Electro Scan represents a breakthrough in locating and measuring the defect flow of pre- and post-rehabilitated pipes—an industry first. Utilities can now measure the effectiveness of their repairs by using Electro Scan to calculate a before and after Defect Flow Rate. In contrast to closed-circuit television inspection (visual) and acoustic (audio) technologies, Electro Scan represents the next generation in condition assessment for water and wastewater infrastructure.

The EPA has added Electro Scan to CMOM compliance. The EPA’s Guide for Evaluating Capacity, Management, Operation, and Maintenance (CMOM) Programs at Sanitary Sewer Collection Systems has added Electro Scan. Required for CMOM compliance, all sewer agencies can learn more about Electro Scan in the 7th Edition of Volume I, Operations and Maintenance of Wastewater Collection Systems. New manuals can be ordered through:

Office of Water Programs
California State University
6000 J Street
Sacramento, CA 95819-6025
Tel: 916-278-6142
Website: www.owp.csus.edu

Miami-Dade County Water and Sewer Department has issued an Addendum to lining contractors that specifies ASTM F2550 Low Voltage Test for Installed CIPP Liner. The EPA has long acknowledged the shortcomings of CCTV to provide structural data on the integrity of pipes. Due to CCTV’s reliance on visual interpretation, operator judgment, picture quality, and limitation to inspect surfaces above the waterline, sewer authorities have sought other technologies to more accurately locate and quantify pre- and post-CIPP defects.

In 2009, the EPA published Condition Assessment of Wastewater Collection Systems (EPA 600 R-09 049), where it first identified the electrical leak location method (first developed in 1981). Able to find defects in geomembrane liners, commercially available products were found to consistently determine the size of defects by measuring the amount of low voltage electrical current passing through the wall of a pipe.

As specified by ASTM F2550-13, low voltage testing for pre- and post-rehabilitated sewers can find numerous defects, not often found by CCTV or other legacy inspection methods, with the ability to estimate defect flow in GPM or LPS, with accuracy of ±40 percent.

Miami-Dade County’s addendum requires all installed cured-in-place pipe liners to be inspected with a low voltage system, as defined by ASTM F2550, to establish a baseline for warranty of the liner. All defects determined to compromise the CIPP liner’s long-term effectiveness would be repaired at the Contractor’s expense.
Continued from Page 1

Key Field Operating Requirements
For each CIPP lined sewer, a low voltage test is mandated to begin with a light flushing of the sewer line. Flushed from the downstream manhole, the jet hose will be raised from the upstream manhole where the jet hose nozzle will be replaced with a funnel cone. Once reattachment, the electro scan probe will be connected to the funnel cone.

Using the existing coaxial cable and reel included on CCTV trucks and vans, the Electro Scan probe is lowered into a manhole, similar to positioning a CCTV camera.

The hydraulically powered jet truck will pull the probe through the pipeline while simultaneously providing sufficient water for the probe to electrically examine the integrity of the lined pipe and service reconnections. Should a pipe segment be surcharged to the point where flushing is not appropriate, other techniques and equipment will be used, including (but not limited to): float lines, parachutes, plugs, or kites to help manage flow restrictions.

The scan represents a continuous survey, allowing the operator to avoid ‘start’ and ‘stop’ delays required to record individual defects. Instead, field crews can view a user-friendly operator’s console, to monitor real-time readings such as speed, water pressure, and defect current levels, from a ground level position.

All data is fed back to a laptop PC via a standard coaxial cable, generally used for legacy CCTV inspections. Once the data is collected on a laptop computer, it will be uploaded to a cloud-based portal where it will be instantly processed and available for owner/engineer/contractor and staff to view.

As one of the manufacturers of equipment compliant with ASTM F2550, Electro Scan Inc. looks forward to providing products and services to a growing number of sewer contractors being asked to provide pre- and post-CIPP defect assessments.

Leading SF Bay Area Contractor Adds Electro Scan To Offer Pre- & Post-Rehabilitation Assessments

Founded in 1984, Subtronic Corporation is a leader in sub-surface utility engineering, providing utility location and mapping, ground penetrating radar, vacuum excavation, 3D concrete scanning, CCTV inspections, pipe cleaning, geophysical surveys, leak detection, and now, Electro Scan services. Headquartered in the San Francisco Bay Area, Subtronic has conducted projects worldwide.

