Electro Scan Finds Leaks Not Found By TV Inspection

Electro Scan represents a next generation detection technology that finds all defects in sewer pipes that leak. Representing a paradigm shift for the sewer pipeline assessment market, the new technology is also able to certify point repairs & relining projects as ‘leak free.’ Electro Scan is currently available as an add-on product to existing CCTV trucks, with services available from leading contractors.

In contrast to CCTV cameras that rely on visual identification of defects, Electro Scan’s patent-pending technology, developed in accordance with ASTM F2550, automatically locates & measures pipe defects finding all direct pathways from inside a pipe to the surface above.

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Leading South Florida Sewer Utility ‘Electro Scans’ Relining Project and Finds Defects Not Seen By CCTV

**No Leaks Found in Relining of Sewer Main**

Typical CIPP liners are non-conductive, so like brick, concrete, clay, and plastic pipes, no electrical current should be able to pass through the wall of a pipe -- unless there is a leak. As shown below, no electro scan ‘defect’ current is registered, indicating there are no leaks or pathways for water to travel between pipe and ground.

![Graph showing no leaks found in relining project](image)

**Defects Found in Relining Project**

Electro scan ‘spike’ shows a maximum defect current where large leaks are indicated, resulting from poor sewer re-connections by the Contractor.

![Graph showing defects found in relining project](image)

British Village ‘Electro Scans’ Pitch Fiber Pipe

**Originally Slated to Compare CCTV & Electro Scan,**

No Televising Was Possible Due to High Build-Up of Silt

The use of pitch fiber pipe was widespread in the United Kingdom from the 1950s to early 1970s, including use for nearly 50,000 property connections. Today, a number of UK water companies are experiencing growing problems related to this type of pipe.

Considered ideal for laterals and sewer mains due to their lightweight and low cost, pitch fiber pipe was typically produced in 8 foot lengths so they were easy to handle and faster to install.

Made of wood cellulose fiber that was impregnated with refined inert coal tar pitch, pitch fiber pipe was created under vacuum and pressure, representing approximately 25% fiber and 75% pitch, by weight.

Initial research suggested that if pitch fiber pipes were laid correctly, without any adverse ground conditions, the pipe could be expected to have a life span of up to 40 years; however, high pressure jet nozzles used for periodic cleaning could inadvertently damage the structural integrity of the pipe wall.

Not familiar with this type of pipe, Electro Scan undertook several projects in early 2013 to catalog its defect patterns. Working in cooperation with UK-based Pell Frischmann, Upstream Pipeline Services, and Electro Scan’s authorized dealer, Leeds-based Ant Hire Ltd., Electro Scan inspected all pitch fiber sewers in its target survey area. By comparison, no CCTV inspections were possible to due to heavy build-up of silt. Contact Electro Scan for completed details of this project.

![Pitch Fiber Pipe](image)
Going Where No TV Camera Has Gone Before
Electro Scan Surveys Sewer Underneath Lake

McKinney, TX
‘Electro Scans’
600ft Sewer Main
Below Lake

The City of McKinney’s Water/Wastewater division within the Department of Public Works is responsible for supplying safe, uninterrupted water and wastewater services to their residents and businesses.

The City of McKinney’s sewer system consists of 620 miles of sewer main and 596 miles of storm main—double in size from ten years ago. Today, McKinney collects and delivers sewage to the North Texas Municipal Water District for treatment.

Working with Jerry Sonnier, President of CLS Sewer Equipment, Inc.—Electro Scan’s Dealer in Texas—the City wanted to scan a 24” diameter clay sewer main, experiencing moderate-to-heavy flows, making it difficult-to-impossible to inspect with conventional CCTV cameras.

Objective: Determine if Electro Scan can identify any defects in the pipe that could contribute to infiltration.

Without the need for external water, given the existing flow, an electro scan test was conducted with Electro Scan locating 197 Total Defects, including 112 Small, 34 Medium, and 51 Large defects.

But ASTM F2550 and Electro Scan do not simply recommend looking at the total number of defects in a pipe. Instead, the ASTM & Electro Scan’s technology displays both a Maximum Defect Current (i.e. for Small, Medium, and Large readings) and an estimated Defect Flow based on the Defect Area for each defect—defined by the electric current sustained over an Area. The longer or wider the reading, the worse the leak.

Electro Scan represents a new data type for assessing sewers, calculating an estimated gallons per minute (gpm)—in direct contrast to the PACP-standard of calculating an Overall Pipe Rating (i.e. 1-5) Index (OPRI) from visual observations.

In some cases, sewer mains may be renewed with a single point repair. Unfortunately, this is not one of those cases. Electro Scan shows that defects are consistent throughout the pipe, making it a prime candidate for relining.

Based on the size and quantity of all defects, it was estimated that McKinney’s pipe could infiltrate 290.5 gallons per minute.

Estimated infiltration for the City’s sewer main—running underneath the lake—is over 418,000 gallons per day. But, before scheduling this pipe for rehabilitation, it would be recommended to Electro Scan other sewer mains to determine a recommended priority.

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*Electro Scan’s gpm calculation is based on an Electric Current measurement of 10 mA with a 1” water head above the pipe. Electric Current is the current flowing through the defect, which should always be considered prior to selecting a rehabilitation method. The flow rate can also be calculated by the orifice formula [Q = AV] where Q is flow, A is area, V is velocity, and g is the acceleration of gravity. This relationship is not linear. The relationship is not linear. The relationship is not linear. The relationship is not linear. The relationship is not linear.

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*Electro Scan’s gpm calculation represents an Estimate Only with a ±40% accuracy and assumes 1 foot of water head above the pipe. Besides gradient and ground water conditions, other factors should always be considered prior to selecting a rehabilitation method. The flow rate can also be calculated by the orifice formula [Q = AV] where Q is flow, A is area, V is velocity, and g is the acceleration of gravity. This relationship is not linear. The relationship is not linear. The relationship is not linear. The relationship is not linear.

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Salt Lake City Finds Leaks in 66” Raveled HDPE Pipe Using Electro Scan’s ES-620 for Sewer Mains™

CCTV ‘Misses’ Defects
On Spiral Wound HDPE Using Rib-Loc Lining

Established in 1876, the Salt Lake City Department of Public Utilities manages 652 miles of sewer main and 336 miles of stormwater covering a service area of 132 square miles.

After learning about the Electro Scan technology, Ryan Broadway, Wastewater Manager, and Steven Terry, Wastewater Superintendent, invited Electro Scan to visit Salt Lake City and ‘look’ at a few of their sewer pipes.

First, scanning 2,000 ft, or 9 pipe segments in less than a day, followed by a 900 ft scan of a 42" pipe, the City asked Electro Scan to ‘look’ at a 66" diameter reinforced concrete pipe (RCP), traversing under I-15, that had recently been relined using a spiral wound high density polyethylene (HDPE) rib-loc lining. Truly a special situation.

Electro Scan first heard of Salt Lake City’s ‘special situation’ in October 2012 when CHEM Hill’s Mark Wade presented a paper at the Dallas Municipal Forum, sponsored by the Louisiana Technical University’s Trenchless Technology Center. Then again in May 2013, during the annual NWWEA & WEAU Joint Conference in St. George, Utah.

With the 66” diameter sewer pipe running ¼ to ½ full, Marc Lyons, Electro Scan’s Western Regional Field Technician, positioned his CCTV/Electro Scan rig near the upstream manhole, connected his ES-620 probe to his truck’s CCTV cable reel, and started to scan.

