How We Avoided a $40k Dry Well:

A Homesteader's Water Security Story

Our Story: The Fear of a Failed Well

When we arrived on our land outside Ovando, Montana in August 2024, we were excited, hopeful, and scared out of our minds.

Everything — our home, our farm plans, our orchard, and the future of Orion Farmstead — depended on drilling a successful well.
And because of our budget, we only had **one shot**.

If the first well failed, we wouldn't be able to stay on the land.

When we looked up the well logs of surrounding properties, the picture was grim:

- 300–700 ft wells
- Low flow rates
- Multiple dry bores
- $100/ft drilling cost

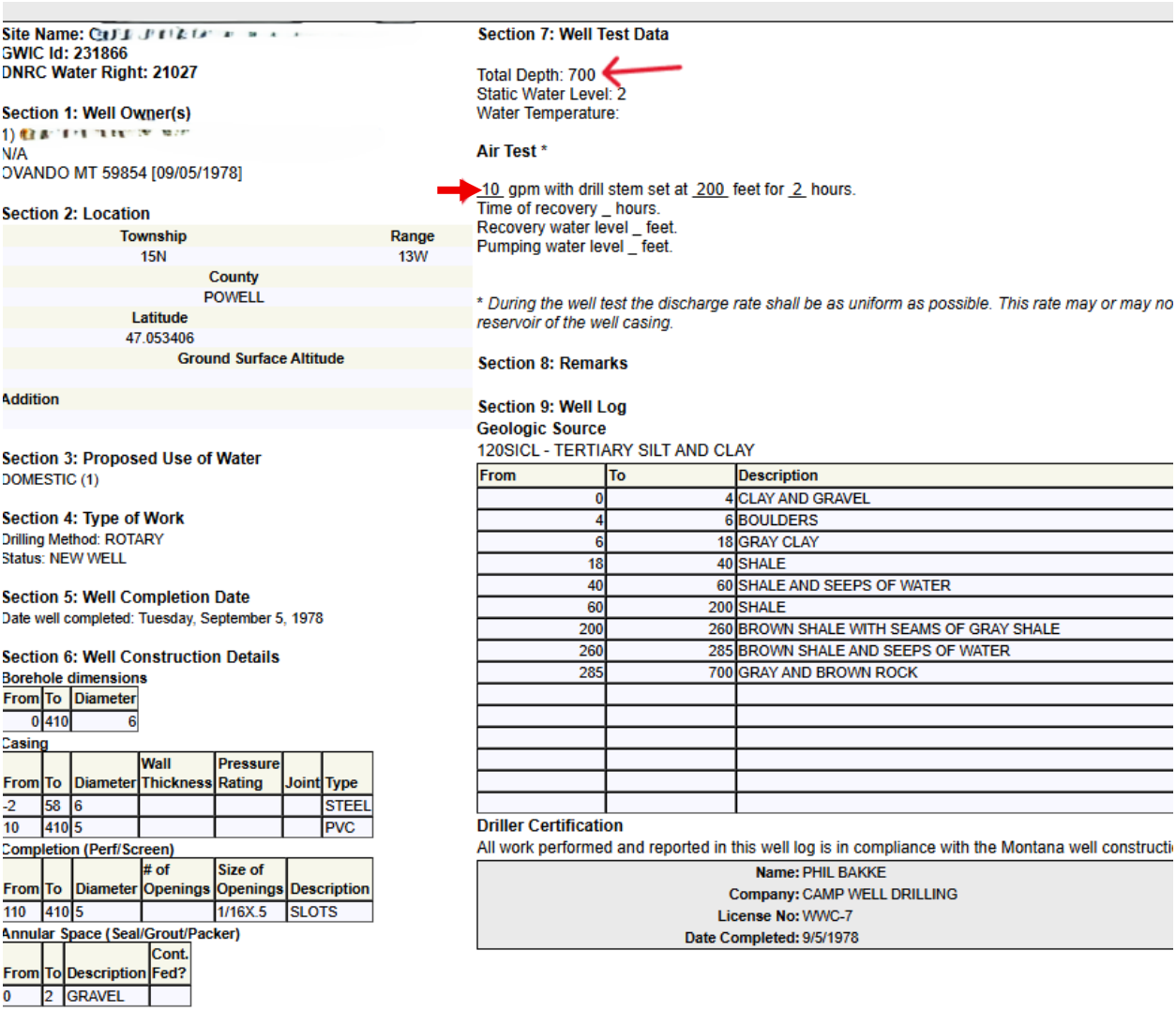
The risk was real and terrifying.
Blind drilling could easily cost **$20,000–$40,000** or **more** — with no guarantee of water.