Subtronic has been an Electro Scan customer since 2013 when it purchased an Electro Scan ES-620 which was retrofitted to its existing multi-conductor CCTV truck, able to be used in dual capacity.

Subtronic is certified to use Electro Scan for pre- and post-rehabilitation projects, including specialty assessment projects such as CIPP acceptance testing, siphons, flow monitoring calibration studies, and service lateral studies.

CUSTOMER PROFILE
Subtronic Corporation
5321 Blum Road
Martinez, California 94553
Tel: 925-228-8771
Website: www.subtronic.com
Contact: Jon Taylor, President
Email: subtronic@subtronic.com

Sample Client Reports

Source: Critical Sewers® Cloud Application, Electro Scan Inc., 2014
Compliance EnviroSystems Completes 67,000 LF Nashville Project in 30 Days

Nashville Metro Water Services selected Compliance EnviroSystems, LLC (CES) in March 2014 to complete a 57,000 linear ft (11,700 m) Electro Scan project, which was extended an additional 10,000 LF. Completed in May 2014, the project evaluated two basins that had previously been smoke tested, with a high number of plastic pipes.

Metro Water Services is a department of the Metropolitan Government of Nashville and Davidson County and is Tennessee’s largest provider of wastewater collection and treatment. Metro Water Services provides service to more than 176,000 water accounts and more than 189,000 sewer accounts, managing over 2,800 miles of sewer.

During the project, CES set a number of Electro Scan contractor milestones, including:
- Most Footage Scanned in a Single Day: 3,751.5 LF
- Most Segments Scanned in a Single Day: 3,751.5 LF
- Most LF Scanned in 30 Work Days: 67,038.1 LF

All reports were provided to the consulting engineer, including detailed reporting of each scan with all Critical Sewers® ranked by defect flow ratings, in gallons per minute.

### About CES

Founded in 1995, CES is a full-service storm sewer and sanitary sewer evaluation firm, headquartered in Baton Rouge, Louisiana, with offices throughout the Southeast and Eastern U.S. Known for its commitment to deliver quality sewer inspection data and pioneering use of new technologies, CES was instrumental in the clean-up work after hurricanes Katrina and Rita in 2005 and the 2010 floods in Nashville.

CES has been an Electro Scan customer since 2013 when it purchased an Electro Scan ES-620 which was retrofitted to one of their multi-conductor CCTV trucks. CES is certified to use Electro Scan for SSES projects, pre- and post-CIPP assessment projects, and specialty assessments, including siphons, flow monitoring calibration studies, and service lateral studies.

Wessex Water Completes Major Trial; Files for International Awards

Wessex Water in partnership with Electro Scan, surveyed 1.5km of 150mm/225mm sewers known to be subject to considerable infiltration in the villages of Newton Tony, Combe Florey and Cerne Abbas, England, in February 2013.

The sewers in Newton Tony were surcharged after considerable rainfall. Since Electro Scan must be performed with its probe submerged in the emerged underwater, there were no delays, whereas the CCTV verification had to be performed later.

The trials at Combe Florey included undertaking a full survey with Electro Scan, twice on consecutive days. This allowed Wessex Water to compare results by overlay, which showed the system to be accurate and repeatable. Slight variations occurred due to difference in speed of transducer transient pull through and slight reduction in the external water pressures and flows.

At the time of writing, Wessex Water RT was establishing a process of drilling standpipes into the ground to delta log water tables to data log water tables across the road to inject a foaming hydrophobic structural polyurethane under pressure, whilst rake drilling into the road to inject a foaming hydrophobic structural polyurethane to seal the bend from outside the road.

This prevented a £2,000 road closure fee for the day, and was economic, sustainable, and customer-friendly.

The Electro Scan process was successful when used on the section S105A sewers in the village of Mark, Somerset, in late 2013, where flows are transferred to a vacuum sewerage system, which had reduced serviceability due to ground water inundation. Some 43 sewer mains were identified as the most critical assets with a cumulative infiltration of 12 l/s,

under a head of some 600mm of ground water over pipe soffits, giving over 1000 m³ of infiltration a day. The Opex cost of dealing with this groundwater was estimated at £120,000 per annum.

Capital schemes to prevent the infiltration were designed, including epoxy lining, which has been successful; also, post Electro Scan surveys of the cured-in-place-pipe linings confirmed they were effective.

