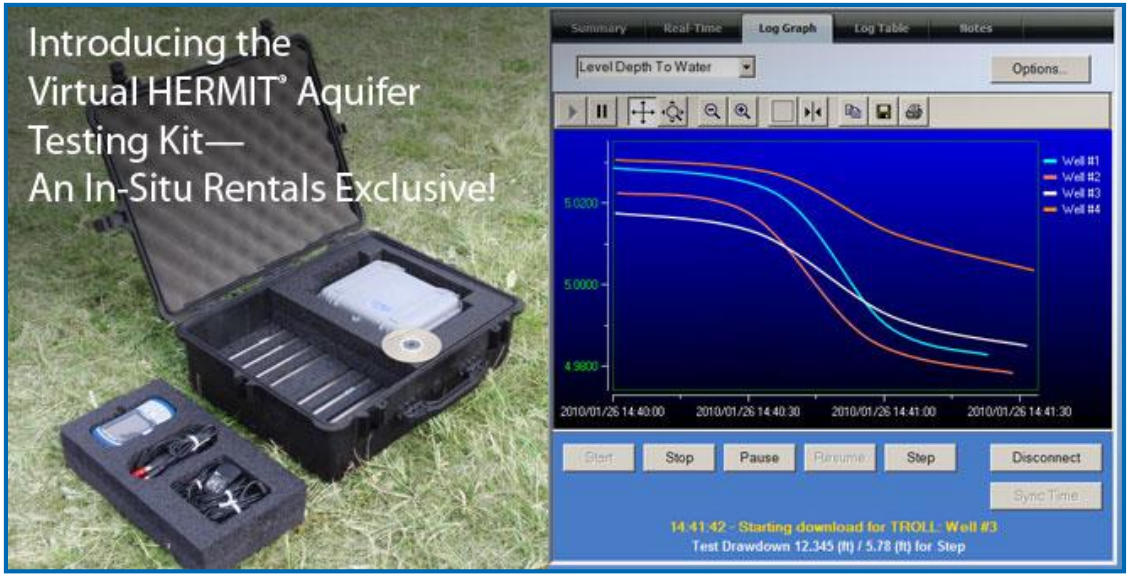
In-Situ Inc.

Innovations in Water Monitoring

Real Time Monitoring of Aquifer: Direct Sensing Equipment

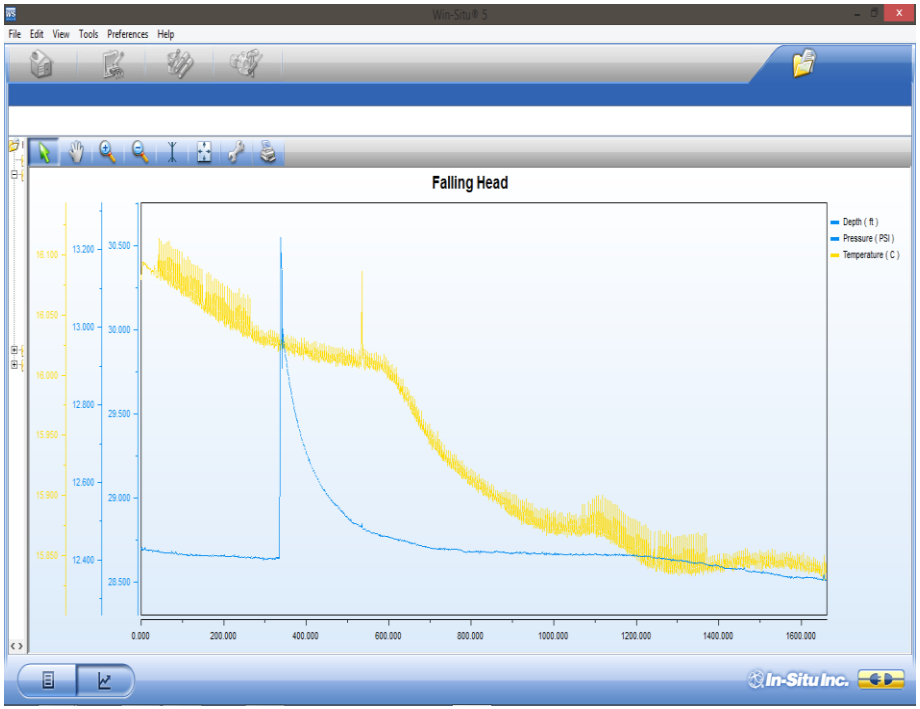


Traditional Aquifer Testing

- Individual Transducers
  - Slug Tests
  - Delayed Feedback
  - Individual records and graphs
  - Manpower
  - Time to reset and sync
- Water Level Tapes
  - Accuracy
  - Frequency
  - Data Management

Traditional Aquifer Testing

- Slug Test



Evolution of Aquifer Testing
The Shrinking of a Hermit

- Original Aquifer Testing Kits Size
  - Van
  - Chest
  - Carry-on
  - Car Battery
  - Laptop

Virtual HERMIT Aquifer Testing Kit

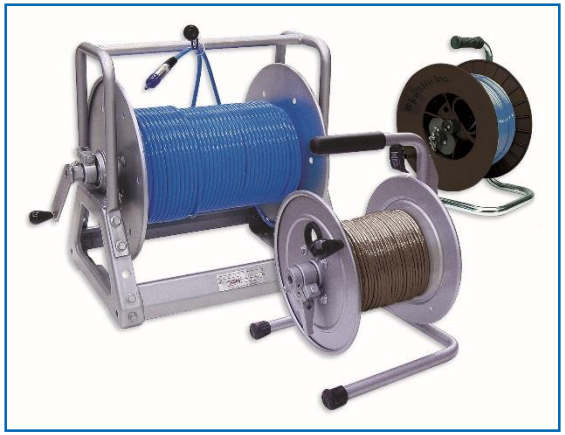
- Use for step-drawdown tests, constant-rate pump tests and injection tests
- Simplifies set up and testing
- Steps a logarithmic log to account for pump and recovery data on the same log without reprogramming
- Streamlines data processing by synchronizing data files
- Win-Situ® 5 & Mobile compatible

Virtual HERMIT Aquifer Testing Kit

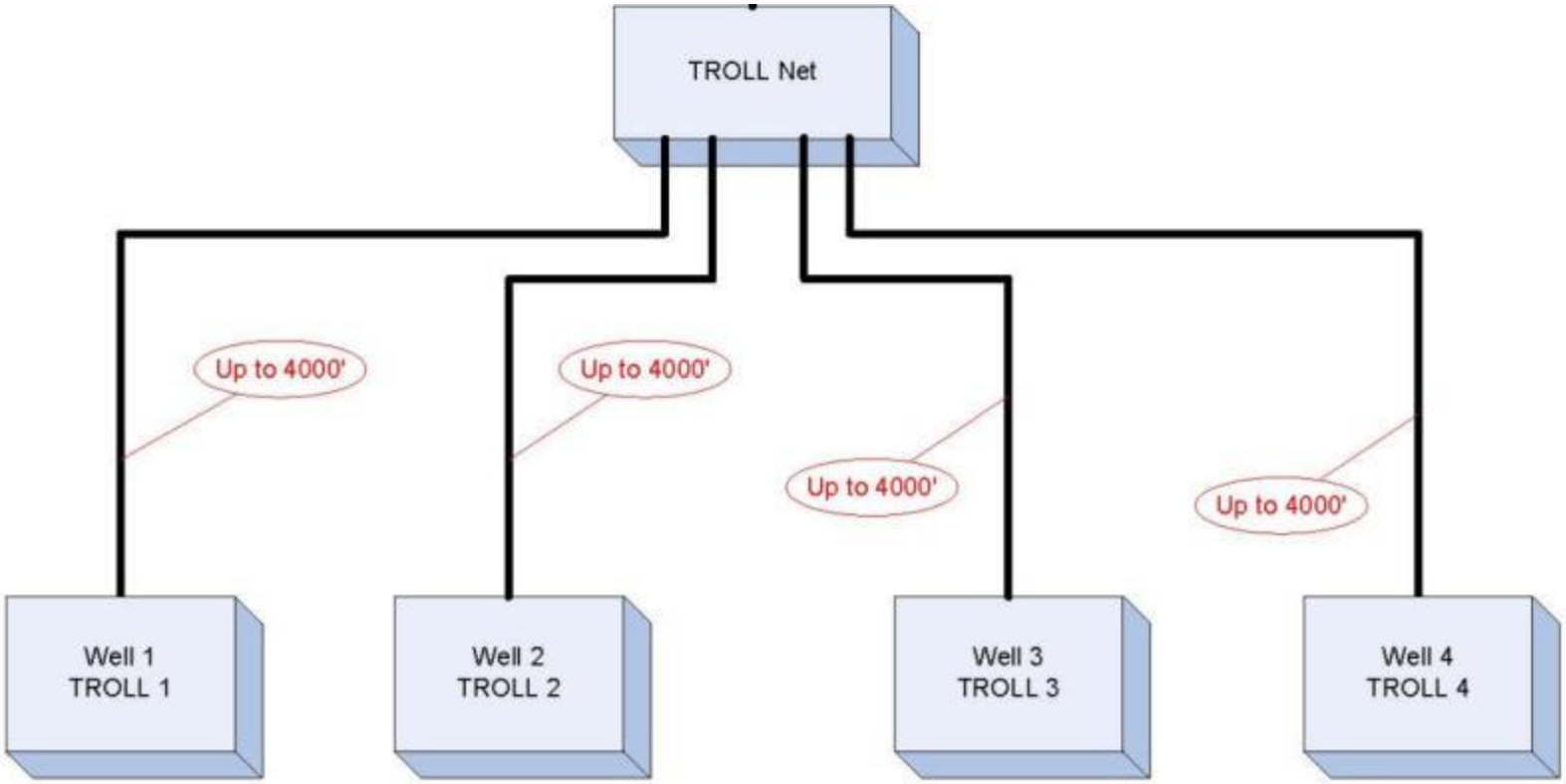
- Rental bundle includes:
  - Virtual HERMIT Software for PC
  - 8-port Rugged TROLL® Net Hub – Networks up to 8 Level TROLL 700s/hub
  - Vented Level TROLL 700 instruments
  - RuggedReader® Handheld PC (to download data from remote Level TROLL 700s where long cable lengths are impractical)
  - USB TROLL® Com
  - RS232 TROLL Com

