



# Staff Report

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Agenda Item: Purchase of Water Meters and Water Meter Reading Equipment – Consideration of bid award for water meters and water meter reading equipment to HD Supply Waterworks for a total bid price of \$56,788.17

Meeting Date: February 12, 2008

Prepared By: Ron Doba, Utilities Director

Background: The Town of Clarkdale is scheduling assumption of the water system billing responsibility for March of 2008. The finance Department is in the process of procuring the necessary software and the Utilities Department is working to establish a meter inventory and obtain the necessary equipment to operate a “touch read” meter reading system.

Bids were advertised for the equipment January 6<sup>th</sup> and 9<sup>th</sup>. Only one bid was received, that being from HD Supply Waterworks. Our specifications required the bidder to provide a meter reading system that would be compatible with that presently being used by Cottonwood so we could have a trouble free transition to assuming the meter reading. This may have caused a problem some bidders to be unable to meet the specs.

The bid includes the following:  
5/8”X3/4” water meters (25 - \$112.00 ea.)  
1” water meters (125 - \$210.00 ea.)  
1 1/2” water meters (2 - \$336.00 ea.)  
2” water meters (1 - \$471.00 ea.)  
Software for the meter reading system (\$3,200.00)  
Staff training for two days (\$4,670.00)  
Handheld data collection probes (2 - \$1,000.00)  
Handheld data collector (2 - \$5,670.00)  
Ethernet/power adapter cradle (2 - \$565.00)  
Tax (\$4,255.17)

The bid had an estimated number of meter purchases and indicated we would purchase them on an as required basis. The award of the bid is based on using the estimated amounts according to the bid specs.

Funding for this purchase will come from three budget line items. \$25,000 will come from Public Works Equipment and Administration Equipment (13-00-00-8000 and 13-00-00-8001) and the remaining portion will come from Cash Carryover (13-01-00-880).

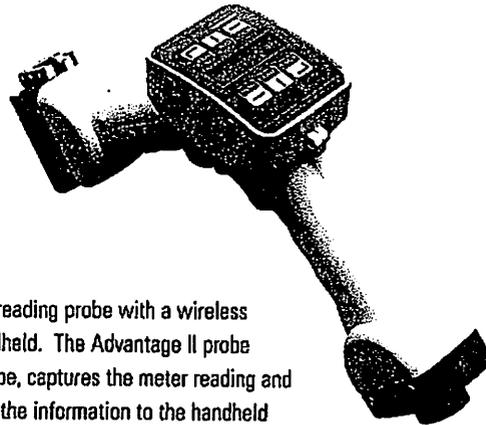
Recommendation: To approve the bid award for water meters and water meter reading equipment to HD Supply Waterworks for a total bid price of \$56,788.17



# ADVANTAGE II PROBE



The Advantage II is a flexible meter reading tool that provides the operator the ability to read multiple types of meter registers and transmits this data to a portable handheld meter reading device that will store the data for billing purposes.



The Advantage II is a remote meter reading probe with a wireless communication interface to the handheld. The Advantage II probe automatically detects the register type, captures the meter reading and identification number, and transmits the information to the handheld meter reading device. The Advantage II probe is available in two versions – one that reads ProRead™ (ARB VI) and ARB® receptacles; the other reads ProRead and Sensus ECR® II and ECR III\* TouchRead® receptacles. The probe will store up to five readings after reading multiple meters or compound meters. The operator can review the readings at any time. The Advantage II is:

- Lightweight and easy to use
- Ergonomically designed
- Built rugged for daily use

STANDARD FEATURES

- Reads multiple meter register types
- Unit displays the metering read and the meter identification number
- Acknowledges successful reads with a short tone and erroneous reads are signaled with a longer tone
- Orientation of display determined by meter type being read
- Transmits meter readings directly to handheld meter reading device unit by unlicensed radio frequency
- Capable of storing up to five meter readings in memory
- Meter readings can be reviewed and re-transmitted
- ARB receptacles require no triggering action
- Rechargeable battery offers a full day of reading capabilities

\* ECR® III register is supported when programmed with the same format used in the "6 wheel ECR II register."

