



IRRIGATION DISTRICT MANAGEMENT

Measurement Where Decisions Are Made.

Montana irrigation districts manage water rights, deliveries, and infrastructure that has been operating for generations — with paper logs, manual headgate operation, and ditch-rider rounds that haven't fundamentally changed in fifty years. The big SCADA modernization vendors quote projects in the millions. BSG offers districts a different option: targeted monitoring at the points where it matters, transparent pricing, and a platform that grows with the district.

The Problem We Solve

Irrigation district managers and boards in Montana operate under conditions that off-the-shelf SCADA products weren't built for:

- Headgates manually actuated by ditch riders driving the canal twice or more per day during the season — with no record of position changes outside paper logs.
- Water rights documentation that depends on operator memory and paper records when disputes arise. Equity complaints between head-of-canal and tail-of-canal users with no objective data to resolve them.
- Aging concrete diversion structures, weirs, and headgates — many built before 1970 — that need maintenance scheduling based on condition, not just calendar.
- Spring runoff coordination between the district, upstream reservoir releases, and downstream demand, often managed by phone calls and educated guesses.
- Board reporting requirements, rate cases, and grant applications that need historical data the district doesn't systematically capture.
- Canal corridors that pass through underserved areas where cellular coverage is unreliable or absent — making conventional cellular telemetry products non-starters.

What BSG Deploys

BSG focuses on measurement, alerting, and documentation — not on automated headgate actuation. Most Montana districts don't need (and can't justify the budget for) Rubicon-class automated FlumeGate systems. They need to know what their water is doing, in real time, with a permanent record:

- Headgate position monitoring. Sensors on existing manual headgates report open/closed status and gate position over time. The ditch rider still operates the gate; the system documents what was set and when.
- Water level sensors at key canal points and turnouts. Detect problems — blockages, breaches, unauthorized diversions — within minutes instead of hours or days.
- Flow measurement at critical structures (weirs, flumes, parshall flumes). Cumulative totals for water rights compliance and equity reporting.
- Reservoir and diversion structure monitoring. Levels, gate positions, spillway status — inputs to better runoff coordination decisions.
- Pressure and pump status at booster stations and pressurized lateral systems.

- Weather stations along the district. Rainfall, temperature, evapotranspiration data feeding allocation and demand forecasting.
- RS485/Modbus bridge support for any existing PLC-controlled equipment the district already owns. We don't make you replace what's already working.

Coverage Where Cellular Doesn't Reach

Most districts span areas where cellular service is spotty or absent. BSG addresses this with a different network architecture:

- Solar-powered LoRaWAN gateways mounted at high points along the district. Each gateway covers up to 6,000–10,000 acres in line-of-sight terrain — well-suited to the linear geometry of canal corridors.
- Partnerships with local Wireless Internet Service Providers (WISPs) for backhaul where their coverage reaches — BSG co-locates gateways at existing WISP tower sites.
- Honest scoping during the site visit. We will tell you which canal segments and structures we can cover and which require additional infrastructure, before you spend money.

What It Tells You

- Real-time visibility on every monitored structure — headgate positions, water levels, flow, pump status — in a single dashboard accessible from any device.
- Automatic alerts on conditions that need attention. Sudden water level drops, pumps offline, structures behaving outside historical norms. Routed to ditch riders, managers, or board members based on your escalation rules.
- Defensible historical record for water rights compliance, equity disputes, board reporting, and rate cases. Every reading timestamped, exportable, and queryable.
- Pattern detection over time. The system learns what each structure's normal behavior looks like across the season and flags anomalies — useful for catching slow leaks, gradual structural settlement, or changing demand patterns.
- Map-based visualization of the entire district. Every monitored point pinned to its real-world location with status at a glance.

Investment Range

Districts can start small — a few critical structures — and expand based on what proves valuable. Pricing is transparent and project-based, not multi-year-modernization-project-scoped.

Deployment	Typical Install	Monthly Service
Per-site monitoring station (headgate position, water level, flow)	\$2,500 – \$4,500	\$79 – \$149
Mid-canal corridor (3–6 monitoring sites along a lateral)	\$8,500 – \$18,000	\$199 – \$399
District-wide deployment (7+ sites, primary + lateral coverage)	\$25,000 – \$75,000+	Custom quote
Reservoir / diversion structure (level, gate position, spillway monitoring)	\$4,000 – \$8,000	Included in tier

Comparison: Full SCADA modernization through vendors like Rubicon Water (FlumeGates + NeuroFlo + Confluent) typically costs \$500,000 to several million dollars for a mid-size district, and is appropriate for districts with the budget and operational scale to justify automated control. BSG provides measurement, alerting, and documentation at a fraction of that cost, on infrastructure the district already owns. We complement large-scale modernization rather than competing with it.

What You Keep

- Defensible water rights documentation. Disputes resolved with data instead of memory.
- Earlier intervention on system problems. A breach, blockage, or unauthorized diversion caught in minutes rather than hours, before it escalates.
- Reduced ditch-rider windshield time. Riders go where something needs attention, not where the route schedule says.
- Better board meetings. Walk into rate cases, election cycles, and grant reviews with real operational data instead of paper logs.
- Maintenance based on condition, not just calendar. Aging structures that need attention get flagged; structures still performing get left alone.
- A foundation that grows. Start with critical structures. Add laterals over time. The platform expands with the district's priorities.

Schedule a Site Walk-through

BSG site visits are no-pressure. We come out, walk the district's key structures with the manager or ditch rider, listen to where the operational pain is, and tell you honestly what monitoring would help and what it would cost. If the district's priorities are better served by larger-scale modernization, we'll say so.

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