Beyond the Municipal Line: How CleanWater Farm Gave a Septic and Portable Sanitation Operator Full Control of Its Disposal Future

A Five-Year Case Study in Private Septage Management System Development

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Abstract

Across the United States, municipal wastewater treatment facilities are pulling back from accepting outside septage, cutting volumes, raising tipping fees, or ending hauler acceptance programs outright. For septic and portable sanitation operators, the loss of a disposal outlet is not an inconvenience. It is a threat to the survival of the business. This paper presents a five-year case study of CleanWater Farm, a privately owned and fully permitted septage management system developed by BBB Septic and Portable Toilets in Northwest Arkansas. CleanWater Farm now processes about 3 to 3.5 million gallons per year of septic tank, portable toilet, and holding tank waste through a combination of two treatment pathways: beneficial land application across 24 acres of managed hay fields under a nutrient management program, and polymer-assisted mechanical dewatering feeding an infiltration field of approximately 3,600 feet of chamber trench. The paper walks through the siting, permitting, and community relations process; the technology and site design that made a distributed satellite depot model work at scale; and five years of operational results, including odor, soil, and crop outcomes, along with an annualized 2026 operating cost comparison against hauling the same volume to a municipal plant. It closes with an honest accounting of permitting cost and timeline, what the author would change, and a practical framework other operators can use to evaluate whether a private disposal system is viable for their own operation.

Learning Objectives

- Apply a clear framework for evaluating whether a private disposal system is viable for their operation.
- Discuss practical insights into the permitting, siting, and community relations challenges, and how to navigate them.
- Understand an honest operational performance picture after five years.
- Implement actionable takeaways on the technology components that made it work.

1. Introduction: The Disappearing Disposal Outlet

For most of the modern history of the septic and portable sanitation industry, the municipal wastewater treatment plant has been the default answer to a simple operational question: where does the waste go? Haulers built their routes, their pricing, and in many cases their entire business model around the assumption that a nearby plant would keep accepting loads. That assumption is breaking down.

Across the country, treatment plants are cutting outside hauler volumes to protect their own headworks and permit limits, raising tipping fees to levels that erase a hauler's margin, narrowing acceptance windows to a few hours a week, or ending septage acceptance programs entirely. Some of this is

capacity driven. Some of it is political, as plants weigh the goodwill of accepting outside waste against the risk of a violation or a community complaint. Whatever the cause, the effect on the operator is the same: a disposal outlet that used to be reliable becomes unreliable, and a cost that used to be predictable becomes a moving target.

This paper is written from the perspective of an operator who decided not to wait and find out how bad that squeeze would get. BBB Septic and Portable Toilets is the largest septic company in Arkansas and the oldest portable toilet operation in Northwest Arkansas. Rather than continue hauling waste 30 miles to a municipal plant on someone else's schedule, the company spent five years planning, permitting, and building CleanWater Farm, a privately owned and fully permitted septage management facility. This paper documents what that process actually looked like, what it cost, what it produced, and what any operator considering the same path should know before they start.

2. The Problem in Concrete Terms

Before CleanWater Farm, BBB Septic and Portable Toilets faced the same three pressures that are now squeezing operators nationwide: distance, dependency, and discretion.

2.1 Distance

The nearest reliable acceptance point was roughly 30 miles from the bulk of the company's service area. Every load carried a fixed cost in fuel, driver time, and truck wear that had nothing to do with productive work. A driver who could otherwise complete another pump-out or portable toilet service run instead spent hours on the road simply disposing of what had already been collected.

2.2 Dependency

Disposal capacity belonged to someone else. The plant's acceptance schedule, volume caps, and pricing were set by a third party with its own priorities, which did not always align with the hauler's need for predictable, low-cost disposal. A single change in plant policy could reshape the company's cost structure overnight.

2.3 Discretion

Acceptance windows and pricing were subject to change without much notice, and in some cases without much explanation. Operators in this position are, in effect, asking permission to stay in business every time they haul a load.

None of these pressures are unique to Northwest Arkansas. They are the same pressures driving the national trend described in the introduction, and they are the reason this case study is offered as a replicable model rather than a regional curiosity.