KEY FEATURES

- Designed for reading multiple types of remote receptacles – Neptune ARB II-V, ProRead (ARB VI), E-Coder (basic) and Sensus ECR® II and III\*
- Readings are transmitted via 914 MHz unlicensed RF signal to DAP handheld computers with HR2380 or HR2580 RF receivers
- Compatible with Neptune's Equinox meter reading software
- Excellent visual reader and testing device
- Available in probe and wand versions

WARRANTY

Neptune provides a limited warranty with respect to its Advantage II probe for performance, materials, and workmanship. Additionally, full hardware maintenance agreements are available.

HARDWARE

- Power Supply:
  - Uses 3 Ni-Cad AA rechargeable battery pack
  - Battery is rechargeable with a 120V wall charger rated for 4.5v@85mA
  - Battery can be recharged without removing it from the unit
  - Battery pack is replaceable — Part # 11992-001
  - Equipped with an on/off switch
- Display:
  - 16-column x 2-line LCD (Liquid Crystal Display)
  - Auto temperature compensation
  - Display with reversible font
- Keypad:
  - 6 large keys, pillow embossed and waterproof
  - Function keys clearly marked
- Trigger:
  - Activate inductive coupling probe end
- Reader Head:
  - ARB block reads 3-wire receptacles
  - Inductive probe reads ProRead, E-Coder (BASIC) and Sensus ECR® II and III\* (in optional version) using the same reader head
  - Extended wand for pit applications is available

RF TRANSMITTER

- Built-in unlicensed 914 MHz RF transmitter
- Minimum 6 ft. transmission range
- Meets FCC Part 15 and Industry Canada requirements
- Dimensions:
  - V-shape curve with each side being 9" long
  - Handle diameter 1.5"
- Weight:
  - 1.49 lb. (0.7 kg) [probe version]

*\* ECR® III register is supported when programmed with the same format used in the "6 wheel ECR II register."*

ENVIRONMENTAL

- Temperature:
  - Operating: (-4°F to 122°F) (-20°C to +50°C)
  - Storage: (-40°F to 175°F) (-40°C to +80°C)
- Water Resistance:
  - Withstands unlimited spray or splash (such as rain)
- Chemical Resistance:
  - Acids, alcohols, glycols, and oils
- Impact:
  - Withstands repeated drops from a height of one metre on concrete
- Electrostatic Discharge:
  - Withstands a 16 KV discharge without loss of data
- Accessory Equipment:
  - Wall-mounted battery charger (included)
  - Extra battery
  - Hand strap (included)

Neptune engages in ongoing research and development to improve and enhance its products. Therefore, Neptune reserves the right to change product or system specifications without notice.

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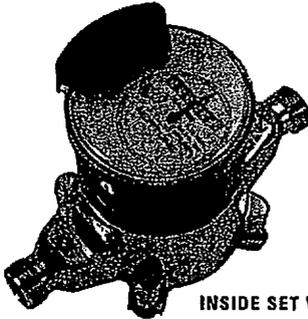
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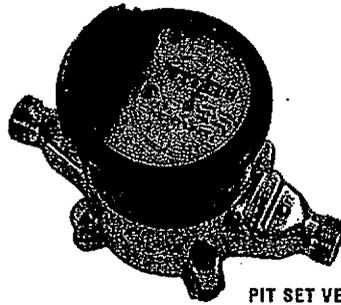
ARB® UTILITY MANAGEMENT SYSTEMS™



# PROREAD™ REGISTER



INSIDE SET VERSION



PIT SET VERSION

Neptune water meters and absolute encoders form the foundation of accurate and reliable ARB® Utility Management Systems™. Since 1964 when Neptune introduced the first absolute encoder, Neptune has held firm to the philosophy that both the local visual reading and remote electronic reading should come from the same source. Today there are approximately 19 million encoders in use. Neptune guarantees the data integrity of all our absolute encoders.

