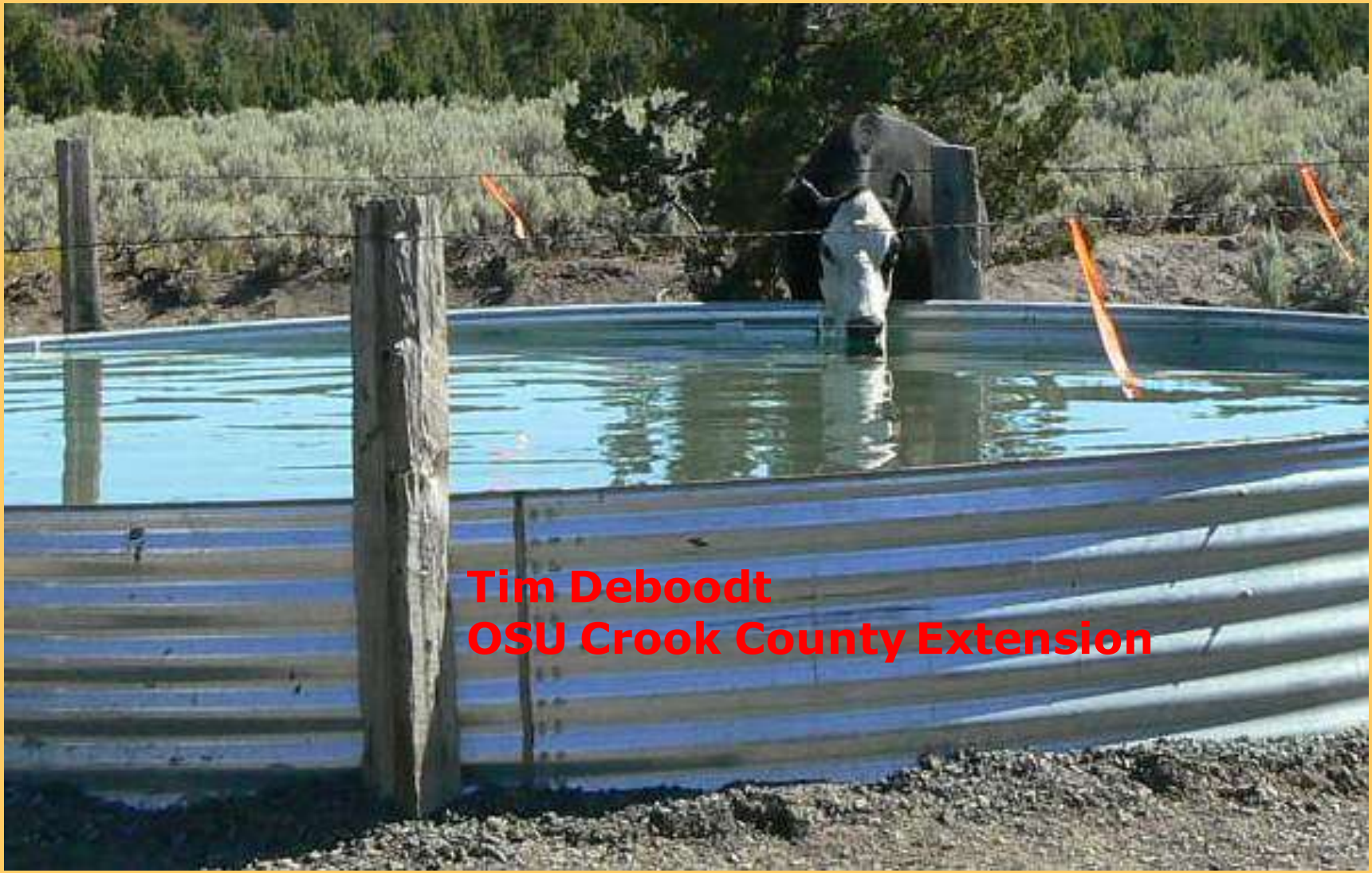
SATELLITE TECHNOLOGY PROVIDES REMOTE SENSING OPPORTUNITIES FOR LIVESTOCK PRODUCERS IN TRACKING WATER SUPPLIES

OSU
Oregon State
UNIVERSITY



Water developments in the intermountain west provide one of the most effective means of managing livestock distribution and forage utilization

In the great basin, ranches are often large, covering tens of square miles, involving multiple herds in pastures scattered sometimes over 50 miles apart.

Ranchers are challenged with assuring water is available daily to livestock while trying to manage multiple activities each day.

Labor resources, cost of fuel, vehicle maintenance and time require the rancher to make choices about daily workloads and priorities.