Taking less than 20 minutes, Electro Scan located 35 Total Defects – 21 Small, 3 Medium, and 11 Large defects. Using its cloud-based Critical Sewers™ app, Electro Scan immediately quantified all defects, estimating an infiltration rate of 52 gallons per minute (gpm), i.e. 75,000 GPD.

As part of Electro Scan’s ‘after action’ discussions with Ryan Broadway, Tom Ward, and members of the City’s engineering department, Electro Scan was informed that the pipe, in fact, was located over a former lake–Warms Springs Lake–in an area with as much as 15H of groundwater, far in excess of Electro Scan’s base 1ft assumed head, indicating that actual flow rates might be substantially higher.

Today, Electro Scan’s Critical Sewers™ performs all calculations assuming a 1ft head and 1% gradient, providing a ±40% accuracy for its estimated gpm calculation, when compared with Electro Scan data. Working with Platinum Level customers & engineers, Electro Scan can fine-tune this analysis. “The location and size of the defects [found by Electro Scan] do not change,” says Mark Grabowski, VP Electro Scan. “Those defects are definitely in the pipe, at those locations, and the only change would be from engineering variables that will help fine-tune the estimated rate of infiltration.”

“While CCTV should (still) be used for visual inspections, it should not be used to certify that repairs are complete. Instead, Electro Scan should be added as a line item to your next RFP to ensure that all repairs are ‘leak free’.”

“We prove (daily) that while CCTV is good for routine general observations, it shouldn’t be relied on to certify repairs or rehabilitation,” says Marc Lyons. “Instead, Electro Scan should be added in as a line item in your next RFP to ensure that all point repairs and rehabilitation are leak free.”

In each case, no CCTV callouts were recorded that corresponded to defects found by Electro Scan.

Electro Scan recorded over 45,000 data points as part of its pipe scan, finding 35 Total Defects representing 52 gallons of Minute (i.e. 75,000 GPD) of estimated infiltration.

“WEF ‘Best Innovative Technology’ 2013*”

The Critical Sewers™ Chronicles • October 2013

Visit Our Website: www.electroscan.com

* Patent-pending.
Electro Scan is delighted to see increasing use of electro scan to detect leaks in sewers. In April 2013, Chuck Hansen was appointed the new Technical Contact for ASTM F2550, with plans to expand the standard to include additional features and incorporate potable water pipes.

“Our mission is to help engineers and contractors understand key aspects of the [ASTM] standard,” states Chuck Hansen, Technical Contact, ASTM F2550, “and help transition the industry to more accurately locate and quantify sources of infiltration by measuring the variation of electric current in non-conductive (i.e. reinforced and non-reinforced) pipes.”

Including key terminology, principles of operation, procedures, description of generating data, and reporting standards, ASTM F2550 ensures that consulting engineers and contractors provide consistent and meaningful results.

Headquartered in West Conshohocken, PA, about 5 miles northwest of Philadelphia, ASTM, was founded in 1898 as the American Section of the International Association for Testing and Materials – pre-dating other venerable standards organizations, including BSI (1901), DIN (1917), ANSI (1918) and AFNOR (1926).

Up until 2001, ASTM International, was known as the American Society for Testing and Materials (ASTM). Today, ASTM is an international standards organization that develops and publishes voluntary consensus technical standards for a wide range of materials, products, systems, and services.

Today, ASTM has emerged as the dominant rule-making society among standards developers in the USA and represents the largest developer of standards in the world.

Using a consensus approach to develop its standards, ASTM supports thousands of volunteer technical committees, which draw their members from around the world to collectively develop and maintain more than 12,000 standards.

ASTM F2550 is administered by Committee F36 on Technology and Underground Utilities, which is overseen by industry veterans, including Dr. Jey K. Jeyapala, Chairman, and Steve Henning, Vice-Chairman.

ASTM F2550 is specifically part of the F36.20 Inspection and Renewal of Water and Wastewater Infrastructure roster. Other F36 rosters include F36.10 Optical Fiber Systems with Existing Infrastructure and F36.60 Infrastructure Asset Management.

Two initiatives under consideration for becoming full standards, but not yet reaching this distinction, include:

- New Practice for Laser Technology for Measurement of Pipeline Ovality.

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Hampton Roads Sewer Agency Completes 20,000ft of ‘Electro Scan’ in Less Than a Week

Electro Scan Project Helps Re-Assess Previously Inspected & Rehabilitated Sub-Basins

Problem
Two sub-basins within the James City Service Authority (JCSA) are experiencing a serious and persistent infiltration problem, in spite of being only 20-30 years old, consisting mostly of PVC pipe material, and undergoing a previous round of sewer surveys and rehabilitation.

Located between the James River and the York River, the James City Service Authority (JCSA) is undergoing a previous round of sewer surveys and rehabilitation.

JCSA prepared a preliminary Rehabilitation Plan which assumed fixing those portions of the LS 1-8 and 1-9 systems that pre-dated 1980, including 4,500 LF of gravity pipe, 24 manholes, and 58 laterals in the LS 1-8 basin and 8,230 LF of gravity pipe, 45 manholes, and 102 laterals in the LS 1-9 basin.

In spite of an EPA-mandated TV inspection, smoke testing, open channel monitoring program, and selected rehabilitation, infiltration levels remained high, requiring an ongoing need to identify sources of infiltration.

Electro Scan Project
Upon learning of Electro Scan, JCSA contracted with Prism Contractors & Engineers (Yorktown, VA) to electro scan both sub-basins LS 1-8 and LS 1-9, using the ES-620 for Sewer Manholes™ – WEF’s 2013 Innovative Technology Award Winner – to assess its sewer system.

In 2005, water mains in LS 1-8 and LS 1-9 basins were replaced. At the same time, the related sanitary sewer system was evaluated using CCTV and visual inspection of manholes to determine if sewer improvements should be made in conjunction with water main upgrades.

Prior Rehabilitation
In 2005, water mains in LS 1-8 and LS 1-9 basins were replaced. At the same time, the related sanitary sewer system was evaluated using CCTV and visual inspection of manholes to determine if sewer improvements should be made in conjunction with water main upgrades.

Within the two basins, 40 sewer mains were replaced (i.e. approximately 4,320 LF of 8” gravity mains). Of sectional or point repairs, 28 sectional or point repairs were made (i.e. repair). The Electro Scan project team identified the ‘Top Twenty Worst Sewer Mains’ (See Summary Report, page 7), representing 4,159 feet of sewers from the combined sub-basins, contributing an estimated 652,928 gallons per day of infiltration.

Next Steps
JCSA will begin rehabilitating the worst mains and laterals, with Electro Scan providing post-rehabilitation scanning to ensure all repairs are delivered without leaks.

Background
Flow monitoring was performed at two lift stations (LS 1-8 and LS 1-9) using field calibrated algorithms and SCADA, indicating that flows increased significantly during wet weather events. Hydraulic modeling using rain and flow monitoring data was collected during 2008 and 2009 and projected a 10-year, 24-hour Peak Hour Flows for these basins.

In 2008 and 2009, both basins were monitored during rain events. Peak Flow Thresholds were calculated for each basin.

Infiltration
Infiltration was monitored using field work completed in less than a week. Defects (i.e. S1, S2, and S3) were inspected and subsequently repaired, with other significant defects repaired, too.

Defects
Several defective manholes were discovered and subsequently repaired, with other significant defects repaired, too.