Additional Equipment & Consumables

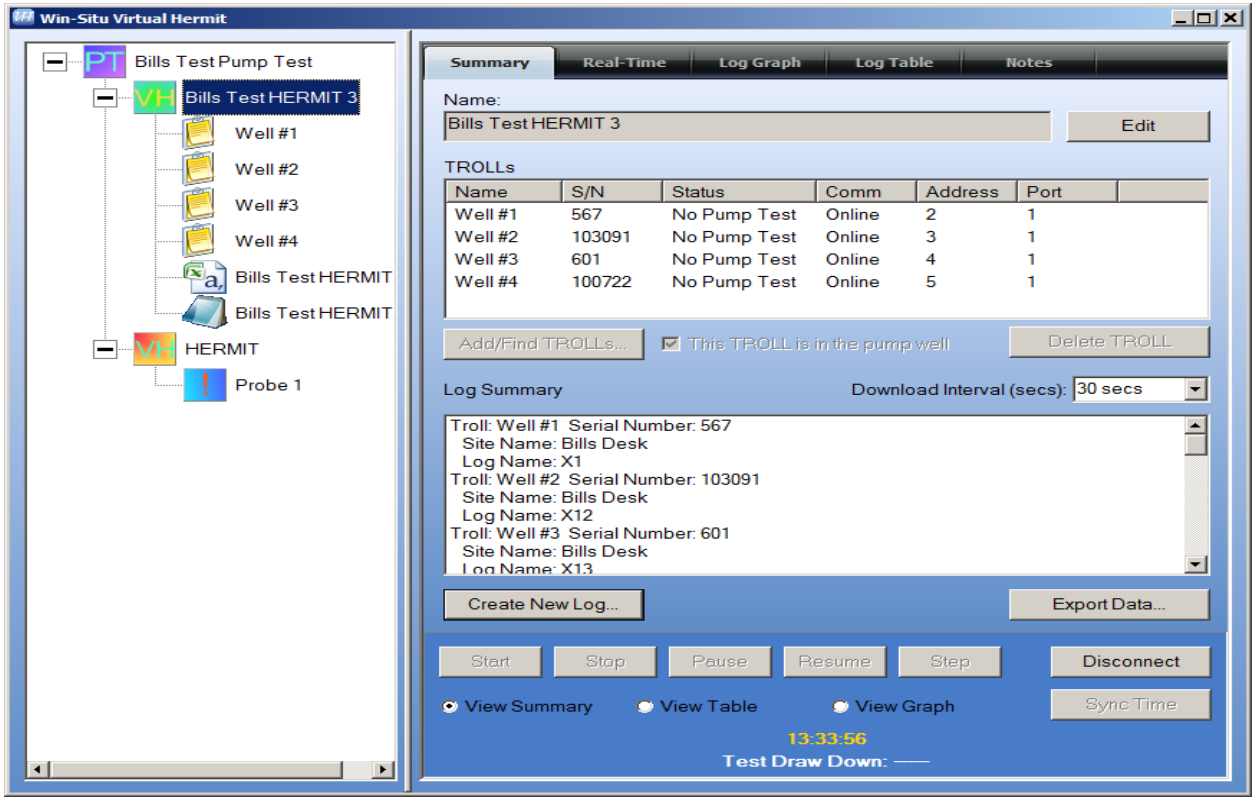
- Equipment
  - RuggedCable® System and cable extenders
  - Water level tape
  - BaroTROLL® Instrument
  - GPI flow meter
  - Pump
    - Geotech Geosub Sampling Pump & DC Controller
    - Grundfos® Redi-Flow2 Submersible Pump
  - PID detectors
- Consumables
  - Large desiccant for vented RuggedCable System
  - Submersible pump tubing



Rugged TROLL Net Hub – Networks Multiple Devices



Virtual HERMIT Software



- Connect up to 16 Level TROLL 700 instruments to each “HERMIT” when connecting 2 or more Rugged TROLL Net Hubs.
- Limitless number of “HERMITs” can be associated with each aquifer test.

Virtual HERMIT Aquifer Testing Kit – Highlights

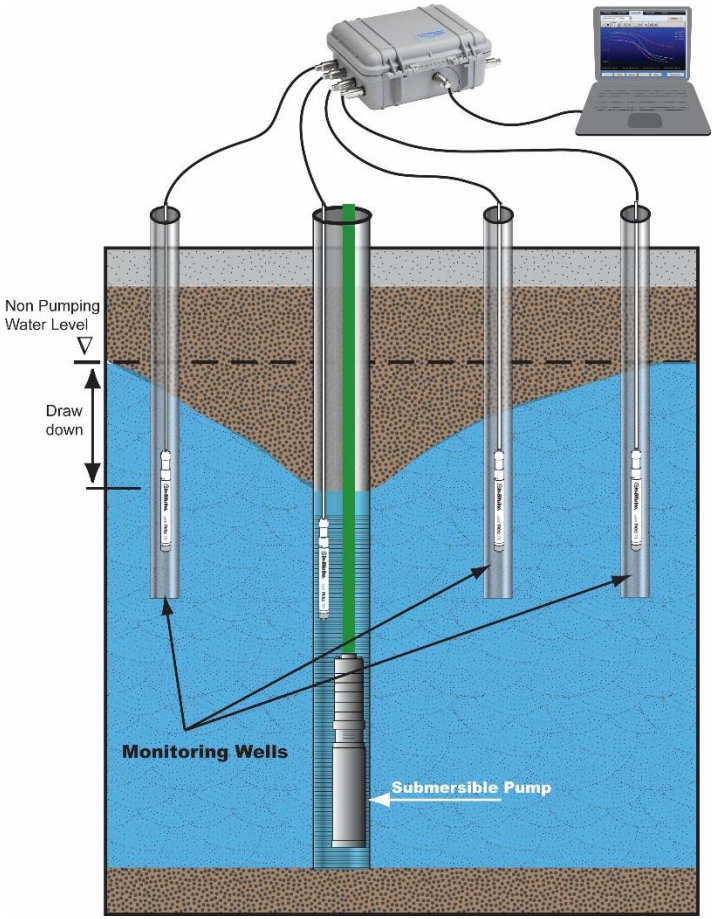
- Simplifies testing
  - Monitors an entire well field with one system
  - Simultaneously configures all Level TROLL 700s
  - Simultaneously starts, steps, or stops all Level TROLL 700s
- Reduces field time and saves money
  - Steps a logarithmic log to account for pump and recovery data on the same log without reprogramming
  - Facilitates real-time troubleshooting and adjustments to aquifer test protocols
  - Minimizes data processing – Time-synchronized data logs are exported to a single file

Virtual HERMIT Aquifer Testing Kit – Highlights

- Offers expert functionality
  - Displays real-time data of all Level TROLL 700s on a single graph/table
  - Automates drawdown calculations
  - Allows fast data downloads, even while the test is running
  - Collects closely-spaced drawdown measurements for constant-rate or step tests
  - Digitizes note-taking and report preparation