Challenge:

Find a way to monitor water supplies that is reliable and cost effective

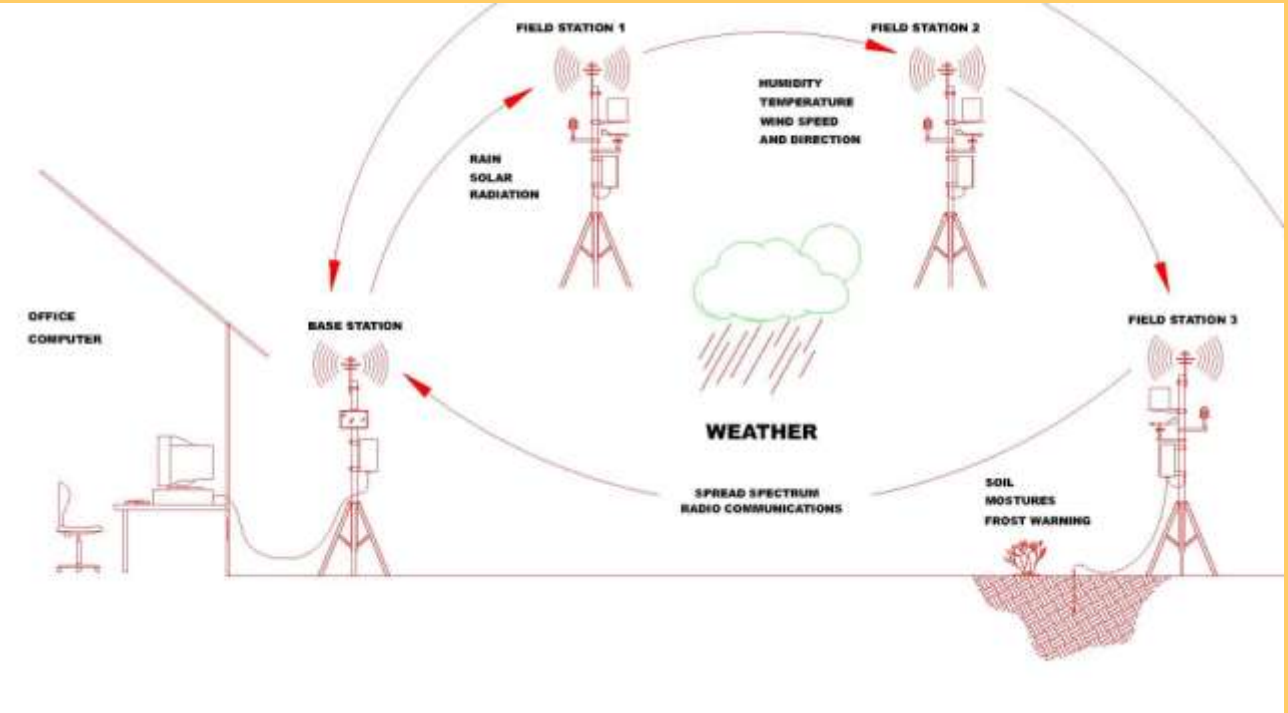
REMOTE SENSING

Collection of information

- Sensors
- Data Loggers

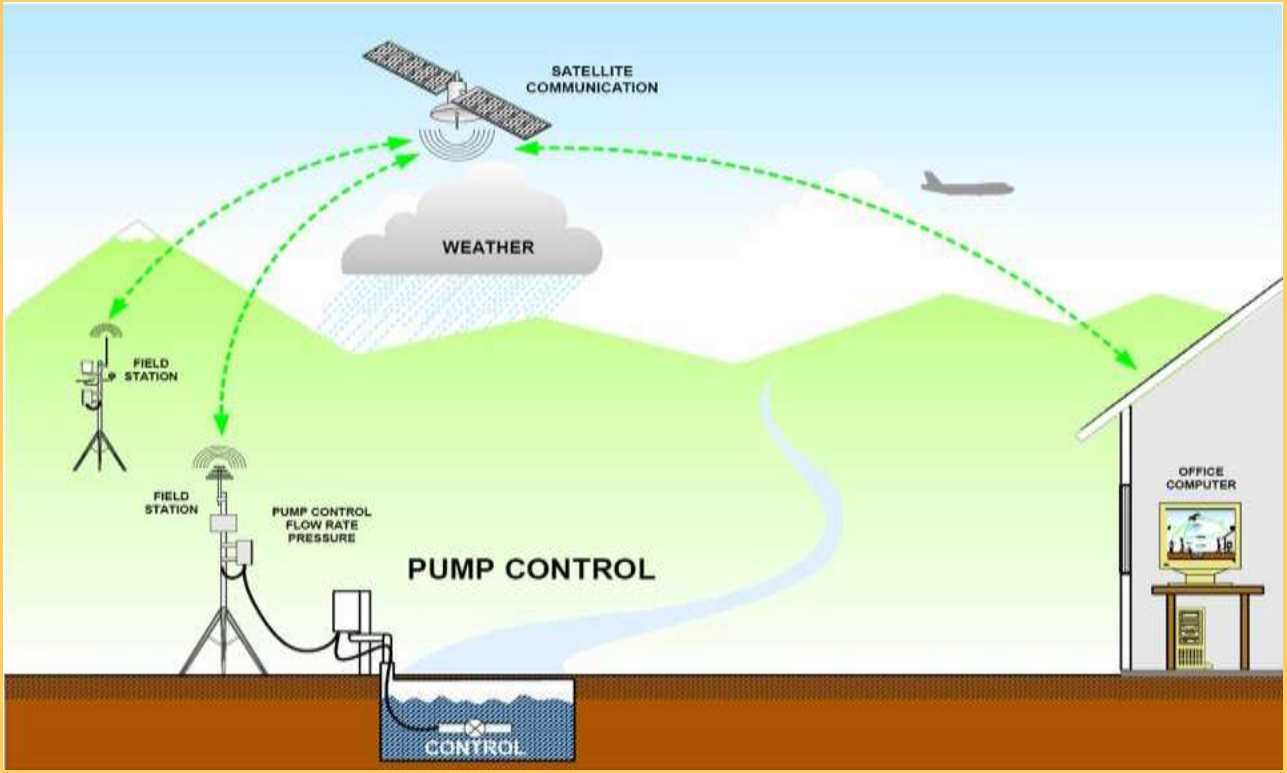
Communication

- Cell Phone
- Spread Spectrum Radio (Ground Based)
- Satellite



Ground based Systems

- Large number of stations (monitoring sites)
- Radio communications require line of sight
- Repeater stations can be used as field station