But lining is not the only answer. In the process of utilising Electro Scan, Wessex Water also developed a method to seal a difficult knuckle bend under Cerne Abbas High Street, temporarily sealing the sewer with a heavy-duty calibration hose under pressure, whilst rake drilling across the road to inject a foaming hydrophobic structural polyurethane to seal the bend from the outside.

This prevented a £2,000 road closure for the day, and was economic, sustainable, and customer-friendly.

Severn Trent Services Publishes Innovative Bulletin on Electro Scan

Electro Scan is an evolutionary technology that bridges the gap between visual drain camera surveys and other forms of data collection, such as traditional manhole inspections. Its unique capabilities enable a reduction in costs, with a faster project completion time, whilst providing an accurate assessment of the condition of the underground infrastructure across Trenchless and Conventional Methods. It has been demonstrated to have costed between £120,000 and £130,000 per annum.

Electro Scan has been in the UK for just over a year and has been estimated to be 50% cheaper than other RT CCTV solutions that are available. The Electro Scan offers an easier, more streamlined way to conduct CCTV surveys, enabling the operator to record all the information required for asset management purposes.

For more information on Electro Scan, please visit: www.electroscan.com

Julian Britton, Critical Sewers Manager, Wessex Water, England

Severn Trent Services is an engineering consultancy that provides a full range of asset management services and builds on its extensive and growing capability in the use of Electro Scan for Trenchless and Conventional Methods. It has been demonstrated to have costed between £120,000 and £130,000 per annum.

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Julian Britton, Critical Sewers Manager, Wessex Water, England
Miami-Dade Water and Sewer Department
Upgrades CCTV Truck to Include Electro Scan

South Florida, in particular, the City of Miami and Miami-Dade Water & Sewer Department (WASD), have not had it easy in recent years. Siting above a vast and porous limestone plateau - imagine Swiss cheese and you’ll have a good idea of what it looks like underground - infiltration has been a daunting challenge.

According to Glenn Landers, Senior Engineer, U.S. Army Corps of Engineers, underground water moved around easily and freely, seeping into yards at high tide, bubbling up on golf courses, flowing through underground caverns, and corroding building foundations. Not to mention flooding sewers means through cracks, broken joints, and defective service connections.

“Conventional sea walls and barriers are not effective,” says Robert Dusout, an Ecologist at ARCADIS, a Dutch firm that specializes in engineering solutions to mitigate rising seas. Protecting the city, if even possible, will require innovative solutions.

Miami has found one such innovative method, at least to find their worst defects, in Electro Scan. First meeting at the ASCE conference in August 2012, Electro Scan demonstrated their ES-620 system for Miami in February 2013, surveying both lined and pre-lined PVC pipe. Follow-up meetings were held in March & August 2013. Impressed by the data, Electro Scan worked through their newest dealer, Larry Ruffin - owner of RUTT, Inc. - to allow Miami to utilize pre-purchase process for a new ES-620 system beginning in September 2013.

Working closely with Rod Lovett, Chief of Wastewater Collection at Miami-Dade WASD, the relationship between Electro Scan and Miami has grown since that first meeting over two years ago.

Lovett’s initial interest in Electro Scan stemmed from his desire to examine sewers pipes within the cone of influence of WASD’s groundwater wells to determine locations where sewage infiltration and rain-dependent infiltration (RDI) could impact water sources.

In the year since the purchasing cycle began, Lovett’s priorities have shifted. Miami, now operating under a recently-issued EPA Consent Decree, realized that with the change to Electro Scan’s ASTM Standard, their soon-to-be-purchased ES-620 system would be in high demand within the county for locating issues and evaluating pre- and post-infiltration projects.

Electro Scan completed a second demo in July 2014 when five 8” & 10” VCP sewer lines were scanned, with 4 out of the 5 pipes lined using a CIPP method. Miami’s purchase of its ES-620 was approved in late July, with a Purchase Order issued in early August.

RUTT, Inc., represents the who’s who of Electro Scan products in Alabama & Florida, RUTT, Inc. has joined an elite group of dealers that also offer Electro Scan Contract Services, Post-Rehab Certification, and Pilot Projects.