We needed a better way.

Just look at the well logs from our neighbors:

This is all publicly available information! If you want to see for yourself, follow this link and find us near Ovando (40740 MT-200, Ovando, MT 59854) and click around on our neighbors' well logs.

This first well log shows **700 feet deep**! That would mean $70,000 to drill the well at $100/ft. This was way, way, out of our budget, and that is just to drill the well. Add another $5k-10k for electric, pump, pump installation, etc.



Site Name: [redacted]
GWIC Id: 231866
DNRC Water Right: 21027

Section 1: Well Owner(s)
1) [redacted]
N/A
OVANDO MT 59854 [09/05/1978]

Section 2: Location

Township	Range
15N	13W

County
POWELL

Latitude
47.053406

Ground Surface Altitude

Addition

Section 3: Proposed Use of Water
DOMESTIC (1)

Section 4: Type of Work
Drilling Method: ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Tuesday, September 5, 1978

Section 6: Well Construction Details
Borehole dimensions

From	To	Diameter
0	410	6

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	58	6				STEEL
10	410	5				PVC

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
110	410	5		1/16X.5	SLOTS

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	2	GRAVEL	

Section 7: Well Test Data

Total Depth: 700
Static Water Level: 2
Water Temperature:

Air Test *

10 gpm with drill stem set at 200 feet for 2 hours.
Time of recovery _ hours.
Recovery water level _ feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may or may no reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
120SICL - TERTIARY SILT AND CLAY

From	To	Description
0	4	CLAY AND GRAVEL
4	6	BOULDERS
6	18	GRAY CLAY
18	40	SHALE
40	60	SHALE AND SEEPS OF WATER
60	200	SHALE
200	260	BROWN SHALE WITH SEAMS OF GRAY SHALE
260	285	BROWN SHALE AND SEEPS OF WATER
285	700	GRAY AND BROWN ROCK

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well construct

Name: PHIL BAKKE
Company: CAMP WELL DRILLING
License No: WWC-7
Date Completed: 9/5/1978

This second well log is shallower at 300 feet deep, but, only generates **3 Gallons Per Minute (GPM)**! That would mean $30,000 to drill the well at $100/ft. Add another $5k-10k for electric, pump, pump installation, etc. At the end of the day, you would need to probably install a giant cistern to handle the water demands required on a typical farm/ranch operation. All in, the well cost at least $50k to do everything (not including water lines, bibs, hydrants, etc.)

Site Name: [redacted]
GWIC Id: 71614

Section 1: Well Owner(s)
1) [redacted]AIL)
BOX 61
OVANDO MT 59854 [10/22/1985]

Section 2: Location

Township	Range
15N	13W

County
POWELL

Latitude
47.066936

Ground Surface Altitude	Date

Addition

Section 3: Proposed Use of Water
DOMESTIC (1)

Section 4: Type of Work
Drilling Method: ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Tuesday, October 22, 1985

Section 6: Well Construction Details
Borehole dimensions

From	To	Diameter
0	300	6

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	140	6				STEEL
10	300	4				PVC

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
200	220	4			PERFORATED CASING