- Base station can access up to 150 field stations
- Large variety of sensors
- Real time access and sensor control
- Customizable email and telephone alarms for low water level
- No annual charges

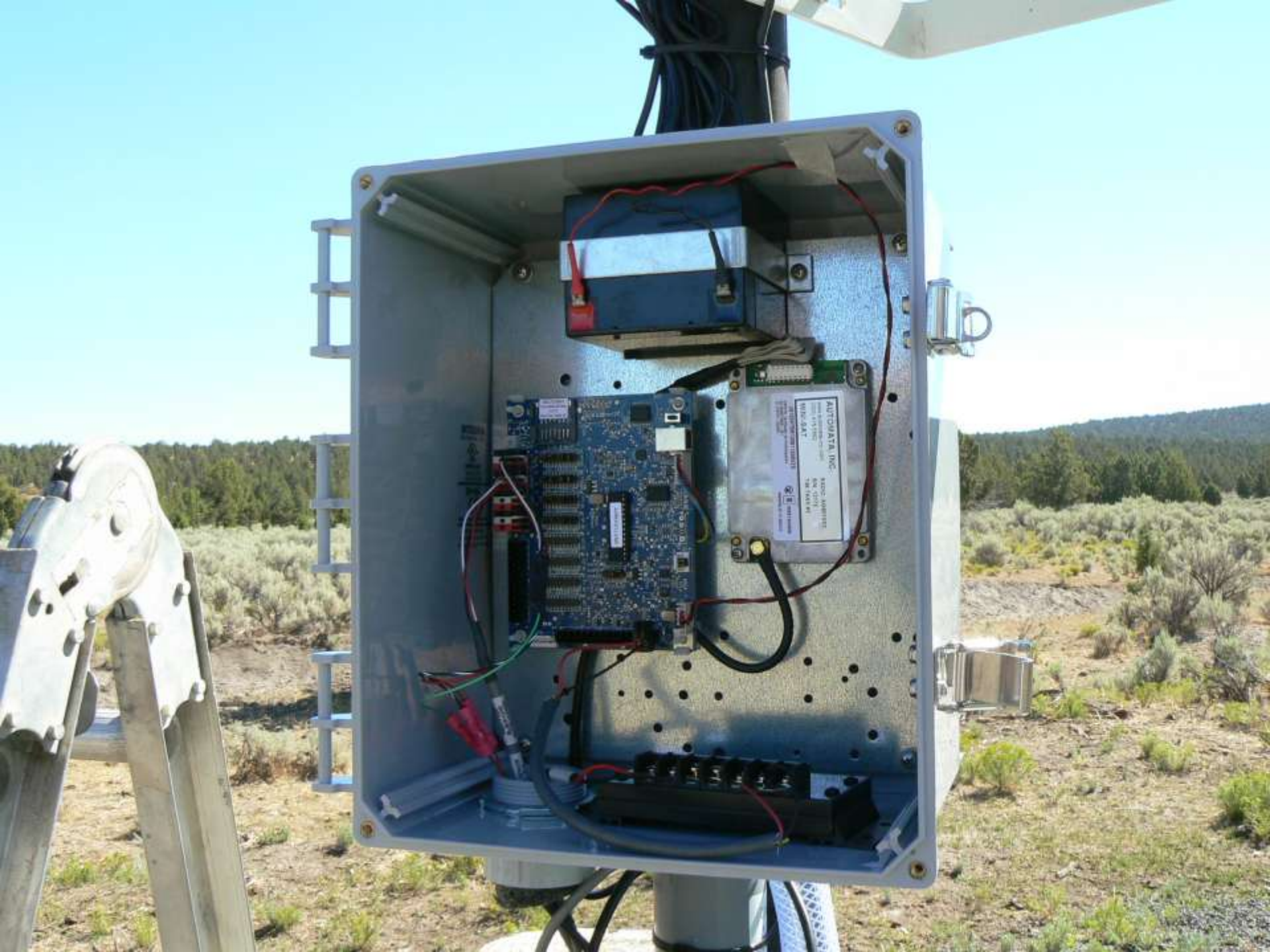


Satellite

- Field station is stand alone—doesn't need a base station
- Large variety of sensors
- Doesn't need line of sight – install anywhere
- Customizable email and telephone alarms for low water level
- Delayed access and sensor control
- Annual satellite and web server fees