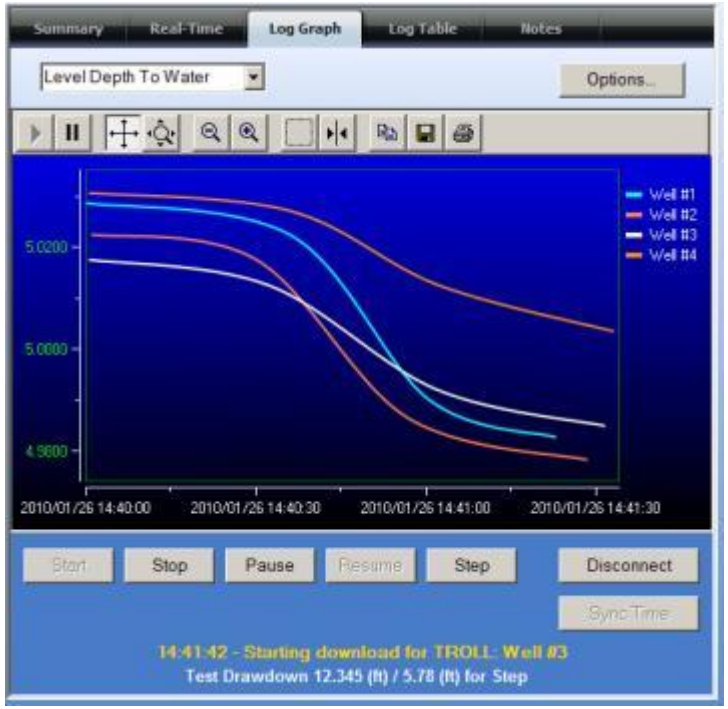
Manages Unique Situations

- Collects data during aquifer recovery—Disconnect and secure laptop PC, Rugged TROLL Net Hub, and cables.
  - Level TROLL 700s continue to log data while locked inside wells.
- Allows for data collection at difficult to reach sites.
  - Instruments can be set up in wells prior to the test and set to start logging data at a pre-determined time. After recovery, data is downloaded and merged with other level data.



Compatibility

- Must configure logs with Virtual HERMIT Software
- Data logs in Level TROLL Instruments work normally with:
  - Win-Situ 5 Software
  - Win-Situ Mobile Software
  - Win-Situ Sync Software
  - Win-Situ Baro Merge® Software



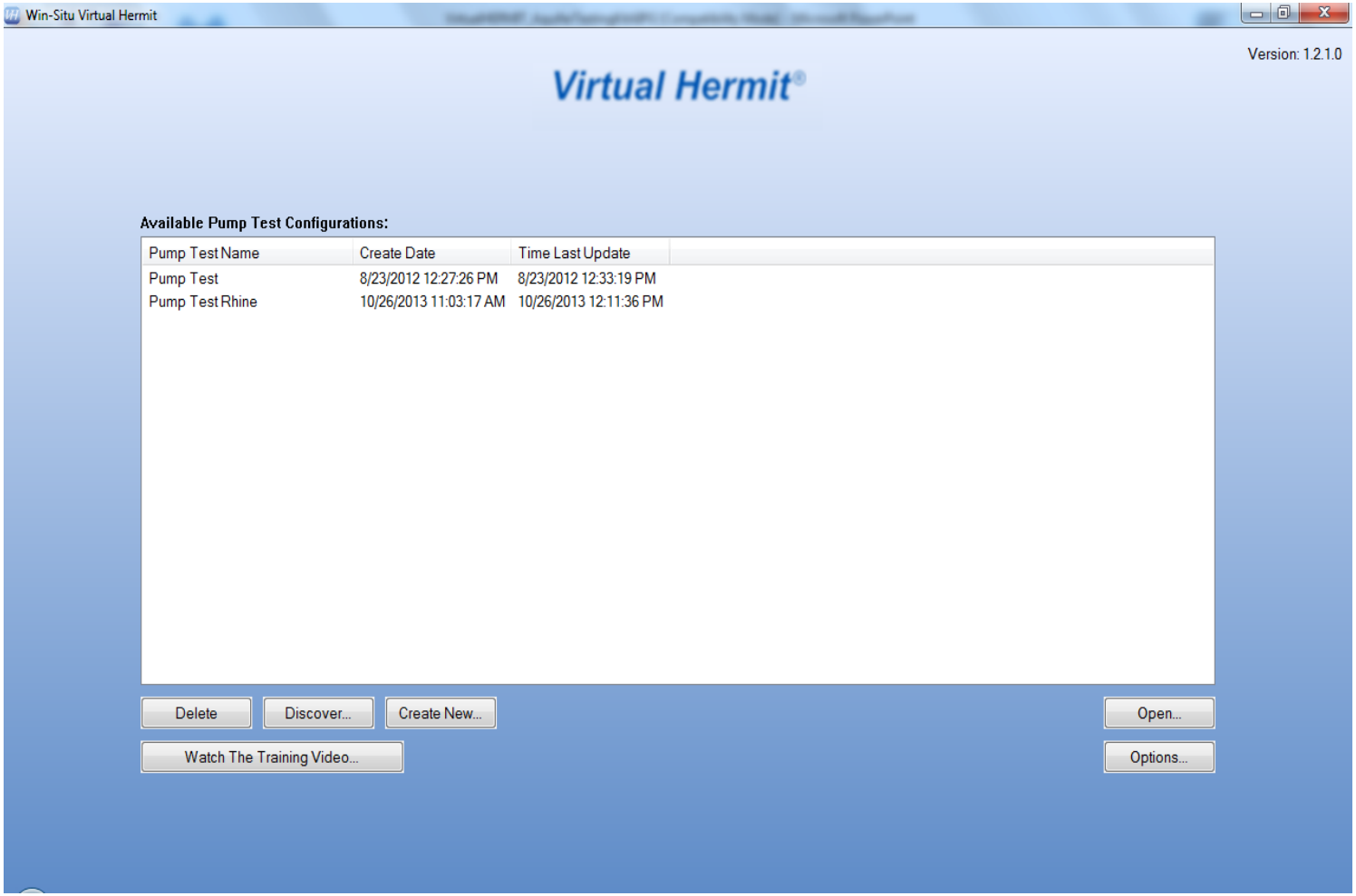
Additional Information

- Supports only Level TROLL 700s from In-Situ Rentals
- Virtual HERMIT Software available only from In-Situ Rentals
- Maximum 16 Level TROLL 700s per “HERMIT”
- All instruments within a “HERMIT” must be running the same log type
- Integrates BaroTROLL Instrument for barometric pressure compensation.
  - Use barometric pressure to calculate barometric efficiency for confined/semi-confined systems (requires aquifer test analysis software).
- No wireless support