3. Solution Design: A Distributed Depot Model Feeding a Centralized Farm

The model that emerged from five years of planning has two layers that solve two different problems.

3.1 The Siting Problem: Satellite Dump Depots

A single large treatment site placed anywhere close to a population center runs into community acceptance problems immediately. CleanWater Farm's design instead separates collection from treatment. A network of distributed satellite dump depot stations allows drivers to off-load close to their service routes, dramatically cutting the empty-haul distance that used to define every disposal trip. The depots themselves carry a much smaller siting footprint and a much smaller community relations burden than a treatment facility, because they are transfer points, not treatment points.

3.2 The Community Acceptance Problem: Centralized Treatment on an 80-Acre Farm

Waste collected at the depots is transported to CleanWater Farm, an 80-acre working farm facility sited and permitted specifically for septage management. Because the farm is agricultural in character and located with appropriate setbacks and buffers, the facility was able to secure the kind of durable community acceptance that a treatment plant proposed inside or next to a residential area rarely achieves. The distributed depot and centralized farm structure effectively decoupled the two hardest problems in this kind of project, siting and public acceptance, and let each be solved on its own terms.

4. The Two Treatment Pathways

CleanWater Farm processes incoming septage through two complementary pathways, chosen based on volume, waste characteristics, and seasonal conditions.

4.1 Beneficial Land Application

The first pathway is beneficial land application across 24 acres of managed hay fields, operated under a formal nutrient management program. Septage is applied at agronomic rates calculated to match crop uptake, which keeps the system operating as a nutrient recycling program rather than a disposal dump. This pathway is the lower-cost, lower-equipment-intensity option, and it is also the one that produces the most visible community and agronomic benefit: hay fields that receive properly managed septage under a nutrient plan consistently outperform unamended fields in yield.

4.2 Polymer-Assisted Mechanical Dewatering and Infiltration

The second pathway handles volumes and waste streams better suited to mechanical processing. Polymer-assisted dewatering separates solids from liquid, producing a manageable solid byproduct and a liquid stream that is directed to an infiltration system built from approximately 3,600 feet of Infiltrator chamber trench. This pathway carries a higher capital cost but provides year-round processing capacity that is not dependent on field conditions or growing season, which matters for an operation that must accept waste every day regardless of weather.

Running both pathways side by side gives CleanWater Farm operational flexibility that a single-method site would not have. When field conditions are wet or the growing season has ended, volume shifts toward mechanical dewatering and infiltration. When conditions are favorable, land application carries a larger share of the load at lower cost.

5. Permitting, Siting, and Community Relations: An Honest Accounting

This is the section most conference sessions skip, and it is the section operators considering this path most need.

5.1 Timeline and Cost

Planning, permitting, and construction of CleanWater Farm took five years from initial concept to full operation. That timeline was driven less by construction than by the sequential nature of environmental review, nutrient management planning, and local approval processes, each of which had to be substantially complete before the next could move forward. The financial cost of permitting, engineering, and environmental documentation was a material fraction of total project cost, comparable to or exceeding the cost of some of the physical infrastructure itself. Operators evaluating this path should budget both time and money for the permitting phase with the same seriousness they apply to construction.

5.2 What We Would Do Differently

In hindsight, earlier and more frequent engagement with neighboring landowners and local officials, before formal applications were filed rather than after, would have shortened the community relations phase of the project. Framing the facility from the very first conversation as a farm operating under a nutrient management program, rather than as a waste treatment plant, was the right instinct, but it should have been the lead message from day one rather than a message that developed over the course of the process.

5.3 Community Relations Outcomes

Over five years of operation, CleanWater Farm has recorded zero odor complaints from neighboring properties. That outcome was not automatic. It followed directly from the siting decision to treat the facility as an agricultural operation with appropriate buffers, from the nutrient management discipline applied to land application rates, and from the added processing capacity of the mechanical dewatering pathway during periods when land application was not appropriate.

6. Five Years of Operational Results

CleanWater Farm now processes about 3 to 3.5 million gallons per year of septic tank, portable toilet, and holding tank waste. The operational record over five years supports three specific claims.