Camp Creek Paired Watershed Study, Est. 1994


SIOUX
STEEL COMPANY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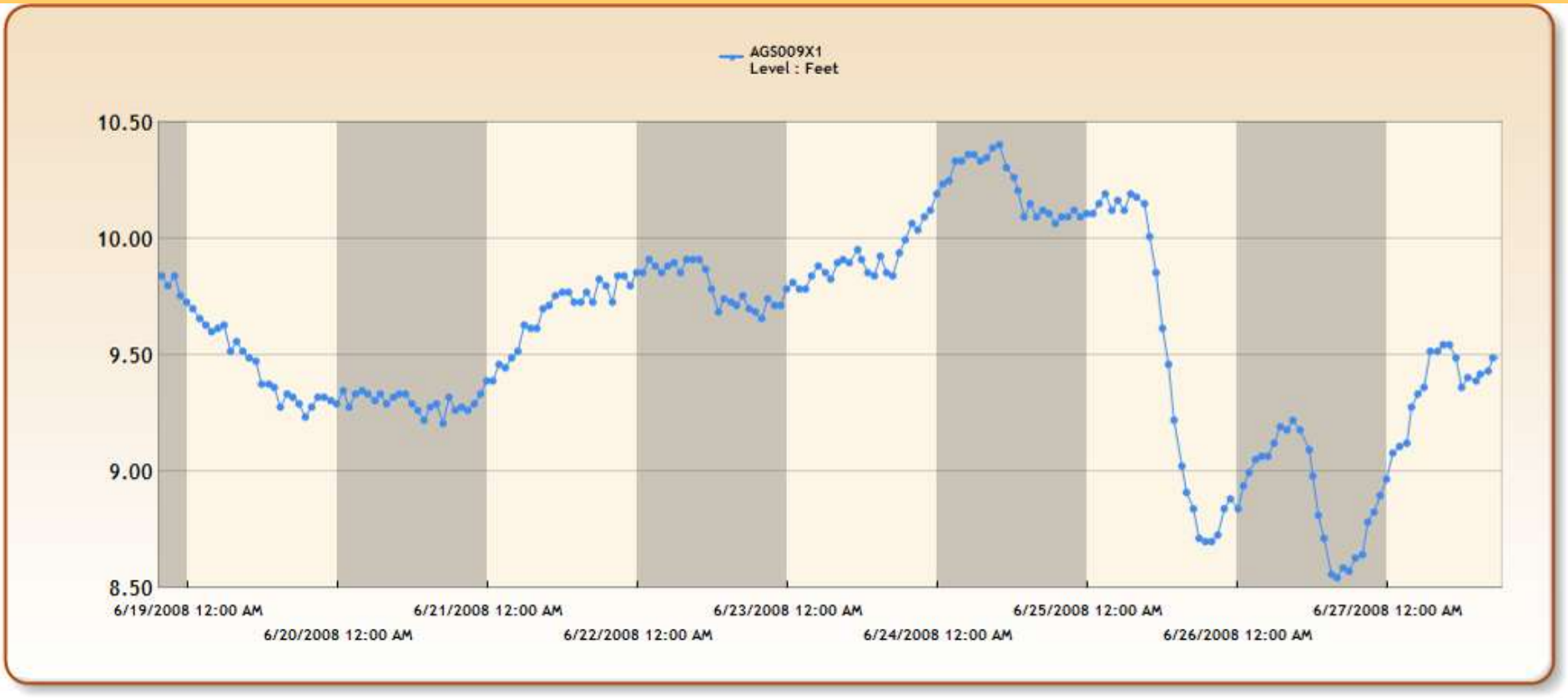
Remote Monitoring & Control