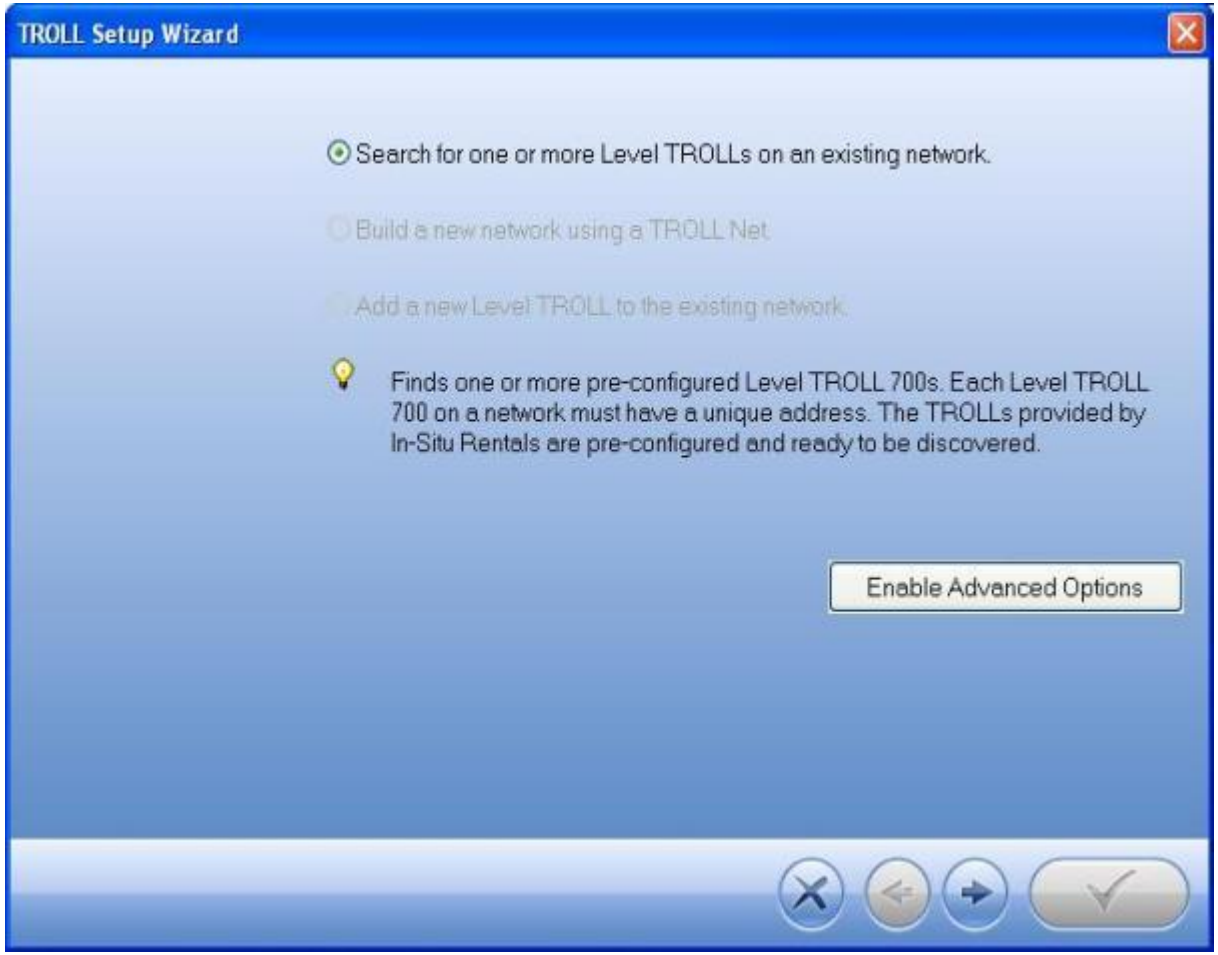
Pricing – Virtual HERMIT Aquifer Testing Kit

Part Number	Description	Rental Rate (Daily/Weekly/Monthly/Daily after 31days)
0089940	Virtual HERMIT activation fee	$110/$330/$990/$31.50
0087750	Rugged TROLL Net Hub	$150/$450/$1350/$40
Pressure sensor dependent	Level TROLL 700	$50/$150/$450/$14.50
0071870	BaroTROLL Instrument	$40/$120/$360/$11.50
0059230	RuggedReader Handheld	$40/$120/$360/$11.50
0052500 or 0056140	USB or RS232 TROLL Com	$0
Varies by length	Rugged Cable	$30/$90/$270/$8.50