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**CCTV Inspections**

<table>
<thead>
<tr>
<th># of Defects</th>
<th>Estimated Maximum Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

**Number by Estimated GPM**

<table>
<thead>
<tr>
<th>Number</th>
<th>Classifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mains, Structural</td>
</tr>
<tr>
<td>2</td>
<td>Mains, Surface Spalling</td>
</tr>
<tr>
<td>3</td>
<td>Mains, Separated Medium Joint</td>
</tr>
<tr>
<td>4</td>
<td>Mains, Camera Underwater</td>
</tr>
<tr>
<td>5</td>
<td>Mains, Tap Break In</td>
</tr>
<tr>
<td>6</td>
<td>Mains, Fine Roots</td>
</tr>
<tr>
<td>7</td>
<td>Mains, Deposits Attached Grease</td>
</tr>
<tr>
<td>8</td>
<td>Mains, Other</td>
</tr>
</tbody>
</table>

**Sub-Basin LS-1-8**

- **Mainline 18001, 18005**
- **Mainline 18009, 18009**
- **Mainline 18010, 18009**

**Sub-Basin LS-1-9**

- **Mainline 18007, 18005, 18009**
- **Mainline 18007, 18005**
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- **Mainline 18007, 18005**

**What About Defects in Sewer Laterals?**

Ten (10) service laterals were scanned using the ES-38 for Sewer LateralsSM - the same apparatus used as part of the Water Environment Research Foundation (WERF) study at the City of Wauwatosa, Wisconsin. This time, contractors completed their assessment in accordance with ASTM E2550, finding ‘No Significant’ defects for any of the selected sewer laterals. While not addressing any potential for inflow problems, e.g. illegal connections, the results support that infiltration is due to defects found in sewer mains & connections, not laterals.

**Sub-Basin LS-1-8**

- **Mainline 18004, 18003**
- **Mainline 18015, 18015**
- **Mainline 18015, 18015**
- **Mainline 18015, 18015**

**Sub-Basin LS-1-9**

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**Highlights**

- A number of CCTV Inspections recorded pipe segments that were underwater, without noting a specific defect that would contribute to a PACP rating.
- Service Connections (at the Main) were often observed as ‘FACTORY TAPS (ACTIVE)’ without any associated defect, often missing significant openings to soil found by Electro Scan.
- Oftentimes ‘TAP BREAK INS’ had no corresponding PACP Defect, therefore no detectable source of infiltration was recorded.
- The majority of CCTV Still Images, did not correspond to defects detected by Electro Scan, requiring a detail re-review of all video.
- Only six (6) types of sewers defects had been identified during CCTV inspection of the 20 Worst Pipes as identified by Electro Scan, including:
  1. M1 – Fine Roots
  2. M2 – Deposits Attached Grease
  3. M3 – Tap Break In
  4. M4 – Camera Underwater
  5. S1 – Separated Medium Joint
  6. S2 – Surface Spalling
  7. S3 – Multiple Cracks
- Nine (9) sewer mains or 45% of the ‘Twenty Worst Pipe Segments’ identified by Electro Scan had ZER0 # of defects identified by CCTV.
- Fifteen (15) sewer mains or 75% of the ‘Twenty Worst Pipe Segments’ identified by Electro Scan had One or Fewer Defects identified by CCTV.

**James City Service Authority CCTV Inspections -- By The Numbers**

- Number of CCTV Inspections in Survey Area: 131
- # of Pipes Televised - with ‘ZERO’ or ‘ONE’ Call-Out: 124
- # of Pipes Televised - with ‘ZERO’ Structural Defects: 110
- # of Pipes with 5 Structural Defects of More: 2
- # of Pipes with 9 Structural Defects: 1

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*Request a copy of JCSA’s +300-page report by calling Electro Scan at 916-779-0660, Extension 7001.*
The purchase was arranged through MTech Company (Bedford, OH), Electro Scan’s authorized dealer for Ohio and Michigan.

“We strongly believe that Electro Scan fills an immediate need for wastewater utilities to accurately assess their defects and certify that repairs and lining projects have been done correctly,” stated Dan Soukup, MTech’s Regional Manager. “Combining Electro Scan and CCTV offer a 365-day solution for wet-weather and dry-weather evaluation of any sewer or drainage network.”

Final training of TCA’s new rig was completed the week of August 26th, when it was stated that TCA’s first year goal is to electro scan 100,000 ft of sewer mains.

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In addition to its wastewater treatment plant, TCA manages a sewer interceptor network and assists its three (3) member cities in inspecting their respective sanitary sewer collection systems. Combined, TCA manages 245 miles of sewer mains serving 61,000 people.

Employing a general manager to oversee the day-to-day operations and maintenance of its facilities, TCA currently contracts with Veolia Water North America to work with the cities’ engineering, finance and planning staff to advise the joint operating Board of Participants.

“The thing that sold us was the fact we can use Electro Scan any day of the year, under any condition,” said David Hecker, TCA General Manager. “We typically have to wait until the ground is dry to conduct smoke testing or when sewer lines are under normal flow conditions before conducting CCTV inspection; but with Electro Scan we can inspect year round and utilize Electro Scan’s automatic gpr capability to quickly identify and address our hot spots.”

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The Critical Sewers™ cloud application.

Lots of words describe Electro Scan, including audacious, brash, bold, cutting edge, daring, fearless, gutsy, heroic, honest, impactful, indomitable, irreverent, pat, unafraid, and well-financed. But the word was “lucky” when Electro Scan found its brilliant marketing strategist, Whitney Lofrano.

“Whitney immediately understood us and knew what to do without being told,” commented Chuck Hansen, Electro Scan’s CEO. “Congratulations on your 2012-13 Adity Award.”

Electro Scan joins the Electro Scan Advisory Board.

Electro Scan joins the Electro Scan Advisory Board.

Electro Scan Joins Louisiana Tech Univ TTC Advisory Board

Electro Scan is pleased to announce its joining Louisiana Technical University’s Trenchless Technology Center (TTC) Advisory Board. Led by Erez Allouche, Ph.D., P.E., TTC serves as a key facilitator in conducting independent testing, educational, and research activities.

Electro Scan’s 2013 NASTT® No-Dig selection as “Product Innovation of the Year” and its ability to certify liners as “leak free” – finding defects often missed by CCTV inspection – made joining the Advisory Board an easy decision.

“We were impressed with the TTC program after participating in a number of Municipal Forums,” stated Mark Grabowski. “We also met faculty and graduate students in July 2012 when we flew into Ruston, Louisiana, to present the Electro Scan technology.”

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Electro Scan Inc. was selected as ‘Cleantech Company of the Year’ at the 2013 Innovation Challenge held at the Sierra Nevada Brewing Company in Chico, California, June 27, 2013.

The Sierra Nevada Innovation Challenge is the only statewide competition focused primarily on California businesses located outside of San Francisco, Silicon Valley, Los Angeles and San Diego. Each finalist had six (6) minutes to present their company’s product features and competitive position; more importantly, ‘explain how their product changes the world, an industry, people’s lives, or the environment, in a positive, meaningful way.’

Over 70 industry experts from throughout California were on hand to serve as judges including CEOs, media representatives, angel investors, venture capitalists, university and government officials and corporate executives. The event marked Chuck Hansen’s first financial presentation since selling Hansen Information Technologies to Infor Global in 2007 for a reported $100 million.

Field Tech, Marc Lyons (pictured below), wasted no time in celebrating Electro Scan’s latest award.

Since Electro Scan requires water to surround its probe -- allowing for a defect current to conduct to the wall of the pipe -- a moving reservoir of water is created through the pipe using a funnel cone.