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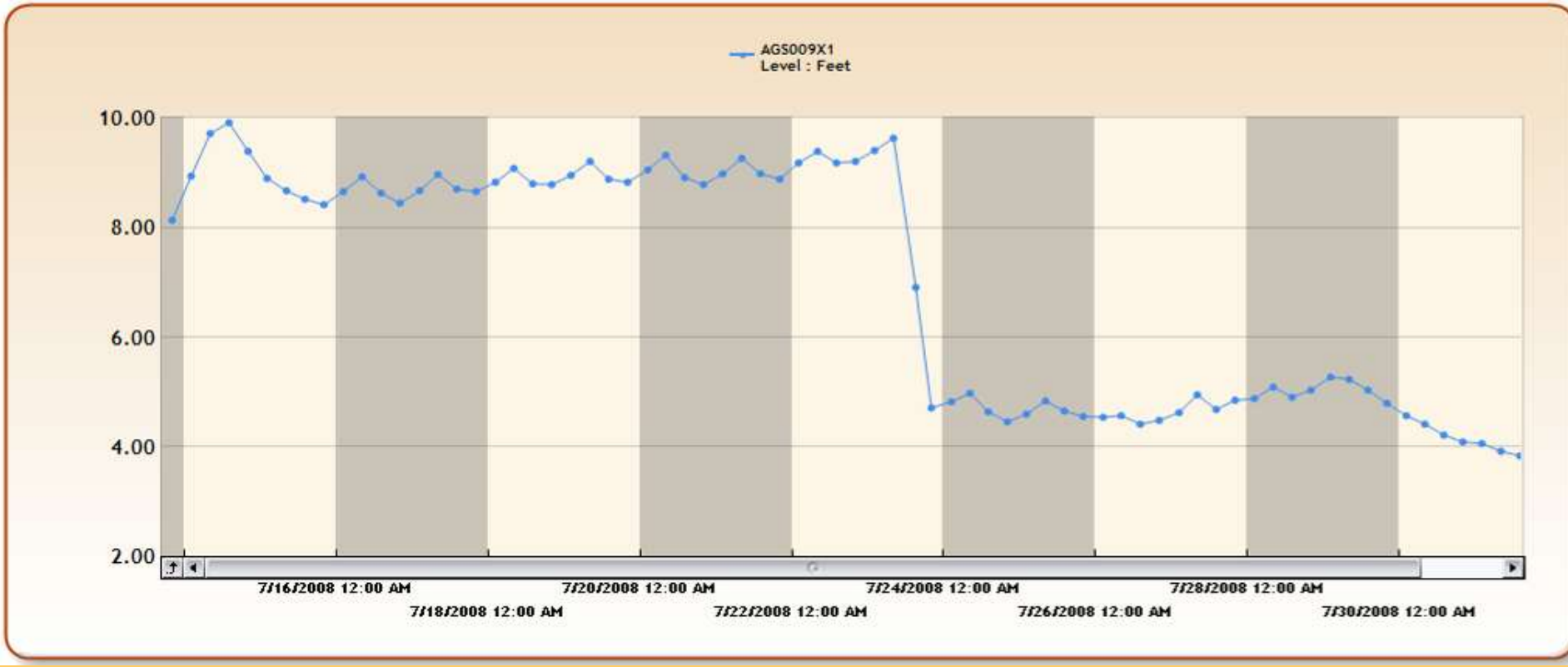

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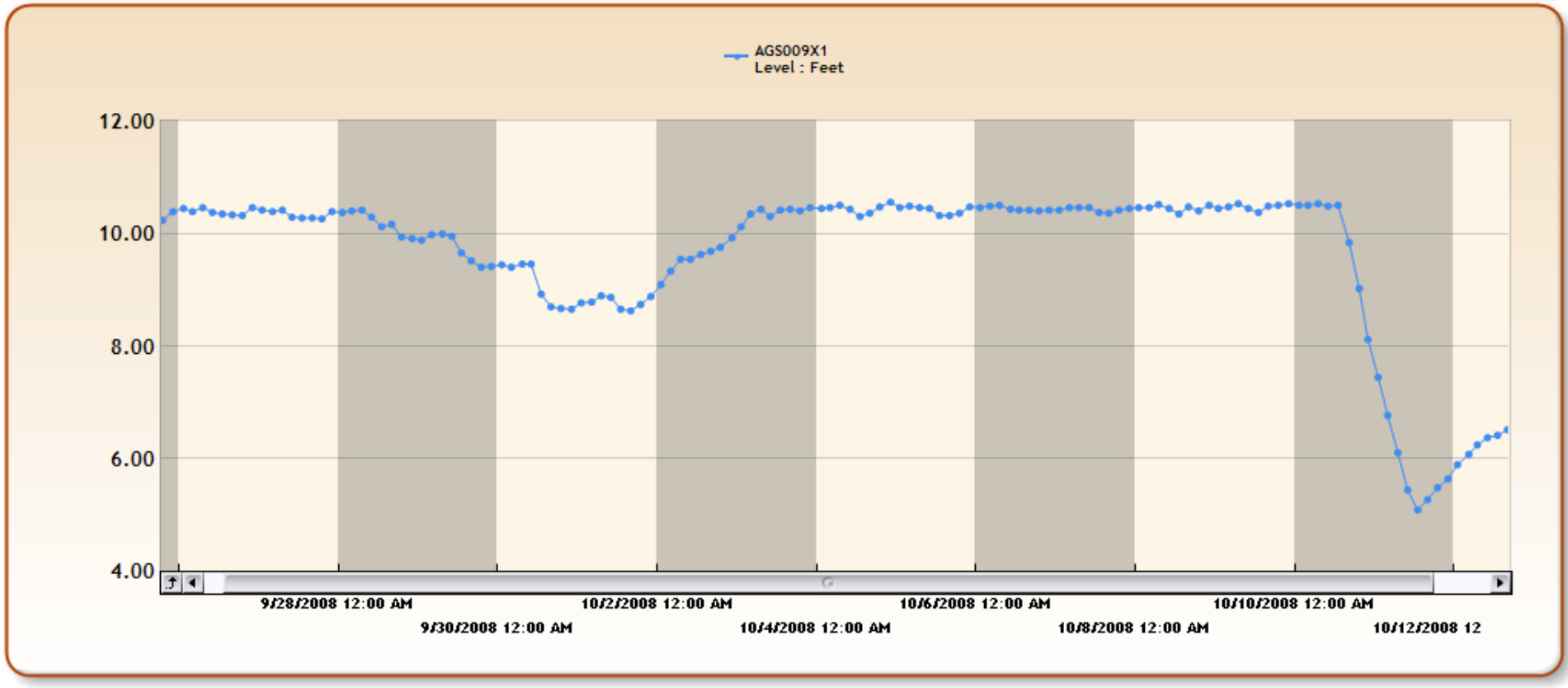