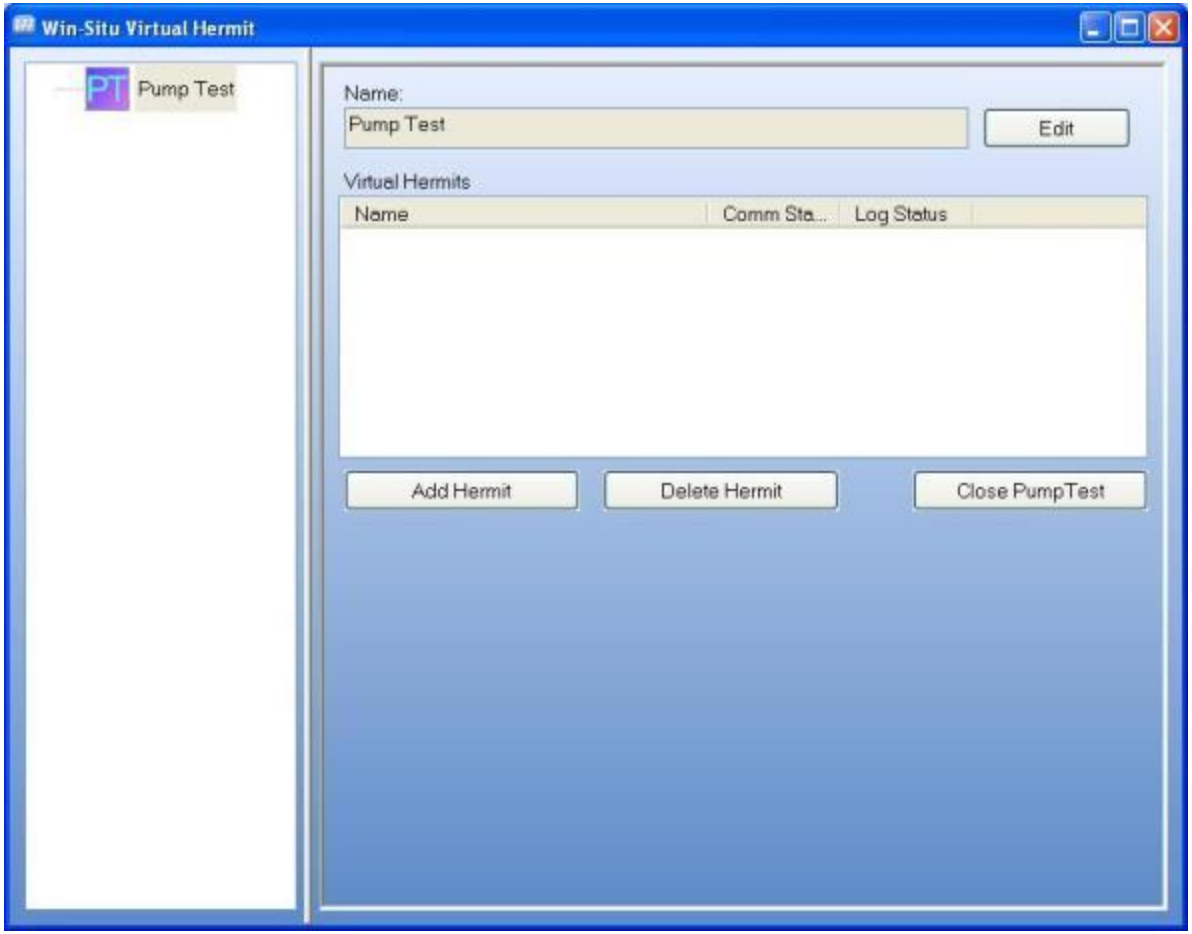
Virtual Hermit First Screen



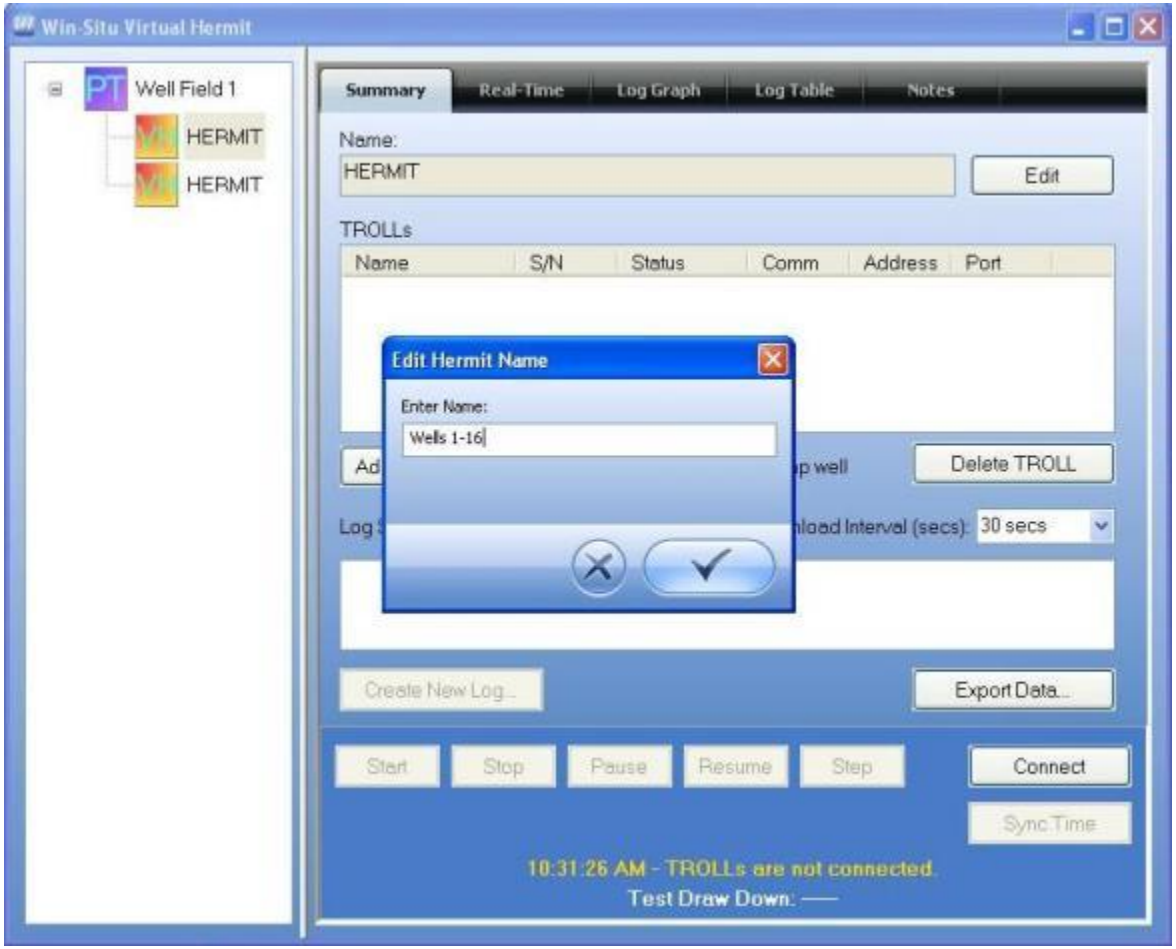
Search



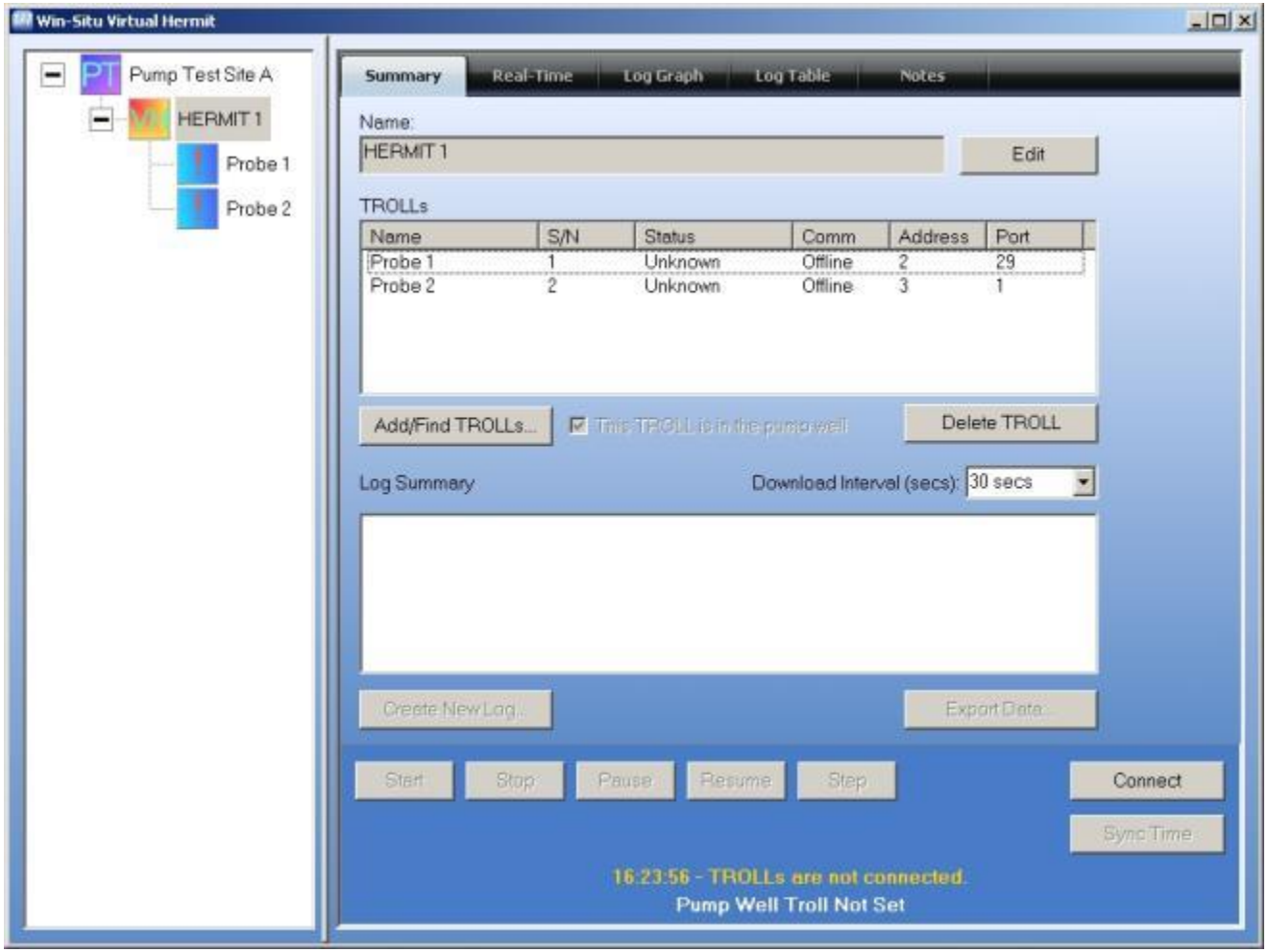
Configure



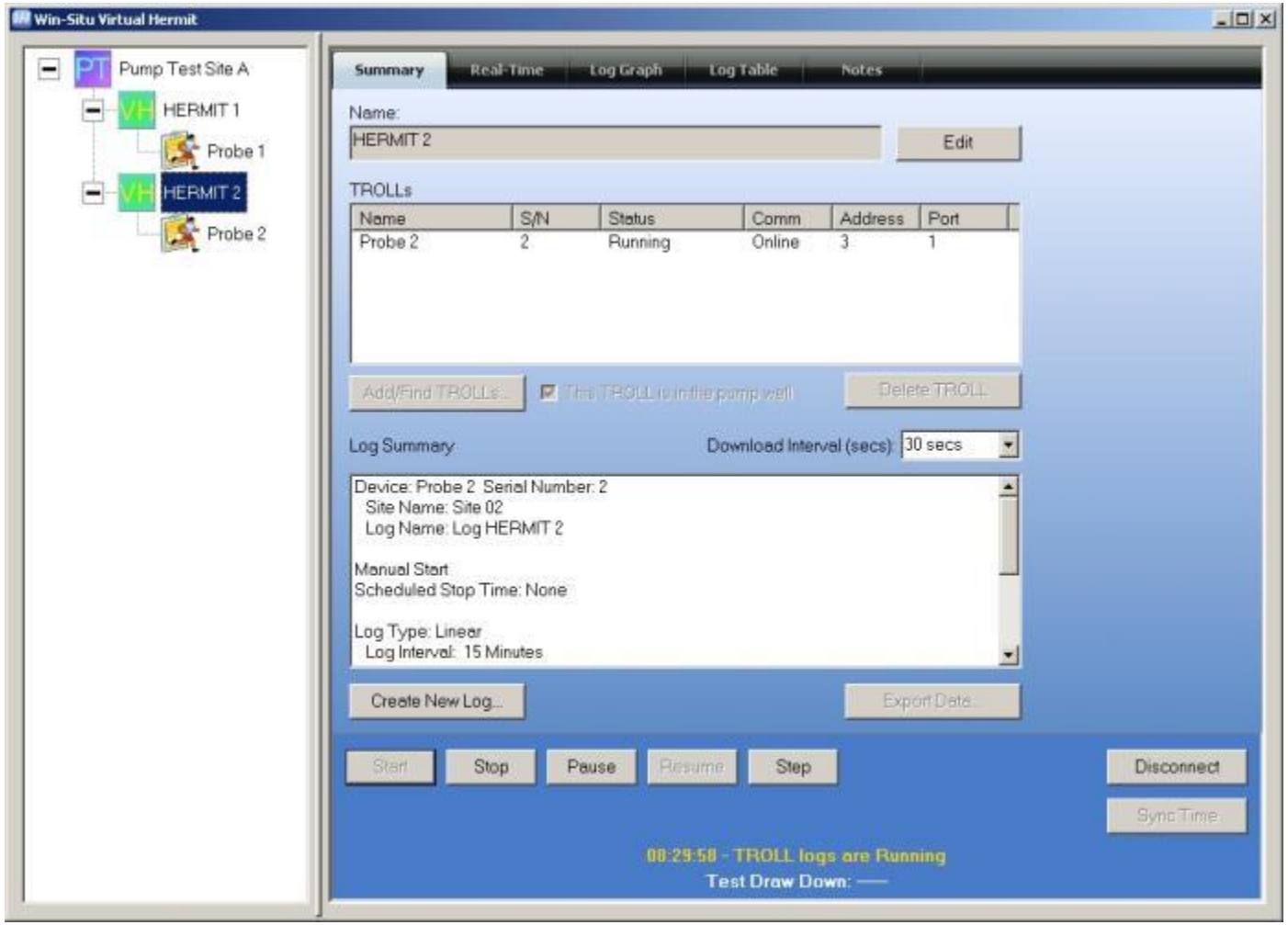
Configure



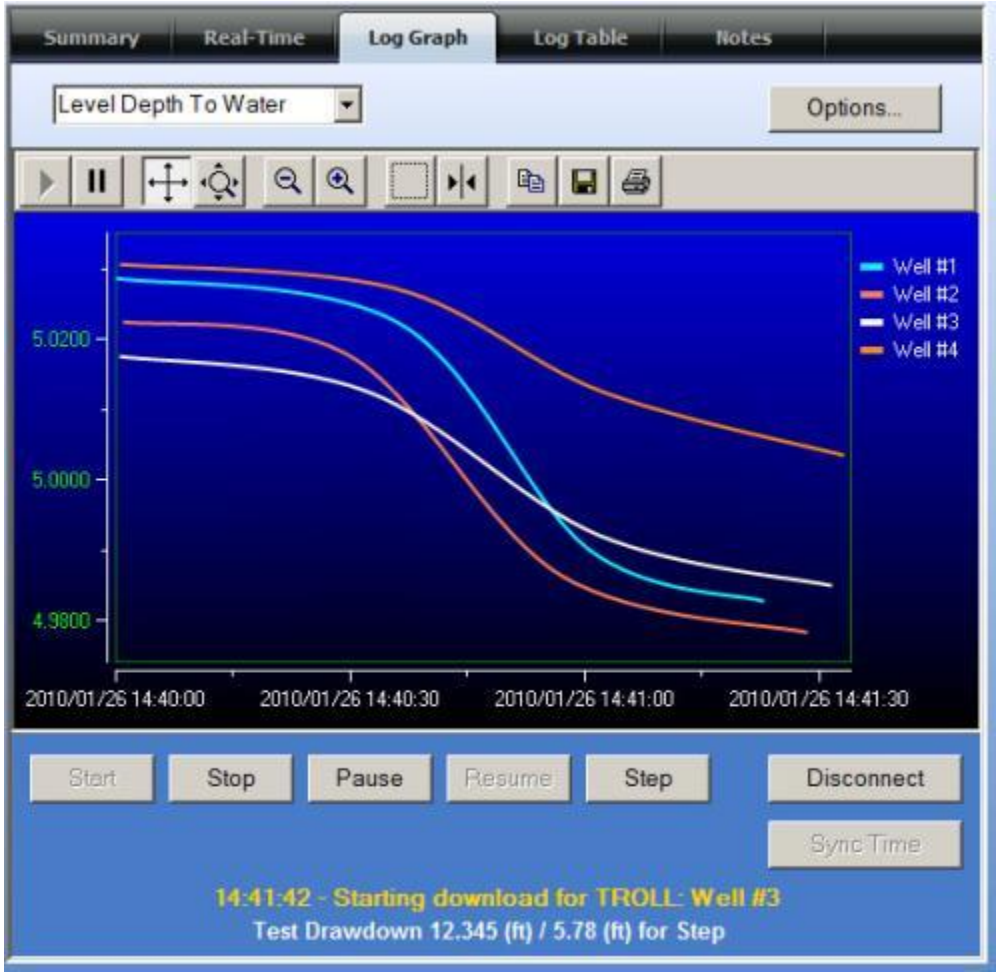
Run Multiple Probes



Run Multiple HERMITs



Data Analysis



Aquifer Characterization—Step-Drawdown Test

Purpose: *To determine well performance under pumping conditions, to determine well losses in the pumped well, and to design the optimal pumping rate for a constant-rate test or long-term pumping rate of an extraction/injection well. Tests are usually of short duration.*

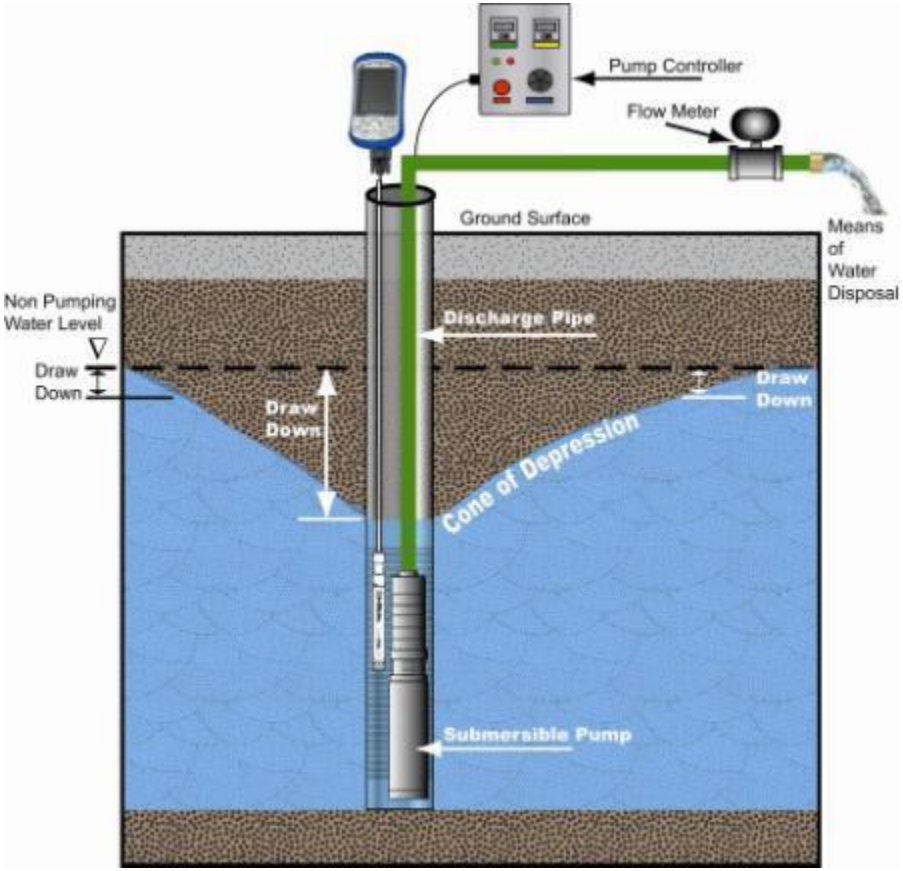
Method/Steps: *A pumping well is instrumented with Level and Temperature sensors. The well is pumped at increasing step rates for a given period of time. The drawdown is calculated for each pumping rate. The aquifer's response or drawdown is measured to determine well efficiency or the effective pump rate for a constant rate pump test.*

Logging Type: *Logarithmic with restart function in pumping well.*

User: *Consultants*

Recommended System: *Level TROLL 700*

Considerations: *Always recommend a vented system for this application.*



Aquifer Characterization—Constant-Rate Pumping Test

Purpose: *Preferred option for estimating hydraulic properties of aquifer systems and for identifying boundaries. Typically performed after a step-drawdown test. Pumping tests deliver a more accurate hydraulic conductivity value (K) compared to slug tests. The constant-rate test is also used to determine transmissivity (T), hydraulic conductivity (K), the storage coefficient (S), and other hydrologic parameters. Used to verify yield of a production well and long-term sustainability of an aquifer.*