Ex-Crimson Tide, Larry Ruffin & RUTT, Inc. Become Exclusive Electro Scan Dealer in Alabama & Florida

RUTT to Offer Electro Scan Contract Services, Post-Rehab Certification, and Pilot Projects

Once a member of a coaching Bear Bryant’s Crimson Tide and now a member of Electro Scan’s team, Larry Ruffin is delighted to announce that RUTT, Inc., a portfolio company of Ruffin Investments, Inc., has been appointed the exclusive dealer for Electro Scan products in the states of Alabama and Florida.

Specializing in water resource technology-based materials and services, RUTT, Inc., represents the who’s who of manufacturers and suppliers to the water & wastewater business. “We make a concerted effort to build and negotiate dealer agreements with vendors we think are leaders in their markets,” states Larry Ruffin, President of RUTT. “Our customers were the first to tell us about Electro Scan, which is always the best start to any discussion. Add to that the product’s advantages and a great team of people that support the technology & training, and you have a winning combination.”

About Larry Ruffin

Larry Ruffin has been serving the water industry for over 20 years, but Larry Ruffin’s winning attitude and teamwork began early, especially gaining momentum during his college years at the University of Alabama, where he played for famed coach Paul W. “Bear” Bryant on his NCAA championship football team.

Playing offensive guard on the 1973 Crimson Tide and undefeated in the SEC Conference (8-0), Larry Ruffin has been a long-time football enthusiast, bringing the same winning approach in most everything he does.

“That Thanksgiving win of 21-7 over LSU is a big reason we (probably) will not let Larry [Ruffin] represent us in Louisiana,” jokes Chuck Hansen, CEO of Electro Scan.

RUTT to Offer Electro Scan Service

In addition to handling the sale of Electro Scan products in Alabama & Florida, RUTT, Inc. has joined an elite group of dealers that also offer Electro Scan services.

Purchasing a new CCTV truck from local manufacturer, CUES, Inc., RUTT has been trained and certified to offer Electro Scan services and data reporting in accordance with ASTM F2550-13.

“While TV inspection can be done when the pipe is relatively dry or at a low water level, right away we saw that Electro Scan was the first product that could evaluate a pipe in wet weather conditions, when most ISD occurs,” stated Larry Ruffin.

With sales reps throughout Alabama and Florida, RUTT was already responsible for negotiating the sale and support for Electro Scan products and services at Miami-Dade Water and Sewer Department.
As the wastewater collection industry continues to undergo change, end-users, subject matter experts, and editors of the OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS, Volume I and II, maintain a constant search for better ways of getting things done.

As municipal budgets get tighter, knowledgeable operators recognize and vacancies go unfilled, the need to adopt more efficient and effective ‘best practices’ has never been greater.

Some industry changes represent incremental product innovations, e.g. small-scale improvements, existing product extensions or refinements that tend to have a certain rhythm, rhyme, or reason. Higher resolution CCTV cameras, improved flow monitoring algorithms, and enhanced user controls for jet trucks, represent important, but incremental product enhancements. Often quite predictable, long-time established companies often introduce these improvements at regular intervals that are tested, reviewed, and substituted for older, legacy models.

In contrast, start-up companies, pursue innovation as their whole business. Developing products outside of large company bureaucracies often create breakthrough products that utilize new technologies and disrupt longstanding products. The use of distributed optical fiber sensors, pressurized flood grouting, adhesion-based epoxy liners, and acoustic sensors are all examples of emerging technologies from nimble new entrants.

Case Study: Electro Scan

Development of a new condition assessment method, known as Electro Scan, scheduled for publication as part of the upcoming 7th Edition of the OPERATION AND MAINTENANCE OF WASTEWATER COLLECTION SYSTEMS, Volume I, began its journey in the 1990s.

Case Study: Electro Scan

Electro Scan was originally introduced in 1995 and later abandoned after commercial prototypes were unable to deliver consistent results, software and hardware intellectual property was acquired in 2011 by software entrepreneur, Chuck Hansen, former owner of Hansen Information Technologies.

Soon after, the product was re-engineered to become an add-on accessory to traditional CCTV trucks, utilizing existing cable, reel and power systems.

In November 2013, Ken Kerri invited representatives of Electro Scan to contribute a new chapter to the upcoming Seventh Edition of Volume I. Meetings were scheduled in late 2013 and 2014 to outline general requirements, content, and writing style that would guide chapter development.