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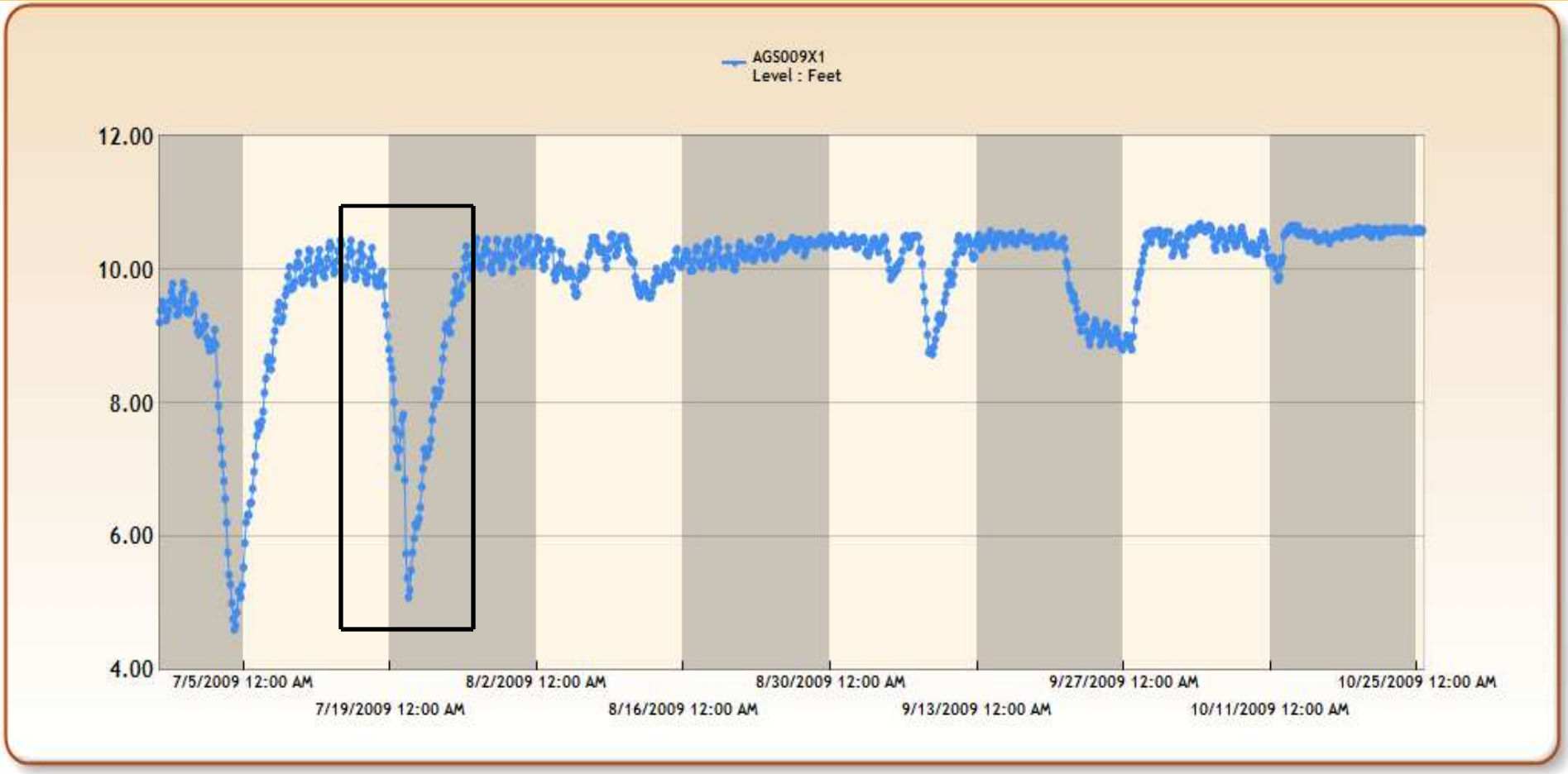

