ Covered lagoon ☐ Other
Internal Obstructions	☐ Mixers ☐ Columns ☐ Coils ☐ Piping ☐ Baffles ☐ Unknown
Access Points	Manways, valves, roof hatches, side access, available clearances:
Existing Bristol Valve Installed?	☐ Yes ☐ No Size: ____ in. Location / elevation:
Potential Installation Constraints	

3. Operating Conditions & Process Inputs

Normal Influent Flow / Throughput	gpd, gpm, barrels/day, or other:
Peak Flow / Surge Events	
Design HRT (days)	Design-basis hydraulic retention time (volume ÷ flow) — dashboard field:
Operating Schedule	☐ Continuous ☐ Batch ☐ Seasonal ☐ Intermittent
Material / Feedstock Type	Municipal sludge, manure, food waste, FOG, crude, produced water, industrial solids, other:
Estimated Influent % Solids	
Estimated Effluent / Discharge % Solids	
Density / Specific Gravity	
Sand / Grit Loading	☐ Low ☐ Medium ☐ High ☐ Unknown
Fibrous / Rag / Debris Loading	☐ Low ☐ Medium ☐ High ☐ Unknown
FOG / Paraffin / Grease Risk	☐ Low ☐ Medium ☐ High ☐ Unknown
Abrasiveness / Wear Risk	☐ Low ☐ Medium ☐ High ☐ Unknown
Temperature Range	
pH / Corrosivity	
Hazard Classification	☐ Non-hazardous ☐ C1D1 ☐ C1D2 ☐ H2S ☐ Explosive vapor risk ☐ Unknown
Seasonal Variability	

4. Existing Sediment / Sludge Condition

Known Sediment Depth	
Estimated Sediment Volume	cubic yards / gallons / barrels:
Estimated Accumulation Rate	Per year (CY/yr, %/yr, or in/yr) — drives maintenance forecast:
Baseline Effective Capacity % (measured)	
Baseline Measurement Date	
Last Cleanout Date	
Last Cleanout Method	☐ Drain/offline ☐ Dredge ☐ Vacuum ☐ Manual ☐ Online ☐ Unknown

Historical Cleanout Cost	
Historical Downtime	
Known Problem Areas	
Sediment Composition	☐ Sand ☐ Grit ☐ Biosolids ☐ Sludge ☐ Paraffin ☐ Scale ☐ Rags ☐ Unknown
Compaction Level	☐ Soft ☐ Medium ☐ Hard/compacted ☐ Unknown
Floating Material / Scum Layer	☐ None ☐ Low ☐ Medium ☐ High ☐ Unknown
Operational Symptoms	☐ Odor ☐ Foaming ☐ Solids carryover ☐ Reduced storage ☐ Low HRT ☐ Pump wear ☐ Compliance risk
Baseline Scan Required	☐ Yes ☐ No ☐ Already available

5. Instrumentation & Bristola Sediment Analyzer Inputs

Use this section to determine whether dual sediment analyzers can be installed for real-time mass-balance monitoring: solids in minus solids out equals estimated retained sediment, calibrated by periodic field validation.

Influent Pipe Size / Material	
Influent Straight Run Available	Upstream / downstream length:
Influent Flow Meter Existing?	☐ Yes ☐ No Type / model / output:
Influent Analyzer Install Location	
Discharge Pipe Size / Material	
Discharge Straight Run Available	Upstream / downstream length:
Discharge Flow Meter Existing?	☐ Yes ☐ No Type / model / output:
Discharge Analyzer Install Location	
Power Available	☐ 120V ☐ 240V ☐ 480V ☐ Solar/remote ☐ Other
Signal / Connectivity	☐ Ethernet ☐ Cellular ☐ Wi-Fi ☐ Modbus ☐ 4-20mA ☐ PLC/SCADA
PLC / SCADA Integration Needed	☐ Yes ☐ No System / vendor:
Data Frequency Required	☐ 1 min ☐ 5 min ☐ 15 min ☐ Hourly ☐ Daily
Field Validation / Recalibration Cadence	☐ Monthly ☐ Quarterly ☐ Semi-annual ☐ Annual
Sample Port / Calibration Access	
Installation Complexity	☐ Low ☐ Medium ☐ High
Estimated Analyzer Package	☐ Monitoring only ☐ Dual analyzer ☐ Dual analyzer + flow ☐ Full analyzer + PLC/dashboard

6. Dashboard Inputs Required

These fields map directly to the program dashboard database — the database key for each asset record is shown in parentheses. Each should trace to a source captured elsewhere in this form.