The ProRead™ (ARB® VI) absolute encoder provides data integrity by encoding the actual position of the register odometer and providing error-free remote electronic meter reading capability. The ProRead encoder allows utilities to capture more reads per day, shorten billing cycles, and automate bill preparation to improve cash flow. The ProRead absolute encoder and data collection systems work together to eliminate billing discrepancies and customer complaints by providing accurate meter readings the first time, every time — guaranteeing efficiency, long-term value, and peace of mind for utilities.

ProRead is the first step toward a totally automated metering system. The ProRead register provides the actual direct reading of the register odometer and provides error-free remote electronic capability without the need for batteries. The ProRead is a fully programmable register with an ID number of up to 10 digits, three user characters, 3-6 digit meter reading and meter networking to allow connection of two registers to one remote. For reading convenience, the register can be mounted in one of four different positions on the meter bayonet. For ease of installation, the ProRead register can automatically detect 2-wire and 3-wire register protocol without programming.

### PROREAD INSIDE SET VERSION

The inside set version features a non-oil-filled standard plastic polycarbonate enclosure for installation in basement or inside applications only.

### PROREAD PIT SET VERSION

The pit set version features a non-oil-filled roll-sealed copper shell and glass lens housing similar to our standard direct read register housing for superior protection in a harsh pit environment.

#### KEY FEATURES

- Absolute encoder technology
- Available in pit and inside set versions
- Pit set version: Roll-sealed copper shell and glass lens, oil-free design, factory pre-wired and potted
- Inside set version: Plastic enclosure, oil-free design
- Error-free remote electronic reading
- Automatically detects 2-wire and 3-wire register protocol
- Reprogrammable 1-10 digit ID, 3-6 digit meter reading
- Full sweep hand for testing
- Leak detection on register face
- Tamperproof seal to meter

#### KEY BENEFITS

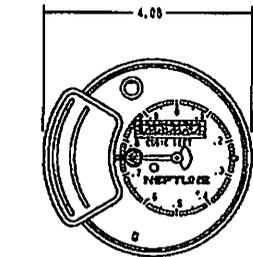
- Foundation of AMR
- Accurate and reliable meter reading
- Eliminates billing discrepancies and customer complaints
- Allows the capture of more reads per day
- Shortens billing cycle
- Automates bill preparation to improve cash flow

## REGISTRATIONS AND REGISTER CAPACITY

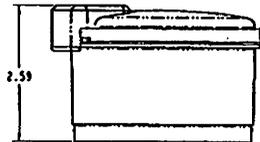
Meter Size	4 and 6 -Wheel Encoded Odometers								
	Gallons (U.S. & Imperial)			Cubic Feet (ft <sup>3</sup> )			Cubic Metres (m <sup>3</sup> )		
	4-Wheel	6-Wheel	Fixed Zero	4-Wheel	6-Wheel	Fixed Zero	4-Wheel	6-Wheel	Fixed Zero
5/8", 3/4", 1"	1234	123455	0	1234	123455		1234	123455	-
1 1/2"	1234	123455	00	1234	123455	0	1234	123455	-
2", 3", 4"	1234	123455	00	1234	123455	0	1234	123455	-
6", 8", 10", 12"	1234	123455	000	1234	123455	00	1234	123455	0
16", 20"	1234	123455	0000	1234	123455	000	1234	123455	00

Some other special resolutions available upon request.

### INSIDE SET VERSION

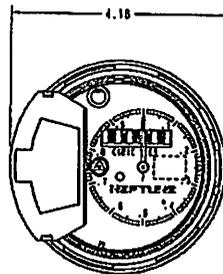


TOP VIEW

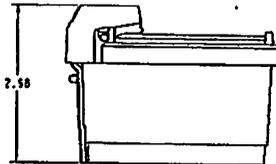


SIDE VIEW

### PIT SET VERSION



TOP VIEW



SIDE VIEW

### SPECIFICATIONS

- Materials
  - Encoder register housing: Plastic Polycarbonate: inside set meters
  - Glass lens and copper can: pit set meters
  - Remote receptacles: ABS, nylon and polycarbonate
  - Connecting wire: 3-lead #22 AWG
- Distance
  - A single register may be located with up to 500 feet (152 m) of wire from receptacle.
  - Two networked registers can be located with up to 300 feet (91 m) of wire from receptacle.