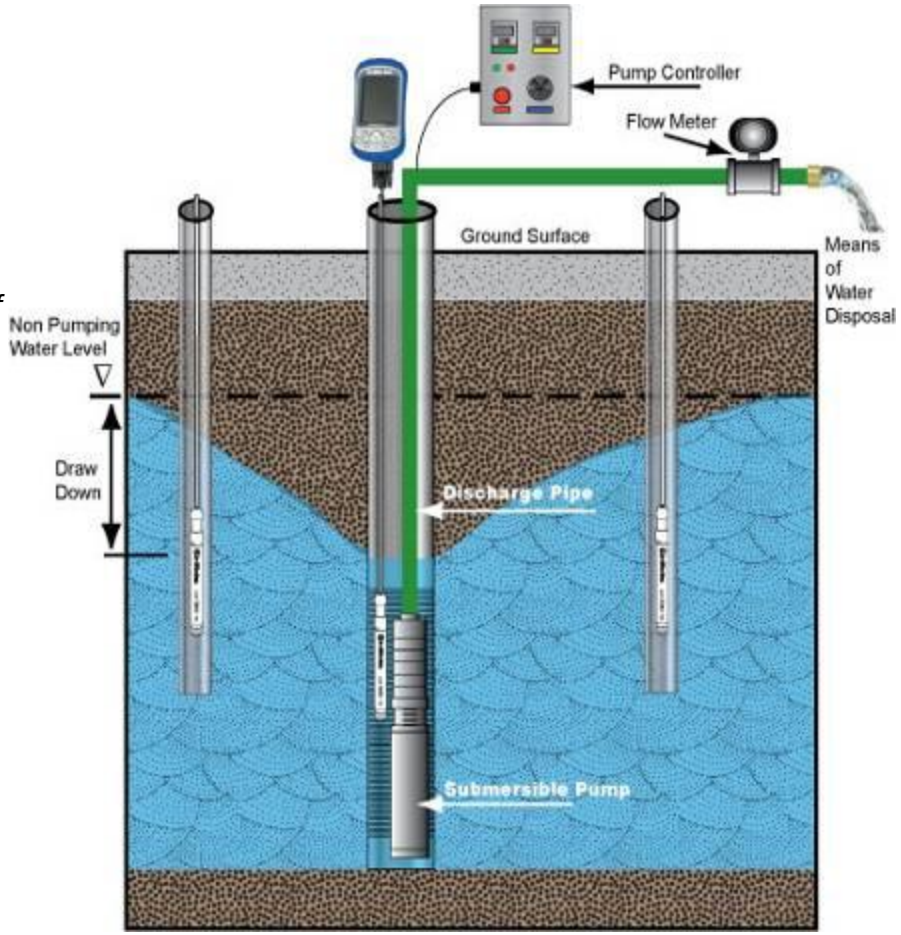
Method/Steps: *A pumping well and monitoring wells are instrumented with Level and Temperature sensor. The pumping well is pumped at a constant rate, and water level data is collected in the pumping well and monitoring wells.*

Logging Type: *Logarithmic or Step Linear*

User: *Consultants*

Recommended System: *Virtual Hermit, Level TROLL 700 (pumping well) Level TROLL 500 (monitoring wells)*

Considerations: *Always recommend a vented system for this application.*



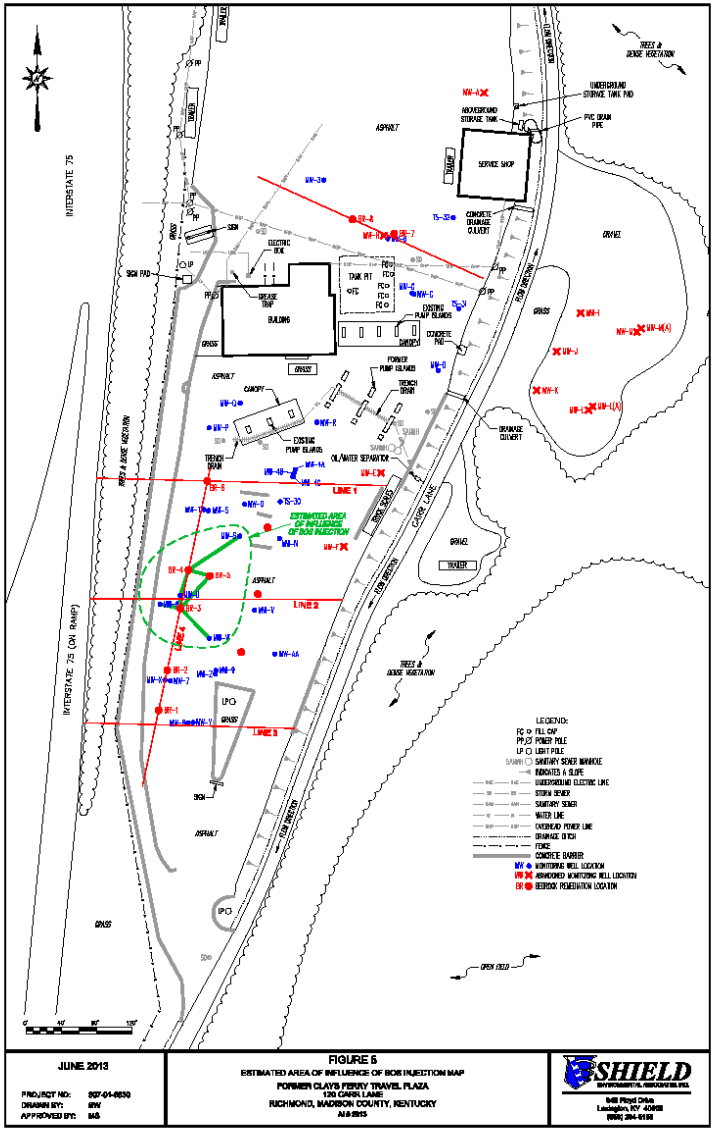
Using Aquifer Characterization Data

- Assess environmental impacts
  - Contaminated sites
  - Groundwater development projects – Municipal, agricultural, industrial
  - Groundwater dewatering – Construction, mining
- Assess hydrologic feasibility
  - Groundwater development projects
  - Groundwater dewatering
  - In-situ mining
- Determine
  - Well placement
  - Well efficiency
  - Pumping rates
  - Groundwater velocity
  - Impact to nearby wells