6.1 Stable Soils and Improved Crop Yields

Soil testing across the 24 acres under active land application has shown stable soil health indicators over the monitoring period, and hay yields on treated fields have improved relative to baseline. This is the clearest evidence that the nutrient management program is functioning as designed rather than simply disposing of waste on land.

6.2 Zero Odor Complaints

As noted above, the facility has not generated a single odor complaint from neighboring properties in five years of operation. For a septage facility sited in an agricultural area near residential neighbors, this

is the single most important operational metric, because it is the metric most likely to threaten a facility's permit renewal or community standing.

6.3 A Disposal Cost Structure the Company Controls

The most direct business benefit is control. BBB Septic and Portable Toilets no longer depends on a municipal plant's acceptance window, volume cap, or fee schedule. Disposal cost is now a function of the company's own operation, not a third party's policy decisions. It is also lower. On figures annualized from the first half of 2026, the depot and farm model costs about $99,500 to $126,750 less per year to operate than sending the same depot volume to the Village Wastewater plant, a midpoint of about $113,100. Section 7 shows how that number is built.

7. Operating Cost Comparison

To put real numbers behind the cost claim, we compared two ways of handling the same depot volume. In the Village Wastewater model, transfer loads run from our two satellite depots to the Village Wastewater treatment plant and pay its tipping fee. In the CleanWater Farm model, the same loads go to the farm for land application or dewatering. Both models use the same depots and the same trucks, with routes that start and end at our shop, so the difference is where the load is unloaded and what it costs once it gets there. All figures are annualized from first-half 2026 depot data. Truck costs are planning estimates, not actuals, and will be replaced with actual cost records as they come in.

7.1 Volume and Haul Basis

In the first half of 2026 our two depots received 1,501,700 gallons: 857,100 at the Elk depot and 644,600 at the Hwy 94/Border depot. Of that, 1,167,800 gallons were land applied at the farm and 259,600 gallons were dewatered, for 1,427,400 gallons processed, with the remaining 74,300 gallons in storage or timing between receipt and processing. Annualized, the depots receive about 3,003,400 gallons per year, or about 640 loads of 4,700 gallons.

A round trip from the shop through a depot to the Village plant runs 44 miles through Elk and 46 miles through Border. The same trips to the farm run 83 and 80 miles. From a depot, the Village plant is about 25 minutes away and the farm is about 45 minutes. The roughly 30-mile haul in Sections 1 and 2.1 was our historical disposal site before the depots; the Village comparison is a separate, current question about where depot loads should go. Table 1 shows the annual haul basis at 6 miles per gallon. It counts drive time only, not the bar screen unloading time at Village discussed in Section 7.3.

Table 1. Annual haul basis, annualized from first-half 2026 depot data

Item	Village Wastewater model	CleanWater Farm model	Difference
Round trip from shop, per route	44 to 46 mi	80 to 83 mi	+34 to +39 mi
Annual miles	28,666	52,216	+23,550
Diesel used at 6 MPG	4,778 gal	8,702 gal	+3,925 gal
Drive time, depot to unload point	about 25 min	about 45 min	+20 min per load
Added driving time per year (excludes unloading)			+214 hr

7.2 Annual Operating Costs

Table 2 sets the annual operating costs side by side. Tipping is the Village rate of about $0.08 per gallon, which is $80 per 1,000 gallons or $376 per 4,700-gallon load. Driver payroll is one driver at $25 per hour, 40 hours a week, 52 weeks a year, in both models. Farm labor is two workers at $15 and $13 per hour, 30 hours a week each. Lime is one bag per 1,000 gallons land applied at $11.24 per bag. Polymer is used for dewatering only, at 0.05 to 0.35 lb per 1,000 gallons and $0.75 to $1.10 per lb. Fuel is figured at $3.60 to $6.00 per gallon of diesel. Truck costs are planning estimates at $1.25 to $2.00 per mile.