Beginning with the exchange of multiple text-based draft documents, more advanced versions included diagrams, site photographs, and tables, leading to a pre-press chapter ready for review by other editors.

The Electro Scan team is honored to be a part of this leading textbook used throughout the industry.

As EPA CMOM Requirements Expand

EPA CMOM Requirements Expand to Include Electro Scan Technology

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Electro Scan Training Manuals • The Next Generation in Pipe Condition Assessment

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Electro Scan Training Manuals • The Next Generation in Pipe Condition Assessment
Leading Engineers Specify Electro Scan to Measure Pre- and Post-Rehabilitation & Repair Effectiveness

As a general rule, sewer owners and operators have widely believed that for every 1,000 linear feet (LF) or 305 meters (m) of lining or pipe replacement, approximately 8-10 million gallons per year (2.9 to 3.7 billion liters per year) of infiltration could be eliminated. To combat infiltration, municipal bonds are sold to raise funds, expenditures are budgeted, specifications are solicited, and contractors are selected to deploy various trenchless technologies, including: lining, coating, and curing methods.

Trenchless rehabilitation has been a long-standing response to reduce inflow & infiltration, however, an increasing number of utilities are either finding limited reductions in flow or returning to pre-rehabilitation levels of infiltration.

**Impaired CIPP Projects Are Growing**
Recent studies have been limited to evaluating field samples of lining cross-sections to assess whether the originally planned lifetime of CIPP (typically assumed to be 50 years) was achievable. Yet, post-rehabilitation inspections are starting to uncover serious impairments that question widely held assumptions on the operating performance and overall effectiveness of CIPP, especially when not properly installed or inspected.

While post-rehabilitation inspection of CIPP has been limited to CCTV inspection or pressure testing of pre- and post-inverted liners, a new technology known as Electro Scan (ASTM F2550-13) has emerged to offer an unbiased, quantitative assessment of pre- and post-rehabilitated pipes that can provide a before and after defect rating of critical sewer and water assets.

The advantages of providing pre- and post-rehabilitation defect flows, expressed in either gallons per minute (GPM) or litres per second (LPS), are numerous. Key benefits of a quantitative analysis of defect flows, before and after rehabilitation, include the ability to:

- Establish a baseline defect flow rating to prioritize critical sewers & water assets;
- Overcome shortcomings of visual observations and cataloguing using CCTV cameras;
- Quantify specific reductions in infiltration from rehabilitation, repairs, and renewal;
- Enforce minimum allowances for defect flows as part of manufacturer’s warranties;
- Certify post-rehabilitated repairs, relining, and renewal of pipes.

Recent Electro Scan surveys are uncovering a number of defects in CIPP, not found by post-CCTV investigation. In addition to evaluating CIPP linings (directly after their installation), evaluation of CIPP linings installed 5-15 years ago are showing evidence of root intrusions, cracks, and defective service re-connections, similar to unlined pipes.

As part of a recent report published by the US EPA, testing of CIPP was conducted in both large and small diameter sewers in two cities: Denver, Colorado and Columbus, Ohio. Other cities have subsequently been added to this ongoing study.

The purpose of the EPA study was to determine whether the originally planned lifetime of CIPP was reasonable based on the current condition of the liner. Despite the large public investment in CIPP, prior to this study there had been little quantitative analysis to confirm if structural or operating performance was as expected.

While the study concluded that there was no reason to anticipate that liners would not last for their intended lifetime of 50 years (and perhaps beyond), the study failed to address or quantify the severe degradation in operating performance of the post-rehabilitation pipe where numerous break-ins, root intrusion, and failures were found.

While lining cross-sections should continue to be laboratory-certified, long-term operating performance of CIPP may not be assured if proper installation and/or inspection protocols are not used. As a result, it is recommended that Electro Scan testing be conducted on older lined pipes to determine if CIPP life expectancy can be achieved.