Asset ID (id)	Audit — Section 1	
Client ID	Audit — Section 1	
Asset Name (name)	Client / Bristola	
Asset Type (type)	Audit — Section 2	
Units Basis	Audit — Section 2	
Design Volume, gal (volumeGal)	Drawings / client data	
Normal Operating Volume	Operations data	
Design HRT, days (designHrt)	Flow + volume — Section 3	
Effective Capacity % (capacityPct)	Model + validation	
Target Threshold % (targetPct)	Contract underwriting	
Assurance Floor % (assurancePct)	Contract underwriting	
Estimated Sediment Inventory, CY (sedimentCY)	Model + scan	
Baseline Capacity % & Date	Baseline scan	
Accumulation Rate, CY/day (accumRateCYDay)	Model + history	
Initial Health Score (health)	Risk class → health	
Sediment Trend	Analyzer / model	
Solids In	Influent analyzer + flow	
Solids Out	Discharge analyzer + flow	
Estimated Solids Retained	Software mass balance	
HRT / Storage Capacity	Flow + volume model	
Risk Class	Underwriting score	
Next Maintenance Forecast (nextMaintenance)	Software + Bristola review	
Included Maintenance Allowance, CY (includedCY)	Contract / tier	
Maintenance Used / Remaining, CY (usedCY)	Bristola job data	
Data Update Frequency	Analyzer / SCADA config	
Alerts Enabled	Threshold rules	
Dashboard Users / Roles	Client contacts	
Monthly Report Recipient(s)	Client contacts	

7. Risk Scoring Worksheet

Score each item 1–5. 1 = low risk / easy; 5 = high risk / difficult. Total score determines preliminary underwriting class and pricing multiplier.

Sediment accumulation rate		
Sand / grit / abrasive content		

Fibrous / rag / debris content		
FOG / paraffin / grease / sticky material		
Access difficulty		
Hazard classification		
Operational criticality		
Historical cleanout difficulty		
Flow / throughput variability		
Client operational discipline / data availability		
Analyzer installation complexity		
Fleet / logistics distance		
TOTAL SCORE		

A	12–22	Stable, low accumulation, good access	Base pricing
B	23–32	Normal risk, manageable accumulation	Base + 10–20 %
C	33–42	Moderate / high solids or operating complexity	Base + 25–45 %
D	43–52	High accumulation, abrasive / sticky, difficult access	Base + 50–80 %
E	53–60	Extreme / experimental / high hazard	Custom underwriting or decline

8. Fee Determination Worksheet

Deployment Fee	Hardware, install, commissioning, calibration, dashboard setup, baseline model. Target: cover Bristola cost plus margin.
Monthly Platform Fee	Dashboard, analytics, reporting, data hosting, support, model updates.
Monthly Assurance Fee	Proactive maintenance, cleaning allowance, fleet reservation, priority response.
Included Cleaning Allowance	CY/year, gallons/year, hours/year, or threshold-based maintenance amount.
Excess / Restoration Event Rate	Used if accumulation results from excluded events, undisclosed feedstock change, abuse, mixer failure, or above included allowance.
Guarantee / Target Threshold	75%, 80%, 85%, 90%, 95% effective capacity or custom target.
Response Level	Standard, priority, emergency, enterprise reserve.
Term Length	Recommended: 36–60 months to recover deployment cost and stabilize maintenance model.
Escalator	Annual CPI or fixed 3–5% recommended.
Re-underwriting Trigger	Major flow / material / process / access / hazard changes.

9. Client Obligations & Exclusion Check

Client must disclose major feedstock / material or throughput changes	☐ Confirmed
Client must maintain mixers, pumps, valves, access systems, and safe work conditions	☐ Confirmed
Structural failure excluded	☐ Confirmed
Mixer / equipment failure excluded unless specifically covered	☐ Confirmed
Undisclosed process changes excluded	☐ Confirmed
Force majeure / weather / access restriction exclusions reviewed	☐ Confirmed
Hazardous waste / material handling responsibility defined	☐ Confirmed
Disposal responsibility defined	☐ Bristola ☐ Client ☐ Shared
Permits / site access requirements defined	☐ Confirmed
Safety orientation / site rules required	☐ Confirmed

10. Underwriting Decision & Recommended Program

Recommended Program Tier	☐ Monitoring & Advisory ☐ Capacity Assurance ☐ Enterprise Reliability ☐ Decline / custom only
Recommended Target Capacity Threshold	
Recommended Assurance / Action Floor Threshold	
Recommended Analyzer Configuration	
Recommended Deployment Fee	
Recommended Monthly Fee	
Included Cleaning Allowance	
Excess Cleaning / Restoration Rate	
Recommended Term	
Special Conditions	
Bristola Approval	Name / Date:
Client Review Meeting Date	

11. Required Attachments

Asset drawings / as-builts	☐ Yes ☐ No	
Process flow diagram	☐ Yes ☐ No	
Historical cleanout records	☐ Yes ☐ No	
Flow / throughput history	☐ Yes ☐ No	
Solids / lab data	☐ Yes ☐ No	
Photos / site access images	☐ Yes ☐ No	

SCADA / instrumentation list	☐ Yes ☐ No	
Safety / hazard information	☐ Yes ☐ No	
Permit or compliance constraints	☐ Yes ☐ No	
Baseline sediment scan (if available)	☐ Yes ☐ No	
GPS coordinates / site map	☐ Yes ☐ No	