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	0	PUDDLED CLAY	

Section 7: Well Test Data

Total Depth: 300
Static Water Level: 142
Water Temperature:

Unknown Test Method *

Yield 3 gpm.
Pumping water level 161 feet.
Time of recovery _ hours.
Recovery water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
120SICL - TERTIARY SILT AND CLAY

From	To	Description
0	15	SOIL AND SAND
15	25	MOIST SAND AND GRAVEL
25	50	BROWN CLAY
50	110	BLUE GREY CLAY
110	180	BROWN SHALE
180	220	BROWN SHALE W/WATER
220	300	BROWN SHALE

Driller Certification
All work performed and reported in this well log is in compliance with the

Name:
Company: JEROMES DRILLING CO
License No: WWC-249
Date Completed: 10/22/1985

Now check out our well:

Site Name: GILBERT, BONNIE
GWIC Id: 334045

Section 1: Well Owner(s)
1) GILBERT, BONNIE (WELL)
40740 MT HWY 200
OVANDO MT 59854 [10/09/2024]

Section 2: Location

Township	Range
15N	13W
County	
POWELL	
Latitude	
47.04345957615	
Ground Surface Altitude	
Addition	

Section 3: Proposed Use of Water
DOMESTIC (1)

Section 4: Type of Work
Drilling Method: ROTARY
Status: NEW WELL

Section 5: Well Completion Date
Date well completed: Wednesday, October 9, 2024

Section 6: Well Construction Details
Borehole dimensions

From	To	Diameter
0	25	9
25	100	6

Casing

From	To	Diameter	Wall Thickness	Pressure Rating	Joint	Type
-2	67	6	0.25		WELDED	STEEL
60	100	4		220.0	THREADED	PVC

Completion (Perf/Screen)

From	To	Diameter	# of Openings	Size of Openings	Description
80	100	4		.025	SCREEN-CONTINUOUS-PVC

Annular Space (Seal/Grout/Packer)

From	To	Description	Cont. Fed?
0	25	BENTONITE	Y

Section 7: Well Test Data

Total Depth: 100
Static Water Level:
Water Temperature:

Air Test *

21 gpm with drill stem set at 100 feet for 1 hours.
Time of recovery 0.5 hours.
Recovery water level 0 feet.
Pumping water level _ feet.

** During the well test the discharge rate shall be as uniform as possible. This rate may reservoir of the well casing.*

Section 8: Remarks

Section 9: Well Log
Geologic Source
Unassigned

From	To	Description
0	1	TOPSOIL
1	7	SAND AND GRAVEL
7	21	HARD PINK CLAY
21	52	HARD PINK QUARTZITE
52	62	PINK QUARTZITE AND PURPLE SHALE GRAVEL
62	69	FRACTURED GREY SHALE
69	79	LIGHT GREY SHALE
79	87	TAN AND YELLOW SHALE
87	100	LIGHT GREY SHALE

Driller Certification
All work performed and reported in this well log is in compliance with the Montana well

Name: JASON ANDERSON
Company: A-10 DRILLING
License No: WWD-770
Date Completed: 10/9/2024

Drilling Blind Is Financial Russian Roulette

Most rural land buyers don't realize how unpredictable groundwater is.

You can spend tens of thousands of dollars drilling a deep well and still end up with:

- A trickle of water
- Poor quality water
- A maintenance nightmare
- Or a completely dry hole

Traditional drilling methods rely on:

- Guesswork
- Local lore
- "This looks like a good spot"
- Or dowsing rods (still shockingly common) — which has never been validated scientifically — RAP profiling and gamma surveys are used in mining, geothermal, and groundwater exploration worldwide.

None of this reduces risk.
It just shifts the gamble onto the landowner.

We weren't willing to gamble.

The Solution: Primary Water Technologies

We found a company called **Primary Water Technologies (PWT)** a small, specialized team that uses **real geophysics** to locate water-bearing fracture zones before drilling.