While water (technically) is only needed to surround its middle electrode, a 3-to-6 foot column of water is recommended behind the probe to allow water to partially surcharge up each lateral. Since Electro Scan finds all leaks where water rises, a complete scan of the service connection, including and first 18-24 inches up the lateral, can be accomplished. With its own pressure sensor designed as part of its probe, real-time data is transmitted to the truck to help evaluate sewers in simulated wet-weather conditions.

Field Tech, Macy Grubbs, attaches a Funnel Cone to Jet Hose and Electro Scan Probe.

Electro Scan Offers A Funnel Cone for Every Sewer Main*

Field Tech - In The Field . . .

Electro Scan Funnel Cones*

Ranging from 6” to 15” Diameter Pipes

* Initial set of funnel cones, up to 12” pipe diameter are provided with the purchase of all ES-620 for Sewer Mains™.
Electro Scan Authorized Dealers

U.S. DEALERS

AZ Wastewater Industries
20 South 48th Ave., Suite 802
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Web: www.azwastewaterindustries.com
Contact: Gary Hall
Email: ghall@azwastewaterindustries.com
AZ, NM, and Clark County, NV

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Email: tgardner@atlanticmachineryinc.com
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Email: bahrsales@aol.com
CT, RI, MA, NH, VT, ME

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Tel: 972-479-1335
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Email: jerry@sewertools.com
Texas

Diagnostic Resources & Solutions
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Kennesaw, GA 30144
Tel: 770-484-9734
Contact: Dan Dale
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Tel: 815-468-0250
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Tel: 502-955-5288
Contact: Bobby Chesnut
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Commerce City, CO 80022
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Web: www.farismachinery.com
Contact: Giles Poulsen
Email: giles.poulsen@farismachinery.com
Colorado

Maric Sales
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West Jordan, UT 84081
Tel: 800-424-4693
Web: www.maricsales.com
Contact: John Housley
Email: maricsales@msn.com
ID, UT, MT, WY, Eastern Nevada

Municipal Pipe Tool Co.
515 5th Street
Hudson, IA 50643
Tel: 319-988-4205
Web: www.municipalpipe.com
Contact: Bryan Robinson
Email: bryan@municipalpipe.com
Iowa, Nebraska, and Eastern South Dakota

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Electro Scan’s ‘Way of Doing Business’

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Contact: Adrian Thompson
Email: adrian@anthire.com

Interested in Becoming An International Dealer?
Contact: Andrew O’Keefe
Email: andrew@electroscan.com

Electro Scan’s Macy Grubbs and Mark Grabowski, with EJ Equipment’s Erik and Ed LeSage, taking a break to catch a Chicago Cub’s game at Wrigley Field.
City of Ukiah, Calif. ‘Electro Scans’ Post-Rehab Sewers; Finds Leaks at Joints & Connections

Working with its local dealer, WECO Industries (Vacaville, Calif), Electro Scan was invited to scan a number of 6” diameter VCP sanitary sewers at the City of Ukiah, California. Laid at minor-to-moderate grade with a minimal flow upstream, gradually increasing further downstream, Electro Scan’s Field Techs set-up to scan the City of Ukiah’s sewers.

Objective: Determine if Electro Scan can identify any defects and compare to previous CCTV inspections. As shown in the pipe scan below, Electro Scan identified each defect, displaying a potential to infiltrate estimated of 2 gpm or more. Of the five (5) defects that have the potential to infiltrate 2 or more gpm, none had shown any defects from previous CCTV inspections.

Electro Scan located 148 Total defects, compared with ‘No Defects’ identified by a PACP-certified CCTV operator. A majority of defects identified by Electro Scan were at each joint, showing that its independent TV operator was unable to visually see any visible defects.

Contact Electro Scan or WECO Industries to request a full report of this project.

Mark’s Corner
Tips for Making The Most of Your Electro Scan ES-620 Demo

People ask me all the time, what is needed to prepare for an Electro Scan demonstration; and I tell them all about getting the RIGHT PEOPLE with the RIGHT EQUIPMENT, and including the RIGHT EQUIPMENT.

1. Select The Right Pipes
To make your demo the most efficient & effective, find sewer mains 6”-10” in diameter that are 100-400 ft in length, in low-traffic areas. Additionally, try and select the following:
- Pipes with high (unexplained) flows
- Pipes that can’t be easily televised
- Recently relined pipes
- Pipes with spot or point repairs
- Pipes with known problems.

We recommend that you stay away from pipes that are difficult to access or previously grated. Also, make sure you provide your Dealer or Electro Scan with all maps, manhole numbers, prior TV reports, and videos.

2. Get The Right Equipment
Electro Scan trucks are equipped with flashing directional arrows, strobe lights, and traffic cones, but anything above & beyond will need to be provided by the local sewer utility. A jet truck (or combo truck) with operators, cones, but anything above & beyond will need to be provided by the local sewer utility. Electro Scan trucks are equipped with flash directional arrows, strobe lights, and traffic cones, but anything above & beyond will need to be provided by the local sewer utility.

3. Schedule The Right People
Most times, we perform demos at two locations a day – one in the morning and another in the afternoon, with 2-3 hours allotted for each demonstration.

Typically, we like to spend at least a half-hour at the beginning of the demo to give a brief explanation of our technology, safety procedures, field operations, and technical standards. This is often done at the office, corporation yard, or shop, but can also be done in the field.

Because our data is so unique and unflattering compared to traditional CCTV data, it is recommended that your chief engineer or consulting engineer be present at our briefing.

And, don’t forget to have fun! This is cool stuff, and we want to make sure you feel comfortable with using this great new tool to solve your problems.

Mark Grabowski, VP Electro Scan, on a recent trip to NYC, checking out sewer access in front of 30 Rockefeller Center in Manhattan.

ELECTRO SCAN INC. • The Next Generation in Leak Detection.

Call 916-779-0660, Extention 7001 or Email sales@electroscan.com
# ES-620 & 2060 for Sewer Mains™ Field Guide

## Electro Scanning

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## Gear Removal & Clean-Up

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## Reporting

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## Electro Scan Field Guides

- **ES-620 Probe™**
- **ES-620 Funnel Cones™**
- **ES-620 Grounding Rod™**
- **ES-620 Grounding Cable™**

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The Critical Sewers™ Chronicles • October 2013
Lack of Compliance With ASTM F2550, And Disregard For Manufacturer’s Recommendations, Requires Major Report ‘Do Over’

Mistakes happen. Especially when dealing with a new technology that is changing how sewers are assessed and prioritized for repairs, rehabilitation, and renewal.

Despite repeated advice and recommendations to comply with ASTM F2550, a recently published Water Environment Research Foundation (WERF) report entitled Sewer Lateral Electro Scan Field Verification Pilot, incorrectly limited in analysis to assessing only Small, Medium, and Large defects (i.e. height of defect current), without consideration of size (i.e. width) of the defect, automatically determined by the electro scan process.

Subsequent discussions and review of the published report offer a valuable lesson for consulting engineers, subject matter experts, and WERF staff — if a report intends to cite an ASTM standard, make sure the data complies with the standard.

ASTM F2550-06 states that “the focused electrode current data may be processed to grade the severity of the focused electrode current values into those that represent small, medium, and large pipe defects according to the maximum amplitude of focused electrode current.” But, the standard goes on to state “The processed focused electrode current data may be presented as a distance versus current plot showing the location, grading, and classification of the focused electrode current variations.” A recommended table and chart displaying Electro Scan data is provided as part of ASTM F2550, with corrected data from the Electro Scan process.

The Standard also states that “the apparatus manufacturer should be consulted regarding the relationship between focused electrode manufacturer should be consulted regarding the relationship between focused electrode current and pipe defect size.”