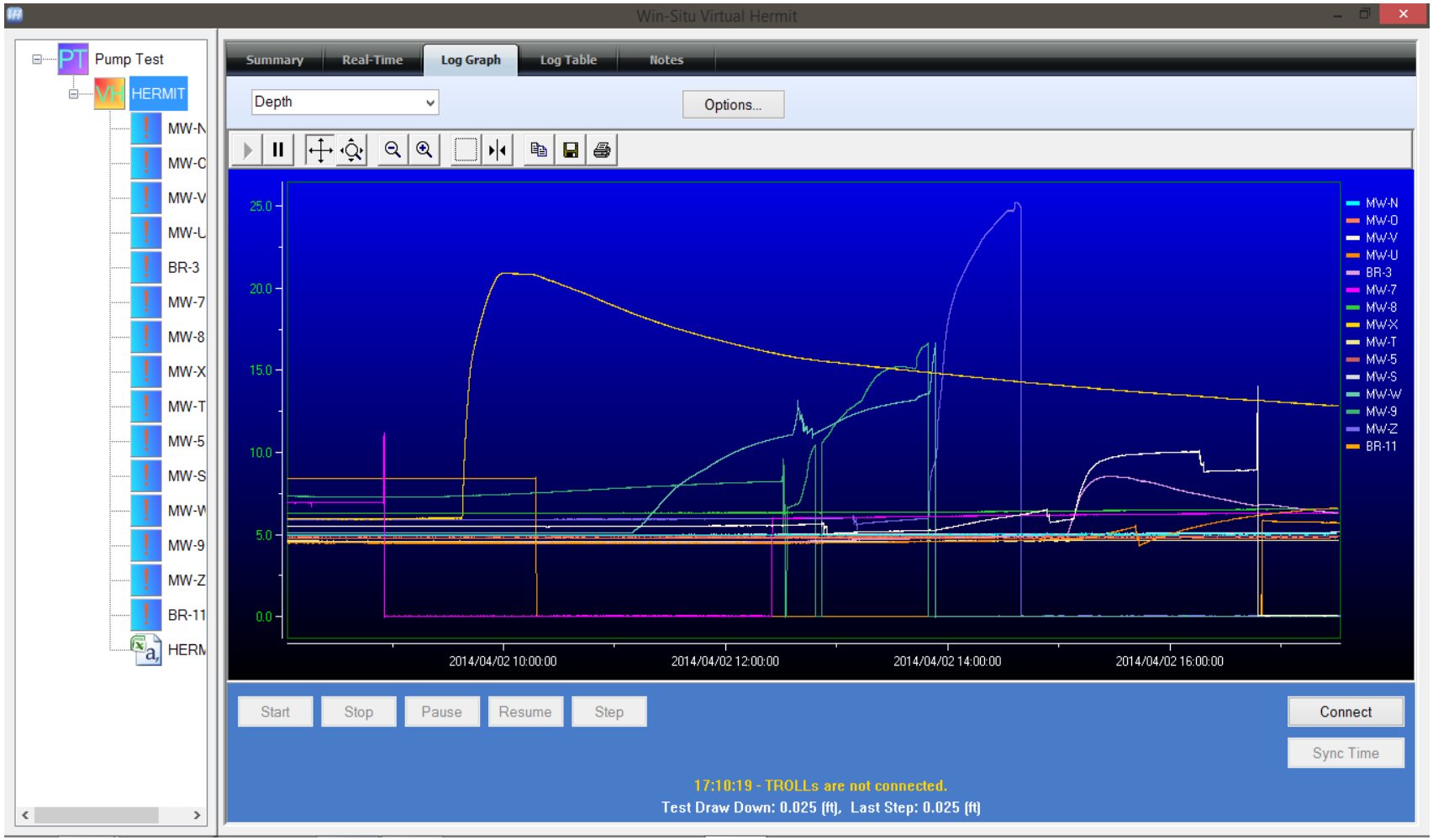
Case Study Clays Ferry Truck Stop

Shield Environmental Associates – Mark Sweet

Truck Stop, BTEX
Groundwater Conc 6 mg/L
60, 000 sq ft
Fractured Bedrock



Case Study, Clays Ferry Truck Stop



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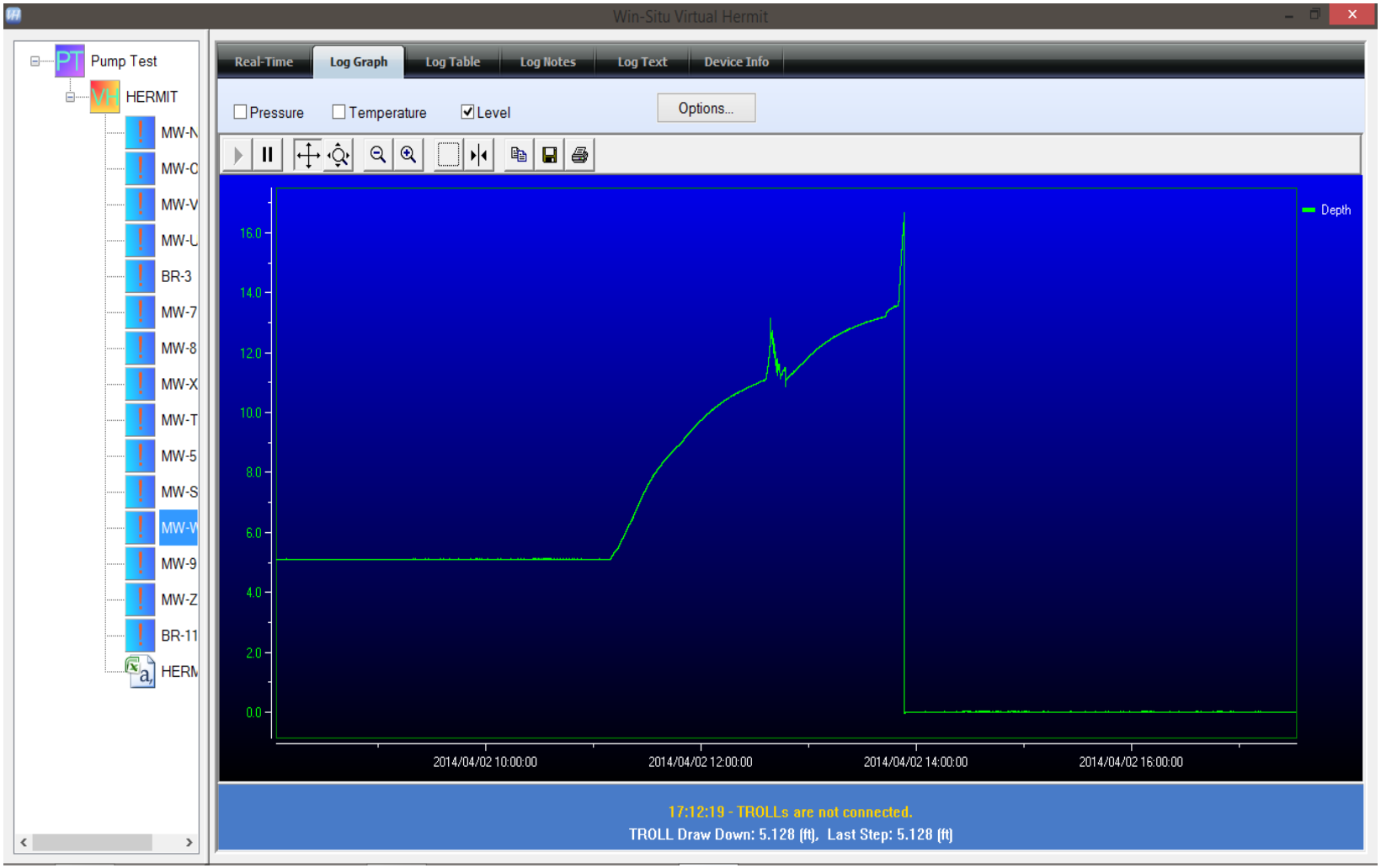
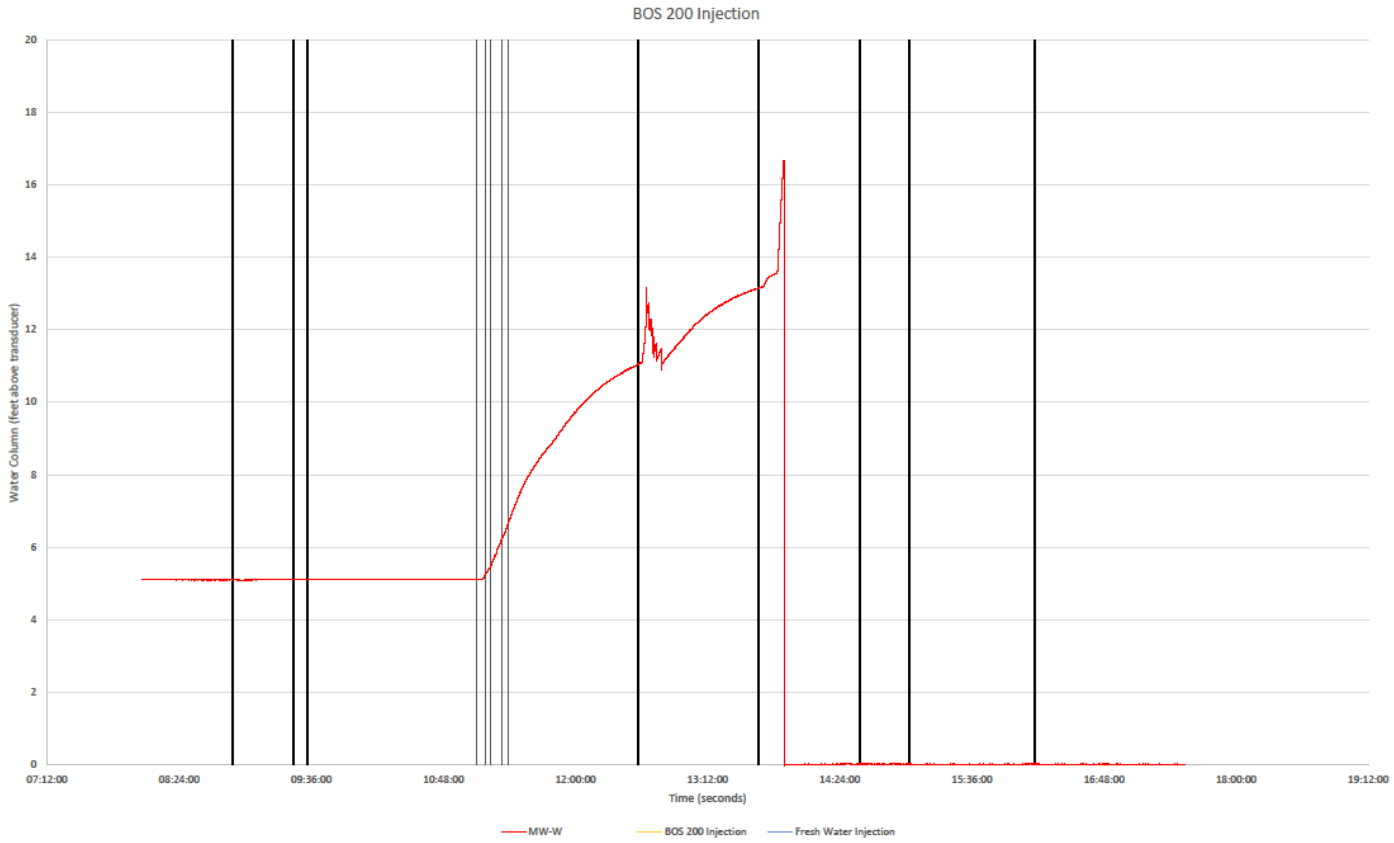


Case Study, Clays Ferry Truck Stop



In-Situ

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