**Most pipes leak after repair. But how much reduction in infiltration has been achieved?**

**Pre-CIPP**
- Defects: 50
- Gallons Per Minute: 162.07
- Gallons Per Day: 3,777,756
- Number of Defects: 165

**Post-CIPP**
- Defects: 50
- Gallons Per Minute: 5.40
- Gallons Per Day: 1,274,391
- Number of Defects: 16

**Reduction**
- Per- and Post-Rehabilitation: 156.67
- Estimated Infiltration Flow: 0.67 GPM

Electro Scan finds defects in bad CIPP lining projects missed by CCTV Inspection.
Electro Scan Shows Defects in CIPP Lined Pipe

40% of 14-Year Old CIPP Lined Pipes Measure 10,000 GPD Defect Flow or More

In 2014, a major metropolitan sewer utility conducted an Electro Scan survey of forty-nine (49) previously lined cured-in-place pipe (CIPP) segments, installed in early 2000, i.e. less than 14-years old.

Representing the first major post-CIPP evaluation conducted using the Electro Scan technology in accordance with ASTM F2550-13, the study area had previously undergone a comprehensive smoke testing survey, noting only a few minor defects, with CCTV proving unreliable in locating sources of rainfall-dependent infiltration (RDI).

While Electro Scan had previously surveyed over one hundred (100) CIPP lined pipes, point repairs, and other pipe renewal methods, other Electro Scan prior study had been undertaken to determine a specific estimated leakage rate expressed in gallons per minute (GPM) of defect flow for a single sewer authority.

Study results showed that all 49 CIPP segments had quantifiable defect flows, with forty percent (40%) of the pipes registering 10,000 GPD or more of defect flow.

Electro Scan has emerged as the industry’s first automated assessment tool, not requiring manual coding or visual observations. Using a low voltage/high frequency international patent-pending technology, Electro Scan can find and measure defect flows likely to result from cracks, fractures, open joints, defective service connections, and poorly installed lining projects.

Representing 8,719 linear feet of CIPP lined pipe, the study accumulated 196,187 raw data points and 121,527 filtered data points, finding 215 Total Defects and 479,822 Gallons per Day of estimated defect flow, with highlights provided below.

Electro Scan Project News
Hamilton Municipal Utility Authority, Pennsylvania Adopts Electro Scan for Sewer Condition Assessment

Despite its size of approximately 70 miles of sewer main, Hamilton Township Municipal Authority (HTMA) pursues innovative solutions using in-house staff to manage its wastewater collection system. Led by Sharon Purnell, Manager, HTMA provides wastewater services to about 4,000 homes and 120 commercial accounts around Chambersburg, PA. Utilizing its own crews, including cleaning and TV equipment, HTMA has purchased Electro Scan’s ES-620 to add to their existing CCTV truck, after undertaking a successful benchmark.

Representing a relatively young system, ranging from 30-40 years old, HTMA still experiences I&I issues that had been difficult to locate & measure with existing solutions.

Electro Scan wishes to thank Sharon Purnell and Board Members at HTMA for their hospitality and Electro Scan sales order.

US EPA Region 3, PA DEP, and LASA Sponsor Electro Scan-CCTV Benchmark

Electro Scan wishes to thank the US EPA, Commonwealth of Pennsylvania Department of Environmental Protection (DEP), and Lancaster Area Sewer Authority (LASA), for inviting Electro Scan to demonstrate and benchmark its solutions. LASA currently owns, operates, and maintains a sanitary sewer system that serves approximately 32,500 customers representing a population of about 107,000, located in seven Lancaster County municipalities including East Hempfield Township, West Hempfield Township, Lancaster Township, Manor Township, Manheim Township, East Petersburg Borough and Mountville Borough. The LASA system includes approximately 500 miles of pipeline, 38 pumping stations, and a treatment facility designed to treat 15 million gallons of wastewater per day.

Sample Electro Scan CCTV Comparison MCE-10 to L61

Sample Electro Scan CIPP Assessment MCE-8 to MCE-6

Add Electro Scan to your CCTV truck and switch from televising to electro scanning, and back again, in less than ten minutes!

Special Thanks From The Electro Scan Team

US EPA Region 3
Steve Maslowski, NPDES Enforcement
Walter Higgins, Environmental Scientist
Joy Gillespie
Allison Graham

Pennsylvania Department of Environmental Protection (DEP)
Bob O'Rourke, Section Chief
Paul Curry, Water Program Specialist
Shawn Abaugh, Operations Chief

Lancaster Area Sewer Authority, PA
Mike Kyle, Executive Director
Albert Koeps, Maintenance Director
John Vittas, Maintenance Director
Tom Millhouse, Collection Operator
Pete Hartmann, Engineering Support Tech
MTech: Electro Scan’s Dealer of the Year

Summer Interns Help Electro Scan Overhaul Legacy SSES and CIPP Inspection Standards

Electro Scan was delighted to welcome its 2014 Class of Summer Interns, drawn mostly from the California State University, Sacramento, School of Engineering.