ES-38 for Sewer Laterals

Unfortunately, the published WERF Report based its findings on the number of small (S), medium (M), and large (L) defects. While small, medium, and large defects indicate a Maximum Defect Current, the WERF Report failed to consider the percent of pipe affected by the defect, i.e. distance an electric current is sustained over the area of the pipe for each defect.

Readers may draw their own conclusions from reviewing the highlighted columns in the Table (Right) to compare results of the Number of Defects, ASTM F2550, and Electro Scan’s Recommended GPMs.

Large Current Readings’ over ‘Large Areas’ often result in the largest GPM or Defect Flow; however, as illustrated below, ‘Small Area’ often result in Small or Medium GPMs, therefore missing ‘Small Current Readings’ over ‘Large Areas’ that may indicate larger GPM flows. While readers should never rely exclusively on Total Defect Counts, as shown above, the % of defective pipe, as required by ASTM F2550 may not always match up with GPM estimates as the standard does not take into account the severity of the defect.

For example, a small longitudinal crack may not leak much, but will cause a higher % of pipe length to be graded as ‘defective.’ At the City of Wauwatosa, in particular, a majority of infiltration occurred at offset joints, most registering a defect length of less than 1/4 of an inch, but leaking huge amounts. This resulted in a low % of defective pipe, but high GPM.

In computing GPM, Electro Scan’s proprietary models assumes 1ft of head and 1% pipe gradient. In low groundwater conditions, GPM estimates as shown above, may not always match up with Exfiltration Tests.

Can You See Why No One Would Exclusively Rely on ‘Total # of Electro Scan Defects’ or ‘Total # of Large Electro Scan Defects’ To Compare With Standard Leakage Tests?

Find your worst leak

Case Study - City of Wauwatosa, Wisconsin

WERF Sewer Lateral Electro Scan Field Verification Pilot -- Eagle Street Revisited

Electro Scan Revisits WERF Project

Finding Your Worst Leak

Largest Leak

Medium

Small

Electro Scan Recommended GPM

Small Defect Current, Wdth

Large Defect Current, Small Width

Large Defect Current, Small Width

Small Current, Small Width

Large Current, Small Width

Finding Your Worst Leak

Large Largest Leak

Medium

Small

Finding Your Worst Leak

Electro Scan…” But, the standard goes on to state “the focused electrode current data may be presented as a distance versus current plot showing the location, grading, and classification of the focused electrode current variations.” A recommended table and chart displaying Electro Scan data is provided as part of ASTM F2550, with corrected data from the Electro Scan process.

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In computing GPM, Electro Scan’s proprietary models assumes 1ft of head and 1% pipe gradient. In low groundwater conditions, GPM estimates as shown above, may not always match up with Exfiltration Tests.

Can You See Why No One Would Exclusively Rely on ‘Total # of Electro Scan Defects’ or ‘Total # of Large Electro Scan Defects’ To Compare With Standard Leakage Tests?

Find your worst leak

Large Largest Leak

Medium

Small

Electro Scan Recommended GPM

Small Defect Current, Wdth

Large Defect Current, Small Width

Large Defect Current, Small Width

Small Current, Small Width

Large Current, Small Width

Understanding The Power of Electro Scan

While readers should never rely exclusively on Total Defect Counts, as shown above, the % of defective pipe, as required by ASTM F2550 may not always match up with GPM estimates as the standard does not take into account the severity of the defect.

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In computing GPM, Electro Scan’s proprietary models assumes 1ft of head and 1% pipe gradient. As a result, Electro Scan’s computations tend to underestimate high groundwater conditions.
WERF Study Shows Electro Scan Consistently & Reliably Finds Defects Not Seen By CCTV

WERF Project First to Compare Electro Scan & CCTV For '27 Laterals' on Eagle Street

A key objective of the originally proposed WERF Sewer Lateral Electro Scan Field Verification Pilot was to perform a comprehensive comparison of CCTV and Electro Scan for sewer laterals. Yet, the research team did not feel it was a ‘constructive use of research resources’ to accomplish this task. As communicated by the WERF Team: "Since the research project was not in direct ownership or control of the CCTV, accounting for defect number, type, and severity data would have required manual gleaning from the CCTV reports which was not considered to be a constructive use of research resources."

Principle Investigator
March 25, 2013

Readers are open to interpret for themselves the comparison of Eagle Street Electro Scan results and corresponding TV inspections, as shown on Pages 15-17. While CCTV has been an effective tool to ‘see’ and catalogue pipe sags, protruding service connections, crossbores, and alignment problems, the Eagle Street results clearly show that CCTV inspections proved ineffective in identifying sources of infiltration.

Based on side-by-side comparisons for all twenty-seven (27) Eagle Street sewer laterals, (i.e. all laterals both televised and electro scanned) Electro Scan found 562 defects, compared to 156 defects identified by CCTV. While CCTV has been an effective tool to ‘see’ and catalogue pipe sags, protruding service connections, crossbores, and alignment problems, the Eagle Street results clearly show that CCTV inspections proved ineffective in identifying sources of infiltration. Based on side-by-side comparisons of all CCTV reports, identified three or fewer defects, missing all major defects identified by Electro Scan, indicating a lack of usefulness in finding sources of infiltration in sewer laterals.

Based on side-by-side comparisons of LACP-certified CCTV results and Electro Scan results for Eagle Street, it appears that CCTV consistently, (1) missed major sources of infiltration, (2) repeated use of the same LACP codes for different-sized defects or leaks, (3) repeatedly used different LACP codes for the same-sized defects or leaks, and (4) indicated defects where no pathway to ground was indicated by Electro Scan.

Finally, a major deficiency of the WERF Report was the lack of re-review of CCTV footage that corresponded to detected defects identified by Electro Scan. This would have determined whether CCTV operators either (a) failed to record visual defects, or (b) were simply unable to ‘see’ defects by visual inspection techniques, warranting further study.

Number of Defects, by Small, Medium, Large, and Total Defects, listed for reference only, as S, M, and L indicating height of defect current, and not width of defect. As stated in ASTM 2550, length of defect (anomaly) is an integral reporting component and represented by Estimated Flow by Electro Scan Inc.

Side-By-Side Comparisons of Electro Scan & CCTV Inspections

(1) Number of Defects, by Small, Medium, Large, and Total Defects, listed for reference only, as S, M, and L indicating height of defect current, and not width of defect. As stated in ASTM 2550, length of defect (anomaly) is an integral reporting component and represented by Estimated Flow by Electro Scan Inc.
Side-By-Side Comparisons of Electro Scan & CCTV Inspection (continued)

The Critical Sewers™ Chronicles • October 2013

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continued from page 1

“We are delighted to be recognized by our colleagues and peers,” stated Mark Grabowski, Vice President of Electro Scan. “Not since the introduction of TV cameras to televise sewers, has a technology so quickly and radically changed the way we locate defects and certify repairs. Electro Scan changes everything, by dictating which pipes to fix, to determining final acceptance of point repairs and lining projects.”

“Electro Scan adds a new dimension to sewer condition assessments,” stated Charles Wilmut, P.E., former Senior Vice President, Burgess & Niple, and an early adopter of Electro Scan. “While CCTV provides an operator with an overall visual account of a pipe, it is unable to locate and measure defects that cannot be seen. It's not just the fact that Electro Scan finds more defects than CCTV, but that Electro Scan can locate and measure the estimated magnitude of each defect – something never before available.”