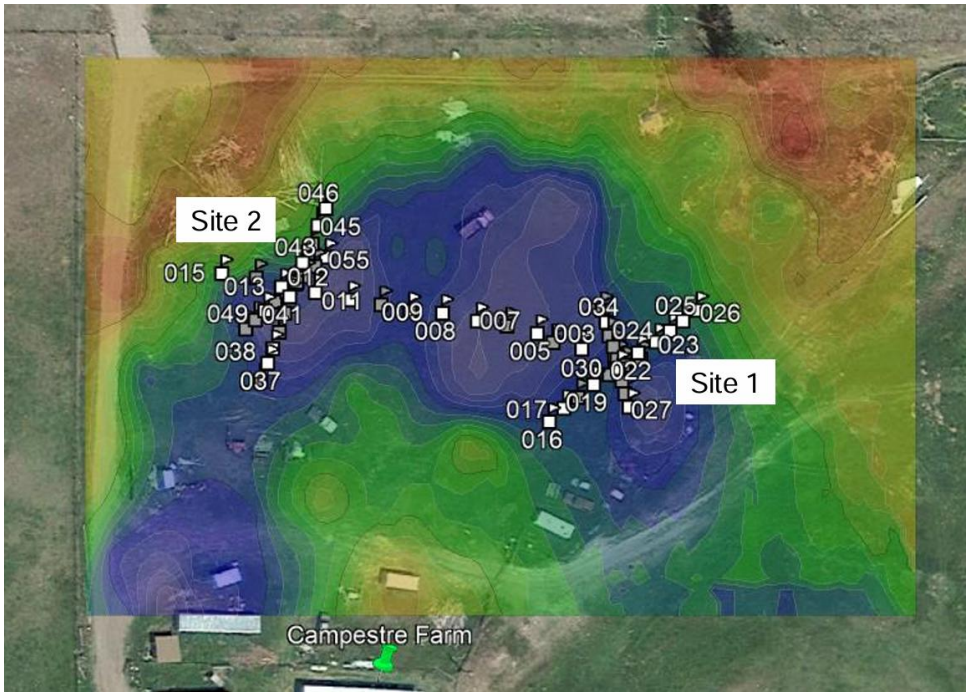
- They don't drill.
- They don't sell wells.
- They don't profit from the outcome of drilling.

They simply map the subsurface and tell you where your **highest-probability** water source is located.

Here's how they do it.

What a Gamma Survey Tells You

PWT began with a **ground gamma radiometric survey**, walking and driving our land with a gamma sensor. This is what ours looked like:



Gamma readings naturally vary depending on what's underground:

- Wet fracture zones → lower gamma
- Dry dense rock → higher gamma

By mapping these variations, PWT identified several potential fracture corridors running beneath our property.

These maps gave us our first sign of hope:
We might not need a deep well after all.

PWT staked two potential drill sites (labeled "Site 1" and "Site 2" in the previous gamma survey mapping). The next step helped us determine which of these two sites would give us our best shot at good water.

What a RAP Line Really Is (Plain English)

Next, PWT ran **RAP Lines** — Resonance Acoustic Profiling.

In plain English:

A RAP line is like putting a stethoscope on the earth.
It listens to how the ground vibrates at different points to identify underground fractures — including ones that carry water.