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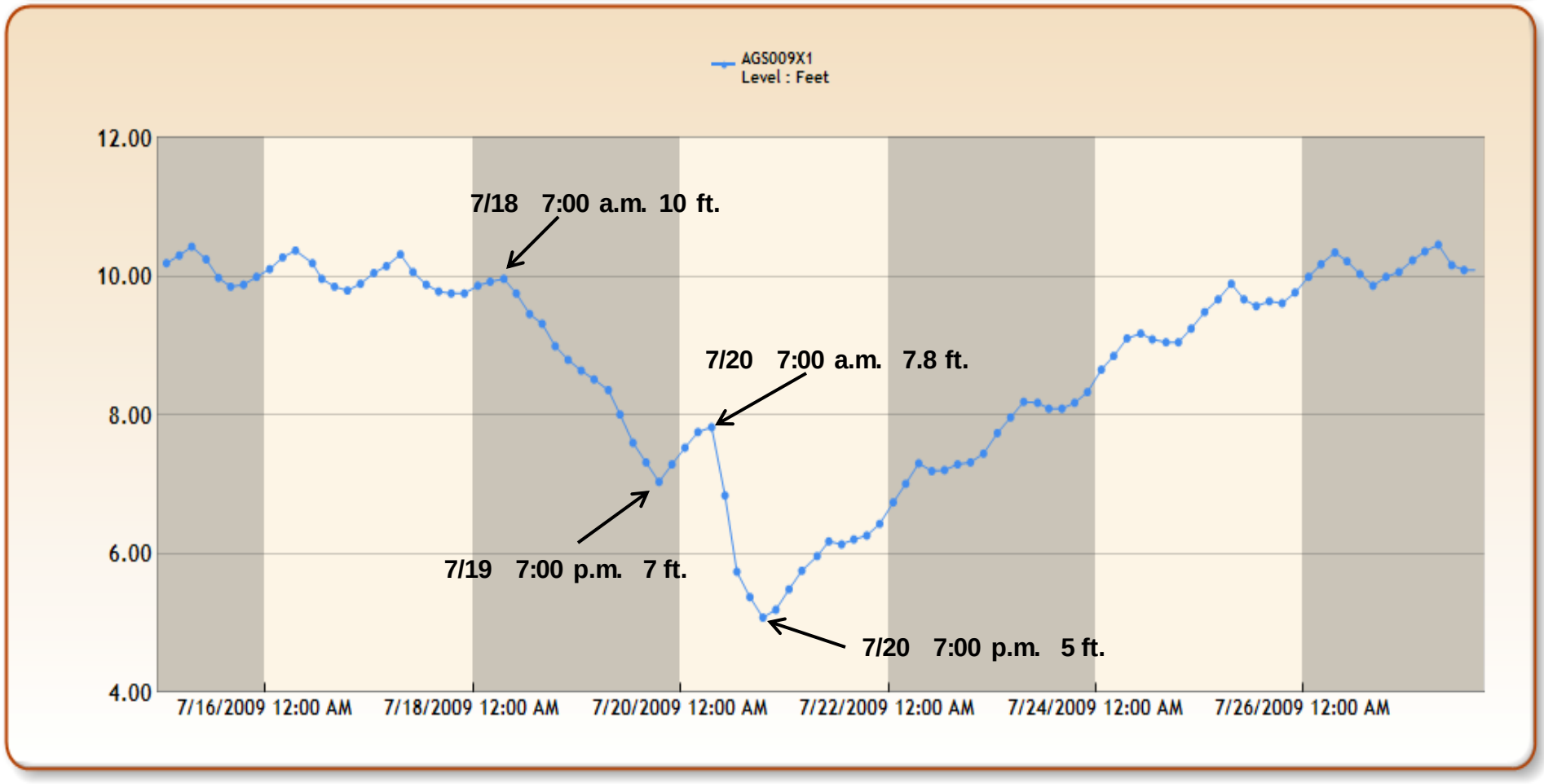


Testimonial – Did it work?

"Yes, the remote water monitoring system did work! It was excellent. We had absolutely no problems with the monitoring system. We checked the water level each morning at 5:30 on our computer, sometimes up to 3 times a day depending on the weather.

During May though November it saved us 3 days a week. Following is a cost savings to our ranch.

3 days/week * 60 miles/trip = 180 miles/week
180 miles @ 20miles/gal = 9 gallons a week for 7 months
7 months * 4 weeks= 252 gallons *$3/gal = *$756 saved in fuel costs*.

3 hrs/trip*3 days*4 wks*7 months = 252 hrs @ $8.00/hr = *$2016 in labor costs*.

Total Savings in 1 year = $2772.00

We seem to always mess something up during the summer forgetting to check or saying "they'll (the cows) be alright", then the cows ruin a trough or something. That did not happen this year, so we figured at least a savings of $800 on a replacement trough.