### OPTIONS

- Sizes
  - Available for all sizes and makes of current Neptune meters.
- Electronic Accessory Equipment
  - Advantage
  - Pocket ProReader
  - DAP Handhelds with adapter
  - R900s (Single or Dual)
- Units of Measure: U.S. Gallons, Cubic Feet, Imperial Gallons, Cubic Metres
- Environmental Conditions:
  - Operating temperature: 32°F to 158°F (0°C to 70°C)
  - Storage temperature: -40°F to 158°F (-40°C to 70°C)
  - Operating humidity: 0 to 100%

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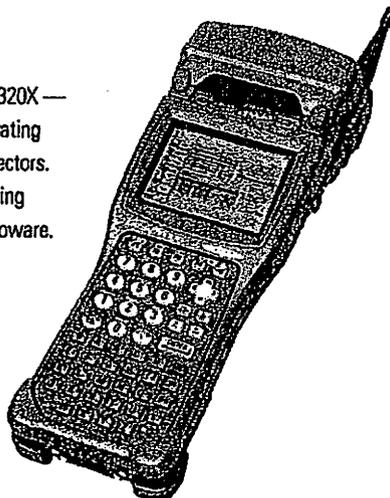
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# CE5320X HANDHELD DATA COLLECTOR



Neptune's newest handheld computer — the CE5320X — complete with Microsoft® Windows® CE.NET operating system, ushers in a new era in handheld data collectors. The CE5320X is powered by Neptune's meter reading software, either FieldNet® or Equinox® by DB Microwave. Neptune's meter reading software is designed to automate the meter reading process with a comprehensive feature set that assists utilities to reliably manage meter reading schedules regardless of size or industry type.



With Neptune's ARB® Utility Management Systems™, utilities can read their meters using a variety of data collection technologies — walk-by, mobile and targeted fixed network. The CE5320X is just one component of Neptune's hybrid meter reading approach allowing the meter reader to collect meter readings manually (keyed entry), probed, or via RF. Regardless of the method, the CE5320X offers the capability to reliably collect and store meter readings throughout the entire work day.

The CE5320X handheld is loaded with meter reading routes through an Ethernet communication/charging cradle using Neptune's meter reading software. Communication/charging cradles are connected directly to a PC, to a server supporting multiple computers, or to the company LAN. To retrieve meter reading data, the CE5320X is again inserted into the cradle at the office. Data is then downloaded to the meter reading software and prepared for transfer to the billing system. The CE5320X remains in the cradle to recharge so it is ready for work the next day.

Utilities also have a choice with respect to RF AMR capabilities. The CE5320X can be equipped with either an HR2380 receiver designed to automatically read Neptune R900® radio transmitters or an HR2580 receiver designed to read R900, Itron® R300 and electric ERT® transmitters.

Additionally, the CE5320X supports various types of meter probes. In the water industry, walk-by probed meter reading is supported via a wireless RF link between the probe and the handheld computer. In the electric industry the CE5320X supports optical probing across a wide variety of electric meters and file types for time-of-use and mass memory meters.

KEY FEATURES

- AMR capable — fully compatible with R900s, R300s and electric ERTs
- Windows CE.net operating system
- 54 multi-functional raised tactile keys
- Color touch-screen display
- Designed for extreme durability — complies with IP67 & MIL-STD-810F
- Replaceable long-life lithium ion battery — intelligent fast charge system

KEY BENEFITS

- Offers true multi-tasking capability
- Provides maximum field performance
- Multi-utility meter reading capability
- Flexible, easy-to-use software application functionality
- Migrates from multiple data collection methods — manual keyed entry, probed, and walk-by RF
- Supports rich contrasts that are easy to read both indoors and outdoors
- Courteous, prompt, and conscientious Support Specialists available if needed