Jamie Johnson, returning intern, was joined by Susan Aguirre, Juan Ponce, and Louis Fournier, joining the Electro Scan team, working side-by-side with our staff.

“Our summer analysts are more than just interns,” stated Chuck Hansen, Chairman, Electro Scan, “they help us communicate with other newly minted professional engineers to influence their organizations.”

“Our summer staff has done it all,” stated Mark Grabowski, VP, Electro Scan. “They have supported us in Germany at the IFAT exposition, made presentations during ‘Lunch & Learns’ sessions with engineering firms, and managed our data capture and field set-up for demonstration projects in Boston (MA), Tallahassee (FL), Pompano Beach (FL), and Vallejo (CA).”

Electro Scan thanks all its customers, dealers, and prospects for allowing us to have our summer staff work side-by-side on their projects.

Projects, Reports & Presentations Make New Breed of ‘Road Warriors’

Benchmark Location CCTV v. Electro Scan


Electro Scan is delighted to see leading sewer utilities modify their specifications for sewer evaluations to include the just approved ASTM F2550-13, Standard for Locating Leaks in Sewer Pipes to Measuring the Variation of Electric Current Flow Through the Pipe Wall.

First established in 2006, ASTM F2550 governs the use of electrical current to assess pipes. Providing a groundbreaking new standard, F2550-13 became immediately effective.

Today, ASTM has emerging as the dominant rule-making society among standards-making bodies worldwide. The USA represents the largest developer of standards in the world. 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.

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In November 2013, modifications to F2550-06 were introduced and approved to add a recommended use to assess repairs, rehabilitation, and replacement of sewers pipes, before and after their renewal. Winning unanimous approval, the new standard, F2550-13 became immediately effective.

ASTM F2550 is specifically part of the F36.20 Inspection and Renewal of Water and Wastewater Infrastructure roster.

In early 2014, Chuck Hansen was appointed the new Chairman of Subcommittee F36.20, where he is helping other innovative technologies and renewal methods gain ASME certification. "Our mission is to help utilities, consultants, engineers, and contractors understand key aspects of the [ASTM] standards," states Chuck Hansen, Chairman, ASTM F36.20, "and how they can be used to help guide the industry toward more accurately inspect and renew their water and sewer infrastructure."

CCTV & Electro Scan

1. Automatically Finds Potential Sources of Infiltration N Y
2. Automatically Finds Leaks Inside Joints N Y
3. Automatically Finds Leaks at Service Connections N Y
4. Automatically Finds Sources of Infiltration at Cracks N Y
5. Automatically Finds Leaks at Locations (within 0.4 m or 1 cm) N Y
6. Automatically Measures Size of Leaks (Est. GPM or LPM) N Y
7. Automatically Finds Defects That Leak from Bad Couplings N Y
8. Automatically Finds Defects That May Still Leak After Repairs N Y
9. Automatically Finds Defects That Leak in Re-lining Projects N Y
10. Automatically Finds Defects After Service Re-Connections N Y
11. Automatically Finds Leaks, If Stik or Debris On Bottom of Pipe N Y
12. Able to Conduct Inspections, If Sewer Pipe Is Full Of Water N Y
13. Able to Determine Size of Potential Leak, If Roots Are Present N Y
14. Automatically Finds Leaks at Joints, If Grease Is Present N Y
15. Able to Determine Size of Leaks, If Pipe Has Encrustation N Y
16. Requires Active Infiltration to Identify Defect at Source Y N
17. Contains Moving Parts That Could Clog from Debris or Stick N Y
18. Requires Bypass During Inspection, If Pipe Full N Y
19. Requires Special Training and Certification to Identify Defects Y N
20. Relays on Visual Observations to Record Defects Y N

Electro Scan Attends International Conferences in England and Spain

Electro Scan Expands Product Suite To Assess Large Diameter Trunk Lines

The biggest drawback with using multi-sensor flotation devices, that can be plugged into other sewer camera systems, is that they either don’t work or don’t tell you anything.