“Congratulations on being selected for this significant honor,” stated Jeff Eger, WEF’s Executive Director. The award recognized Electro Scan’s contribution to improving water quality and was honored at a number of events at WEFTEC, held in Chicago, IL, October 5-9, 2013. Electro Scan uses its patent-pending technology to generate an intense, focused array of low-voltage/high-frequency electrical current to examine the walls of pipes for defects.

If a pipe is in good condition, no current will be able to “leak” or escape out of the pipe and into the ground, unless there is a crack. All bad joints, defective service connections, and breaks in a pipe, are found by Electro Scan, not typically seen or recorded by visual inspection, laser profiling, sonar, or ground penetrating radar.

Advantages of the Electro Scan technology include its ability to rapidly scan pipes that are either full or partially full of water and provide automated leak detection information, including location to the nearest 0.4 inches (1 cm) and estimated gpm. While CCTV cameras are rarely, if ever, used during periods of wet weather, Electro Scan, combined with CCTV, provides a year-round solution.

Earlier this year, Electro Scan won the Joseph L. Abbott, Jr. Product Innovation Award presented by the North American Society of Trenchless Technologies (NASTT) and the Sierra Nevada Innovation Challenge for Best CleanTech Company in California.

Jeff Eger, WEF’s Executive Director

Founded in 1928, the Water Environment Federation (WEF) is a not-for-profit association with more than 36,000 members worldwide providing technical education and training for water quality professionals who clean water and return it safely to the environment.
Inaugural Tests of Electro Scan
A Success in Japan

The Japan Sewer Collection System Maintenance Association (JASCOMA) is a leading organization in Japan dedicated to the advancement of sewer operations, maintenance, sewer rehabilitation techniques, and business practices.

As provided in its Charter, JASCOMA is dedicated to conducting surveys on innovative management techniques, informing the general public on important findings, conducting ongoing certification of sewer pipe line management engineers, holding periodic workshops to train professional engineers with respect to sewer pipe line management, and raising awareness of technical improvements in pipeline management.

In March 2013, Chuck Hansen met with the Executive Directors of JASCOMA, including Mr. Yasuhiro Shinoda and Mr. Kenji Sakai at their headquarters in Tokyo to discuss the introduction of Electro Scan in Japan. Assisting Chuck Hansen was Kyoko Kondo, representative from the International Society of Trenchless Technologies (ISTT) and Yumiko Aso, Japanese Interpreter.

As a result, an invitation was extended for Electro Scan to return to Japan, and work with a member company, Kantool Co., Ltd., to undertake testing of selected pipes at the JASCOMA Pipe Conduit Testing Center in Asaka, Japan.

Arriving in Japan in July, Andrew O’Keefe, working with Mikio Goto, Sales Manager, Kantool Co., Ltd. visited JASCOMA’s Pipe Conduit Testing Center, and electro scanned all pipes, including A, B, C, D, and E pipe segments, with results for Pipe C shown (Right). Electro Scan successfully located all defects in JASCOMA pipes, providing estimated leakage rates in Gallons and Liters per minute.

Electro Scan Showcased At Kanalisations Forum in Zurich

It was bound to happen. Chuck Hansen did not make one trip to Switzerland in 30 years, but made three visits in the first six months of 2013 – receiving his first speeding ticket during his last trip, when he was caught by CCTV cameras driving 51kph in a 50kph zone!

These days, there are lots of reasons for Electro Scan to be in Switzerland, including its new partnership with CD Lab AG – developers of WinCan software located in Munsten; interest in ongoing research being conducted at Zurich-based eawag – especially in the application of fiber optics in sewers; and growing interest in Electro Scan from leading cities and cantons throughout Switzerland.

Thanks for everyone that attended Chuck Hansen’s presentation at Kanalisations Forum in Zurich.
City of Springfield, Illinois, ‘Electro Scans’ Sewers

The Department of Public Works provides for the systematic planning, construction, maintenance and operation of the wastewater infrastructure. As part of the City’s Public Works Department, the Sewer Division operates and maintains a collection system consisting of approximately 140 miles of combined sewers and 355 miles of sanitary sewers. Flows from the collection system are transported to the wastewater treatment facilities operated and maintained by the Springfield Metro Sanitary District.

The City of Springfield’s Department of Public Works, the Sewer Division operates and maintains a collection system consisting of approximately 140 miles of combined sewers and 355 miles of sanitary sewers. Flows from the collection system are transported to the wastewater treatment facilities operated and maintained by the Springfield Metro Sanitary District.

The City of Springfield’s Department of Public Works, the Sewer Division operates and maintains a collection system consisting of approximately 140 miles of combined sewers and 355 miles of sanitary sewers. Flows from the collection system are transported to the wastewater treatment facilities operated and maintained by the Springfield Metro Sanitary District.

During its initial study, Electro Scan located a total of 40 defects, including 1 Small, 1 Medium, and 38 Large defects. Based on the size and width of defects, it was estimated that the pipe could be the source of 170 gpm of infiltration, ±40% accuracy, assuming one ft of water head above the pipe.

Electro Scan’s ES-620 for Sewer Mains™ is designed for pipe diameters from 6” to 20” (150-450mm). Marketed under the ES-300 brand name in the European and Asia Pacific Rim counties, pricing includes turnkey installation services to modify your existing CCTV truck to allow crews to electro scan.
North American Society for Trenchless Technologies Names Electro Scan’s ES-620 ‘Best Innovative Product’ of 2013

**INNOVATIVE PRODUCT AWARDS**

NASTT annually recognizes two companies with state-of-the-art products in either new installation or rehabilitation for their achievements in advancing the trenchless industry — called the Joseph L. Abbott Jr. Innovative Product Awards. This year, Electro Scan Inc. and Hammerhead Trenchless Equipment were the recipients of this honor.

The award is in memory of the late Joseph L. Abbott Jr., who was an active member of the society from its inception in 1990. Electro Scan Inc. and Hammerhead were formally recognized at the Dallas Dinner. Electro Scan Inc. received the Rehabilitation Award for its Electro Scan ES-620 for sewer main technology. This patent-pending technology that measures the variation of electrical current inside pipes, electro scanning is now available to independently test and certify newly relined and rehabilitated sewer mains and laterals as leak-free. While CCV inspection is often conducted when a pipe is dry, Electro Scan assesses a pipe’s performance under wet conditions. Electro Scan is designed to more accurately find defects in newly relined pipes.

**Award Presented at No-Dig Conference**

Attention! Attention! Electro Scan is now the official trademark holder for the phrase ‘Critical Sewers.’ As part of the Company’s legal suite of intellectual property assets, the phrase Critical Sewers™ is now owned exclusively by Electro Scan Inc.

Parties wishing to use the term ‘critical sewers’ must obtain written permission from Electro Scan Inc. or face prosecution for trademark infringement.

**Who ‘Likes’ Sewers?**

Want to know how & where Electro Scan spends it’s time during the week? Weekends, too? ‘Like’ us on Facebook and get up-to-date instant updates on where we are, what we’re doing, and who we’re doing it with. At least, that’s what friends & family want to find out. Join us today and start enjoying our stories from the road.

Visit Our Website: www.electroscan.com

Visit Our Website: www.electroscan.com

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**Who ‘Likes’ Sewers?**

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Source: Facebook, September 18, 2013

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**Word of Electro Scan’s Breakthrough Technology Spreads Around the Globe**

**Selected Presentations in 2013**

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*Gallon Per Minute (GPM) reserved for Premium Subscription Users of CriticalSewers.com.*

Electro Scan’s Macy Grubbs, Andrew O’Keefe, and Mark Grabowski.