SPECIFICATIONS

<b>Operating System</b>	Windows CE.NET 4.2
<b>Software Application</b>	FieldNet or Equinox
<b>Processor</b>	400 MHz Intel Xscale PAX255
<b>Memory</b>	64 MB RAM, 128 MB Flash for WIN CE and file system
<b>Display</b>	3.5" (89 mm) QVGA TFT touchscreen transfective color LCD with backlighting 320 x 240 pixels with full graphics
<b>Keyboard</b>	Highly ergonomic keyboard, 54 multi-function keys Ergonomic key grouping to facilitate data entry Alphanumeric keys with large, separate numeric keypad Tactile and programmable audible feedback Customized keyboard templates to support FieldNet and Equinox-AMR Optional 2-zone keyboard backlighting
<b>Power Supply</b>	Rechargeable Lithium-Ion battery pack (user accessible) 2200 mA/H Intelligent fast charge system (4 hours) Power management system Integrated charge status and low battery indicator Typical 10-12 hour work day Rechargeable Nickel metal hydride backup battery ON/OFF switch, manual and automatic shutoff 5 Volt power for external devices
<b>Communications</b>	Ethernet 10 Base T, 10 Mbps IrDA 1 RS232 on Lemo connector, up to 230 kbps full duplex
<b>Audio</b>	Speaker output
<b>AMR RF Receiver</b>	HR2380 RF Receiver (R900 only) HR2580 RF Receiver (R900, Itron R300, Itron electric ERT)
<b>Dimensions</b>	Without AMR RF Receiver Height: 1.53" min., 2.36" max (39 mm min., 60 mm max.) Width: 3.53" min., 4.08" max (90 mm min., 104 mm max.) Length: 9.74" (248 mm) With AMR RF Receiver Height: 1.53" min., 3.25" max (39 mm min., 83 mm max.) Width: 3.53" min., 4.6" max (90 mm min., 117 mm max.) Length: 11.75" (298 mm)
<b>Weight</b>	Without AMR RF Receiver 1.94 lbs (880 g) with battery pack With AMR RF Receiver 2.4 lbs (1,089 g) with battery pack
<b>Temperature Range</b>	Operating: -4°F to +122°F (-20°C to +50°C) Storage: -22°F to +140°F (-30°C to +60°C) Humidity: 95% non-condensing
<b>Environmental</b>	MIL-STD-810F method 512.4 procedure I IP67 (1 meter immersion) MIL-STD-810F method 506.3 procedure I (wind blown rain) Shock resistance: * Exceeds 2 meter drop on concrete * MIL-STD-810F method 516.5 procedure IV Electrostatic discharge: * Meets EN61000-4-2
<b>Approvals</b>	FCC Class B CE Certification ISO9001
<b>Accessories</b>	Ethernet communications and charging cradle 110 V AC power supply Ergonomic hand strap adjustable for either left- or right-handed users Shoulder carrying strap
<b>Warranty</b>	1 year comprehensive warranty Hardware and software maintenance contracts available

The CE5320X incorporates an Intel® XScale™ 400MHz processor to maximize field performance. 64Mb of RAM and 128Mb of internal Flash memory provide ample storage for multiple routes of meter reading data.

Communication of data from the CE5320X is conducted through an Ethernet cradle at speeds up to 10Mbps — almost 100 times faster than conventional serial communications. The cradle also serves as a charging device designed to intelligently “fast charge” the unit’s rechargeable lithium-ion batteries in only four hours. The CE5320X power supply is designed to provide a minimum 10 hours of continuous use which minimizes downtime and ensures a full, productive work day.

Neptune’s commitment to quality and long term service is backed by a qualified Systems Support Center. Neptune’s System Support team is easily accessible through our toll-free number (1.800.647.4832). Neptune provides access to qualified professionals who provide prompt and courteous assistance. Comprehensive hardware and software warranties as well as maintenance services are also available to keep all equipment operating at peak performance.

CE5320X with charging cradle



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