Most importantly we had water to the cows all year and that's what it is all about…

Happy Cows…."

Case 2 – 1 herd/150 cow/calf pairs

Pre-Installation

40 miles round trip
10 mpg gas, $4.30/gallon
gas powered pump – checked 5 times per week
2 hours to fill trough
1200 miles per month
$17.20/trip = $86.00/week = $387.00/month

Post-installation

2 trips per week
$34.40/week = $154.80/month
540 less miles @ .55/mile = $297.00

Savings = $232.20 Gas/month

Total savings = $529.20/month

Cost per unit

$1850.00
Solar panel/solar controller
mini-sat
Satellite radio
Transducer sensor
$50.00 Miscellaneous installation parts

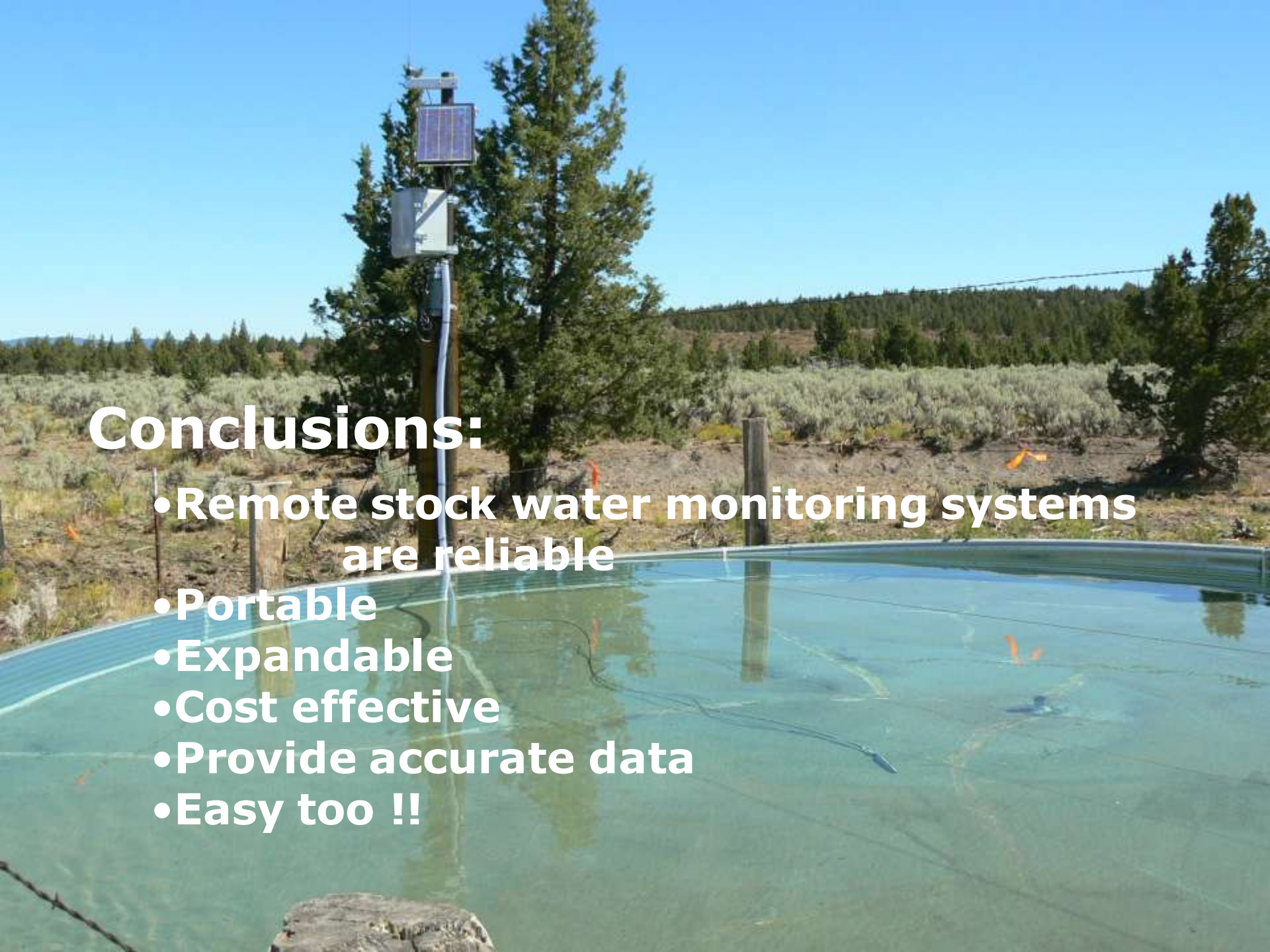
Annual fee = $ 60.00

Case 1

Fuel savings = $756.00
Total savings = $3572.00

Case 2

Fuel savings = $232.20
Total savings = $530.00



Conclusions:

- Remote stock water monitoring systems are reliable
- Portable
- Expandable
- Cost effective
- Provide accurate data
- Easy too !!