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**U.S. Patent and Trademark Office Approves Electro Scan’s Trademark**

All Electro Scan registered cloud users will be automatically eligible to use the term, which resulted from close work with the U.S. Patent and Trademark Office.

Electro Scan is pleased to use the term as part of its hosted website -- www.criticasewers.com. Today, Critical Sewers™ represents the first-of-its-kind web portal dedicated to a new generation of solutions, not requiring any desktop software installation.

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**Word of Electro Scan’s Breakthrough Technology Spreads Around the Globe**

**Selected Presentations in 2013**

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Want to know how & where Electro Scan spends it’s time during the week? Weekends, too? ‘Like’ us on Facebook and get up-to-date instant updates on where we are, what we’re doing it with. At least, that’s what friends & family want to find out. Join us today and start enjoying our stories from the road.

* Gallon Per Minute (GPM) reserved for Premium Subscription Users of CriticalSewers.com.

**Source:** Facebook, September 18, 2013

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*Visit Our Website: www.electroscan.com*
California-based Electro Scan Inc., and Swiss-based CD Lab AG, the world’s leading provider of sewer pipe assessment software, with its leading flagship product, WinCan, announced a global partnership to offer an integrated solution.

The cooperative agreement, executed by Chuck Hansen, Chairman & CEO of Electro Scan Inc., and Martin Hien, General Manager of CD Lab AG, includes development of a custom Electro Scan-WinCan Module, to be added to the suite of WinCan products, able to import, store, and display Electro Scan’s patent-pending data downloaded from its Critical Sewers Cloud app.

“We are excited to work with such a universally accepted product, like WinCan,” states Electro Scan’s Chuck Hansen. “I’ve been watching WinCan, with amazement, for many years and am delighted to see their product evolve into such a feature-rich solution to manage wastewater assets.”

“We are delighted to be expanding our product library to include Electro Scan,” states CD Lab’s Martin Hien. “Chuck and his team have done a great job adding a new level of data to our industry. Combined with CCTV and Line Profiling, our customers will have an unprecedented decision tool at their fingertips to manage their aging infrastructure.”

“The addition of Electro Scan further solidifies WinCan’s leadership as a key decision support system to help manage wastewater assets,” comments Mike Russin, Business Manager of Pipeline Analytics, Inc., exclusive dealer in the U.S.

Product features and capabilities are expected to be similar to other popular WinCan modules, such as its WinCan asset module. The new Electro Scan-WinCan Module is expected for release in early 2014.

Dealers to Offer WinCan
International Electro Scan Dealers will be able to offer WinCan products, including the new Electro Scan Module, as part of its ES-620 and ES-38 installations.

Electro Scan’s U.S. Dealers will also be able to offer WinCan VX products, including the new Electro Scan Module on sales of all ES-620s and ES-38s, under a special agreement with Pipeline Analytics, the exclusive distributor of WinCan products in North America and South America (See Related Article Below).

How It Works?
“Electro Scan data will still be uploaded from the field to a customer’s Critical Sewers cloud account,” stated Scott Hansen, Chief Technical Officer for Electro Scan. “What has been added is a special feature that allows users to download selected scans from Critical Sewers to the new Electro Scan-WinCan Module.”

“In May 2013 I had a chance to visit CD Lab [Murten, Switzerland] and get a first-hand look at some of the current & future innovations they are working on, and was quite impressed,” said Chuck Hansen. “I’ve overseen the development of a few versions of storing and processing closed-circuit television inspection reports, and really like where CD Lab is going.”

The new Electro Scan-WinCan Module, will be available in early 2014.

About CD Lab, AG
CD Lab AG, headquartered in Murten, Switzerland, designs, develops, and markets the world’s leading pipe inspection software, WinCan.

Founded in 1990, the company specializes in the inspection and administration of wastewater infrastructure having more than 6,400 licensed installations translated into 46 different languages, supporting 50 different CCTV inspection standards, and sold through over 50 resellers worldwide.

Pipeline Analytics’ U.S. WinCan Users Able to Add New Integrated Electro Scan-WinCan Module in Early 2014

Electro Scan is delighted to be teaming with Pipeline Analytics to provide sales and support for WinCan, and more specifically, the new Scan-ES WinCan Module.

With over 100 customer projects and one million feet of scanning as part of its Critical Sewers Cloud app, Pipeline Analytics is partnering with Electro Scan, offering new & demo customers the ability to see their ElectroScan and CCTV data, side-by-side in WinCan.

“One of the reasons we felt so comfortable with WinCan, was hearing customer & competitor, alike, talk about Mike Russin,” said Chuck Hansen, Electro Scan’s Chairman & CEO. “How can you not like the guy? He gives us almost like 100 shared contacts on LinkedIn!”

Earning his B.S. in Environmental Science from Erie, PA-based Gannon University, and a former NASSCO Board Member, Mike has been a positive influence in the wastewater industry for over ten years.

“I like showing customers how to make inspection data help them in their daily decisions,” says Mike Russin, Business Manager, Pipeline Analytics. “The better job I can help linking ‘boots on the ground’ in the field with ‘decision makers in the office’ the better sewer utilities can serve their constituents.”

“I can’t wait to start working with Mike, and the growing team at PA,” says Chuck. “I’ve been around lots of folks selling and supporting products in the wastewater collection business, and don’t think there is anyone better than Mike, in knowing what it takes to be successful.”
Andrew O’Keefe, fresh off a 10-hour flight from the U.S. and his recent wedding, landed in Tokyo to begin Electro Scan’s first series of demonstrations in Japan and to participate in the country’s largest sewer conference, the annual Sewage Works Exhibition (SWE).

With the help and support of Mikio Goto, Sales Manager, Kantool Co., Ltd., Electro Scan had shipped a number of its products, prior to Andrew’s arrival in Japan.

Today, Japan is experiencing a record number of sewer collapses, recording over 5,300 in 2012. In response, Japan’s Ministry of Land, Infrastructure, and Transport has undertaken a series of demonstration projects to showcase innovative sewer technologies, known as B-DASH.

By accelerating research and development and commercialization of new technologies, Japan’s Ministry of Land, Infrastructure and Transport aims to implement leading solutions to improve the allocation of capital projects, streamline operations, and better utilize resources.

Prior to Electro Scan’s arrival in Japan, Kantool had introduced key concepts of the new technology at KanShinKyo, Japan’s Association of Consultants for Pipeline Diagnostics. Including nearly 80 member companies, full-day seminars were held in the cities of Okayama (May 17) and Sapporo (June 21).

“A special ‘thanks’ to Goto-san and to our invaluable interpreter, Yumiko-san, for all their help,” stated Andrew O’Keefe, Electro Scan’s Sales Manager. “We would not have ‘hit-the-ground-running’ without them.”

(Above) Andrew O’Keefe and Mikio Goto, Sales Manager, Kantool Co., Ltd.

(Right) Andrew and Yumiko Aso.

(Above) Overflow attendance at a bi-lingual (English-Japanese) presentation given by Chuck Hansen, Electro Scan, CEO, and Japanese Interpreter, Yumiko Aso.

(Below) Electro Scan’s booth near Tokyo Metropolitan Sewer’s booth, occupying a central location for interested sewer professionals, courtesy Kantool Co. Ltd.
Envirosight Paves Way For Electro Scan Integration

Electro Scan
To Offer Integrated Solution With Envirosight’s RAX 300 Cable Reel

Randolph, New Jersey-based Envirosight has teamed with Electro Scan Inc. to offer an integrated solution for its RAX 300 Cable Reel.