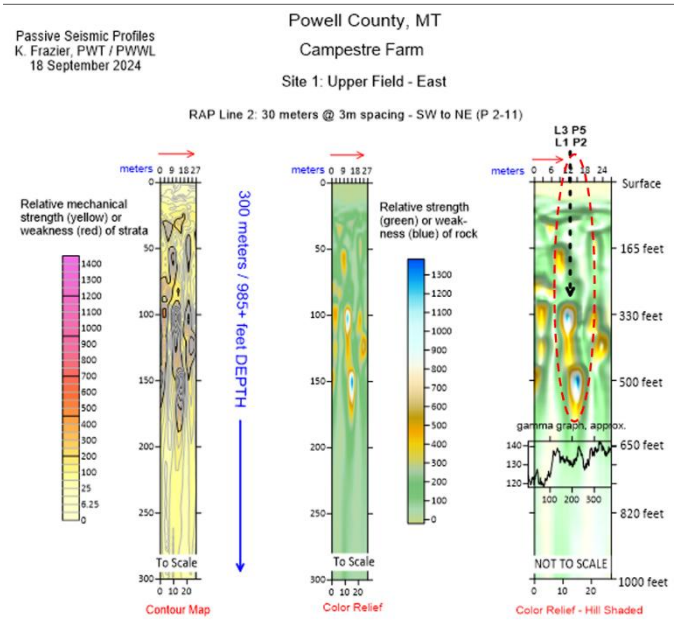
It's completely passive.
No pounding. No drilling. No vibration.
Just listening.

Why it works:

- Solid rock vibrates one way
- Fractured rock vibrates another
- **Wet** fractures have a distinct, softer resonance signature
- The pattern reveals depth, width, and location of fracture zones

Most people have never heard of RAP profiling.
But it's used in mining, geothermal, and oil exploration — and it works.

This is what the results generated for RAP lines looks like:



What PWT Found on Our Land

After combining the gamma survey and RAP profiles, PWT identified:

- A major fracture corridor
- Strong water-bearing signatures
- Two high-confidence drill sites
- Estimated shallow strike depths
- Clear separation between promising and non-promising zones

They physically staked the two recommended sites on the ground.

This was the first time we actually felt a sense of relief.
Instead of guessing, we were acting on measurable data.

Drilling Day

When the driller arrived, I was nervous.
Based on the neighbor well logs, I was expecting:

- Hard rock
- Slow progress
- Deep footage
- Bad news

Instead, after only an hour or two, the driller casually waved me over.

I genuinely expected a problem.

Instead, he said:

“We’re getting a lot of water… and we’re only at 65 feet.”

I was stunned.
I ran to tell Beau.
We could not believe it.

The Result: A Phenomenal Well

The final well report showed:

- **Water strike at ~65 feet**
- **21 GPM** (exceptional for our area)
- **100 ft total depth**
- Strong, clean, consistent output
- Plus a **free-flow spring** producing an additional 6 GPM

This was nothing short of unbelievable, given that many surrounding wells were:

- 300 ft for 3 GPM
- 700 ft with marginal output
- 130+ ft completely dry

Our well cost thousands less and produces dramatically more water.

This result wasn't luck.
It was **science**.

What This Means for Other Landowners

If you're:

- Buying raw land
- Drilling a first well
- Expanding a homestead
- Developing property
- Or you simply can't afford a dry hole

Using PWT dramatically reduces the risk.

Their service costs a fraction of a deep drilling mistake.
And unlike drillers, they aren't financially incentivized to drill deeper.

They tell you where to drill — and where NOT to drill.

This can save tens of thousands of dollars, months of stress, and in many cases, an entire homestead dream.

Our Recommendation

If you're drilling a well on rural land:

Do not drill blind.

We wouldn't have found our **shallow, high yield** well without PWT's survey.
Their process gave us confidence, saved us money, and gave us the water supply we needed for:

- Our home
- Our livestock
- Our orchard and nursery
- Future farm-stay units

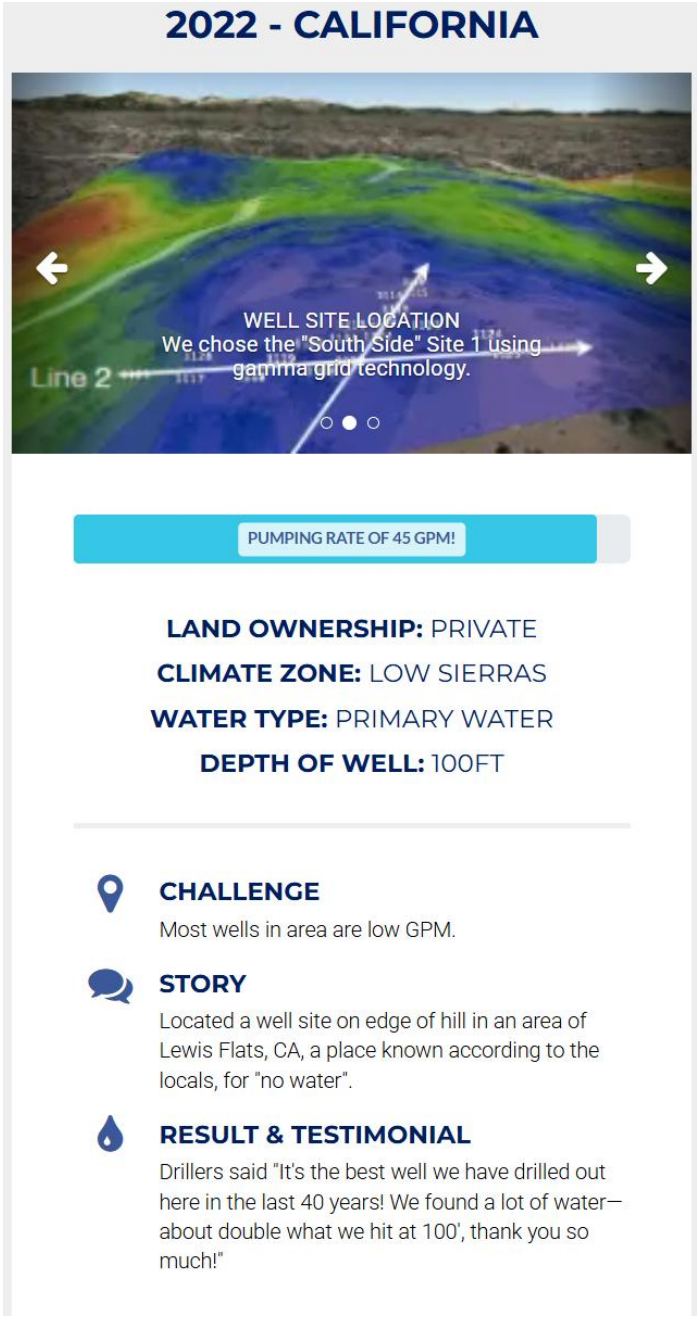
It changed everything for us — and it can for others too.

You've Seen Our Story. Now Look at the Bigger Picture.

Our experience in Montana wasn't an accident, and it wasn't luck.
Primary Water Technologies has repeated this exact outcome in dozens of environments

across the country — arid desert basins, fractured mountain bedrock, high plains foothills, lava fields, flood zones, and everything in between.

Whether it's a family homestead in Idaho, a remote ranch outside Prescott, a solar farm in Nevada, or a wildlife sanctuary in Oregon...
the pattern is the same:



***People drill blindly. They get burned.**

People hire PWT first. They hit water.**

Your land might be different.
Your geology might be different.
Your elevation, climate, terrain — all different.

But one thing is the same:

***Drilling without data is always a gamble.**

Drilling with PWT is always an advantage.

If you've read this far, it means you already understand the stakes.
It means you've looked at the deep wells, the low-flow wells, the dry wells — the wells that

ruin budgets and force families off their land.
It means you know what can happen when you choose wrong.

So, before you drill…
Before you roll the dice with $20,000–$40,000 of your future…
Before you put your entire project on the line…

Get a Primary Water assessment.

It's a fraction of the cost of drilling — and it can save you everything.

Primary Water Technologies is a scientific groundwater surveying firm specializing in gamma radiometric and passive seismic analysis. They've completed thousands of surveys across the U.S. Their work supports homesteaders, ranchers, developers, conservation organizations, and agriculture operations seeking reliable, data-backed groundwater solutions.