Table 2. Annual operating cost comparison, annualized from first-half 2026 depot data

Annual cost item	Village Wastewater model	CleanWater Farm model
Tipping fees (about $0.08/gal)	$240,272	$0
Driver payroll	$52,000	$52,000
Farm labor	None	$43,680
Lime	None	$26,256
Polymer (dewatering only)	None	$19 to $200
Fuel ($3.60 to $6.00/gal diesel)	$17,200 to $28,666	$31,328 to $52,216
Truck costs (planning estimate, $1.25 to $2.00/mi)	$35,832 to $57,332	$65,270 to $104,432
Total annual operating cost	**$345,304 to $378,270**	**$218,553 to $278,784**
Annual savings, CleanWater Farm model		**$99,500 to $126,750 (midpoint about $113,100)**

Savings compare like assumptions: low fuel and truck cost in both models, then high in both. Truck costs are planning estimates, not actuals.

7.3 What the Numbers Show

The farm model is not cheaper on every line, and we want to be clear about that. It drives about 23,550 more miles a year, burns about 3,925 more gallons of diesel, and adds about 214 hours of driving. At $25 per hour that is roughly $5,350 of driver capacity, but not necessarily added payroll, because the driver is full time in either model. Fuel runs $14,128 to $23,550 more per year, and planning-estimate truck costs run $29,438 to $47,100 more. The farm also carries $69,955 to $70,136 a year in labor, lime, and polymer that the Village model does not.

What decides the comparison is the tipping fee. Sending the annualized depot volume to the Village plant costs about $240,272 a year in tipping fees, and the farm model removes that line. Net of everything the farm adds, it costs about $99,500 to $126,750 less per year to operate, a midpoint of about $113,100, or about $0.033 to $0.042 per gallon received.

One operational factor is not in the dollar table. Mileage and fuel favor the Village plant, because it is the shorter run. Unloading at Village goes through the plant's bar screen, though, and the time lost there is a major difference in a driver's day that the farm avoids. We have not put minutes or dollars on that time here, so the savings in Table 2 do not count it.

Table 2 does not include capital recovery on the farm, depots, or dewatering equipment, or the cost of permitting and engineering described in Section 5.1. It also puts no dollar value on the disposal capacity we now control, on not depending on a third party's acceptance window or fee schedule, or on the long-term value of owning the site.

8. A Framework for Evaluating Whether a Private Disposal System Is Viable

Operators considering a similar project should work through the following questions in order, because each one gates the next.

- Volume and trajectory: Is current and projected disposal volume large enough to justify the fixed cost of permitting and construction, or is it better matched to a smaller depot-only strategy paired with a third-party treatment partner?
- Land availability: Is there access to enough suitable acreage, with appropriate soil type, slope, and setback from water and neighbors, to support either land application, infiltration, or both?
- Regulatory pathway: What does the state and local permitting process actually require, in what sequence, and what is the realistic timeline, not the optimistic one?
- Community context: What is the character of the surrounding land use, and can the facility be framed and sited as an agricultural operation rather than a treatment plant?
- Capital and cash flow: Can the business carry permitting, engineering, and construction costs across a multi-year timeline without disposal savings offsetting cost until the facility is operational?
- Redundancy: Does the design include more than one treatment pathway, so that seasonal or weather-driven limits on one method do not stop the business from accepting waste?

An operator who can answer all six of these questions with confidence has a realistic candidate project. An operator who stalls on the first two questions, volume and land, is very likely better served by a smaller-scale satellite depot arrangement feeding an existing municipal or third-party facility rather than a full centralized build.

9. Conclusion

Municipal treatment infrastructure is not going to become more generous to outside haulers in the years ahead. The trend line points the other way. CleanWater Farm demonstrates that a privately owned, fully permitted septage management system, built around a distributed depot and centralized farm model with two complementary treatment pathways, is a viable and replicable answer for operators in regions where that infrastructure is shrinking. It required five years, real capital, and a permitting process that deserves to be taken seriously rather than underestimated. What it produced is a company that no longer has to ask anyone's permission to stay in business.

Jon Jouvenaux has 36 years of experience in the septic and portable sanitation industry. He is the owner and operator of BBB Septic and Portable Toilets, VibraWaste LLC, and CleanWater Farm in Northwest Arkansas, and a frequent speaker at NOWRA, WWETT, and WEQ industry conferences.