Supplied by iPEK®, based in Sulzberg, Germany, a division of publicly-traded IDEX Corporation (NYSE: IEX) and manufactured exclusively for Envirosight for distribution in North America and South America, the RAX 300 Cable Reel represents an advanced automated cable reel system that powers the company’s flagship pipe inspection crawlers, ROVVER X and SuperVision products. And, now Electro Scan.

“Electro Scan and Envirosight’s line of crawler cameras represents a complete solution that covers both dry weather [CCTV] and simulated wet-weather [Electro Scan] conditions,” states Chuck Hansen, Chairman & CEO of Electro Scan. “The Envirosight product line here in the U.S. and iPEK brand worldwide, represents a line has teamed with Electro Scan Inc. and we are proud to utilize their products.”

“Envirosight is delighted to offer our RAX 300 Cable Reel to drive our RAX 300 Cable Reel,” stated Richard Lindner, President of Envirosight. “We pride ourselves on offering an open, in-field, plug & play platform, to support a complete line of pipe assessment tools, from crawler cameras to laser profilers, and we’re delighted to work with an innovative technology, like Electro Scan.”

About Envirosight
Envirosight specializes in underground infrastructure, pipeline and confined space inspection. Founded in 2001, Envirosight is a diversified, full service supplier of manhole cameras, zoom survey cameras, robotic crawlers, push cameras, inspection vehicles, and integrated software technologies.

Envirosight’s tools answer a variety of challenging applications, including the inspection of sewer, water and stormwater lines, as well as manholes, wet wells, vessels and electrical conduit.

Envirosight-Electro Scan product pricing and availability will be announced at WEFTEC in Chicago, IL, October 7, 2013.

Electro Scan’s engineering team appreciates working with Florian Pfefferle, iPEK’s German engineers, and Richard Lindner’s Envirosight team at their Randolph, New Jersey headquarters.

Pennsylvania Sewer Authorities ‘Electro Scan’ Sewers

Lehigh County, PA
Lower Salford Township, PA
Upper Montgomery Joint Authority, PA
Innovative Technology Used For 20,000ft Sewer Re-Assessment Evaluation Project

James City Service Authority, Williamsburg, Virginia, in a leader in Hampton Roads. Managing 423 miles of sewer main and serving 21,500 Sewer and sanitary connections, JCSA is one of thirteen local governments operating under the authority of Hampton Roads USEPA Consent Decree and Virginia Department of Environmental Quality Order to assess new technologies to improve decision making and accelerate corrective actions.

As a result, JCSA commissioned a 20,000-ft assessment of two previously investigated sewer sewers, using Electro Scan – WEF’s “Best Innovation Technology” for 2013.

Read About This Project Page 6

Electro Scan Begins R&D for Water Leak Detection

Expected to Leapfrog Acoustical ‘Listening’ Products

With urgency from private equity, venture capital, and new customers like Electro Scan, the market for water loss leak detection technology is quite large," states Chuck Hansen, CEO of Electro Scan. The market for water loss leak detection instrumentation for sewers and stormwater pipes, sold as an add-on product to repair wish new technologies to improve decision making.

The market for water loss leak detection instrumentation for sewers and stormwater pipes, sold as an add-on product to existing vehicles such as CCTV, has been growing steadily in recent years. Electro Scan has been a leader in this market, with its patent-pending electro-acoustic (EAC) technology for leak detection.

Electro Scan’s new European Demo Truck is expected to be in the field with working prototypes in 2014. Early adopters are encouraged to begin budgeting for pilot projects in 2014.

The biggest breakthroughs are the ones that alter decisions

Electro Scan Inc. “Product of the Year”

The Electro Scan is the Platinum Sponsor for WEFTEC 2013 serving “Free Beer” from two of its Combo CCTV-Elelectro Scan trucks during the show at booth 6012.

Now shipping its patent-pending products to Australia, New Zealand, Japan, Israel, United Kingdom, and now Europe, Electro Scan is thrilled with the new markets and the international adoption of its new generation products by leading sewer utilities.

"Our growth has even surprised me," comments Chuck Hansen, Chairman & CEO of Electro Scan.

Some may remember Chuck Hansen from his previous company, Hansen Information Technology, and its innovative leak detection technology which he sold to InfoGlobal in 2007 for a reported $100 million.

"I think a key to our success has been the team of experts in pipeline assessment and our combined background in the wastewater business," states Chuck Hansen, CEO, Electro Scan. "Few people have over 30-year experience in the TV business and I think there is a lot of untapped demand for products that rely less on subjective or qualitative judgments, and focus on automated analysis that drive quantitative decision support information, like Electro Scan.

"Last year, we were in Devon, England, to scan a few areas in Torbay, a village of about 100 people, that had its original charter in the Year 1300," recalls Chuck Hansen. "After our demonstration, Julian Briton, Rehabilitation Manager, Wessex Water, mentioned that if you’re not sure what size pipe ES-38 designed for 3" to 8" or 76mm to 200mm pipe diameters – couldn’t handle England’s most common sewer pipe, i.e. 225mm diameter pipe."

"International water utilities are often investors in Electro Scan’s new European Demo Truck which integrates its award-winning products to new technologies to improve decision making and accelerate corrective actions.

"I guess we will just have to buy twice as much beer," says Chuck Hansen.

Call 916-779-0660, Ext. 7001, to Arrange a Demonstration or Get a Budget Quote!

Selected Electro Scan Demos in 2013

American Fork City, UT
Broward County, FL
City of Bridgeport, CT
City of Berkeley, CA
City of Castro Valley, CA
City of Clearwater, FL
City of Culver City, CA
City of Dixon, CA
City of Dothan, AL
City of Dubuque, IA
City of El Segundo, CA
City of El Toro, CA
City of Hampton Roads, VA
City of Hawthorne, CA
City of Healdsburg, CA
City of Hickory Hills, IL
City of Hillsborough, CA
City of McKinney, TX
City of Meriden, CT
City of Northumberland, PA
City of O’Fallon, MO
City of Oakland, CA
City of Orem, UT
City of Provo, UT
City of Richmond, CA
City of Seven Hills, OH
City of Springfield, IL
City of Solon, OH
City of Southlake, TX
City of Springfield, FL
City of St. Charles, IL
City of St. Petersberg, FL
City of Toledo, OH
City of Tuscaloosa, AL
City of Twin City, OH
City of Waterford, CT
City of Wiltz, CA
Columbus Water Authority, GA
Cottonwood Improvement District, UT
Dallas Water Utilities, TX
Frederick County, MD
Fulton County, GA
Grand Strand Sewer and Water Authority, SC
Gwinnett County, GA
Jacksonville Utilities Authority, FL
James City Service Authority, VA
Jefferson County, AL
Lehigh County, PA
Lancaster County, PA
Macon Water Authority, GA
Miami-Dade Water & Sewer, FL
Michigan City, IN
Mt. View Sanitary District, CA
Oro Loma Sanitary District, CA
Pima County, AZ
Pinellas County, FL
Salt Lake City Public Utilities, UT
Sonoma County Sanitary District, CA
South Valley sewer District, UT
Sussex County, DE
Tri-Cities North Regional Waterway, OH
Upper Montgomery Authority, PA
Washington Suburban Sanitation Commission, MD

INTERNATIONAL DEMONSTRATIONS

Christchurch, NZ
Asaka, Japan
Belfast, Northern Ireland
Seven Trent, UK
South West Water, UK
Wessex Water, UK
United Utilities, UK

JAMES CITY SERVICE AUTHORITY
FINDS DEFECTS NOT FOUND BY CCTV

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