In contrast, Electro Scan’s international patent-pending low-voltage technology is the first major assessment tool to allow field operators to generate real-time defect locations, estimated defect flows in gallons per minute or litres per second, for large diameter sewers and interceptors.

Available on a contract service, directly from Electro Scan Services, contact Mark Grabowski at mark@electroscan.com for more information and pricing for your next project.

Kanalinspektion & Electro Scan

1. Ortet automatisch potentielle Infiltrationsstellen N Y
2. Ortet automatisch Lecks in Verbindungsstellen N Y
3. Ortet automatisch Lecks in Haumschlüssen N Y
4. Ortet automatisch mögliche Infiltrationsstellen an Rissen und Brüchen N Y
5. Ortet Lecksstelle automatisch (± h. auf 1 cm genau) N Y
6. Misst automatisch die Grösse der Lecks (± h. in Liter pro Minute) N Y
7. Ortet automatisch Lecksichten an schlechten Müll und mangelhaften Armaturen N Y
8. Ortet automatisch reparierte Schäden, durch die noch etwas durchsickern könnte N Y
9. Ortet automatisch Lecksichten bei Lining-Projekten N Y
10. Ortet automatisch nach Wiedereinsetzbarkeiten der Leitungen aufschlussreich N Y
11. Ortet automatisch Leckagen bei Schlämmen oder Ablagerungen auf dem Boden der Leitung N Y
12. Kann Inspektionen durchführen, wenn die Abwasserleitung mit Wasser gefüllt ist N Y
13. Kann die Grösse eines potentiellen Lecks bestimmen, wenn Harsh oder anhaftend sind N Y
14. Kann die Grösse eines Lecks bestimmen, wenn die Leitung Verkalkungen aufweist N Y
15. Kann die Grösse eines Lecks bestimmen, wenn die Leitung Verkalkungen aufweist N Y
16. Leitung muss gucken werden, damit die Schäden vor Ort erkannt werden können N Y
17. Heben bewegliche Teile, die nicht bei Schäden oder Ablagerungen auseinander und ausbauen können N Y
18. Erforderlich bei gefährlicher Leitung eine Bypass-Leitung während der Inspektion N Y
19. Erforderlich spezielle Ausbildung und Zulassung zum Erkennen von Schäden N Y
20. Statis sich auf optische Beobachtungen um Art und Grösse des Schadens aufbaut N Y
21. Inspektionsgeschwindigkeit 1m/min 15m/min

TV

Electro Scan

1. Ave. Speed of Inspection (6-20” Sewer Main) 1m /min 15m /min
2. Ave. Detection Rate (Large Defect, Small Width) 5mm 10mm
3. Ave. Detection Rate (Medium Defect, Medium Width) 5mm 10mm
4. Ave. Detection Rate (Small Defect, Large Width) 1mm 2mm

Electro Scan Services

Length: 82.3 (tip to tip) Diameter: 10in Weight: 170 lbs

Electro Scan - International Specifications

The Critical Sewer & Water Chronicles • September 2014
Poor Calif. Beach Water Quality Correlates With Rainfall, Sewer and Storm Flows

The National Resource Defense Council’s annual analysis of water quality data at 3,485 coastal U.S. beaches monitored in 2013 found that 10% of all monitoring samples exceeded the EPA’s most protective benchmark, known as the Beach Action Value (BAV), with contamination levels at the nation’s beaches remaining unchanged from prior year’s levels.

Working on a grant from California’s State Water Resources Control Board, Mr. Anthony (Wai) Thoe of Stanford University has been investigating predictive models as a tool for public notification of beach water quality. Thoe’s research included analytics from 17 California beaches with his findings showing a high correlation between rainfall events, sewer & stormwater flows and beach water quality. Mr. Thoe’s past work had included similar efforts and the establishment of an ongoing monitoring and reporting of water quality at Hong Kong’s 43 beaches.

Mr. Thoe’s findings were presented at separate Northern and Southern California meetings of the State’s Water Quality Monitoring Group, August 20 & 21, where Chuck Hansen also introduced the Electro Scan technology and ASTM F2550-13. “Coastal sewers & storm drains represent unintended wastewater treatment resources,” commented Chuck Hansen, CEO of Electro Scan. “As leaking pipes fill-up at high tide, effluent will typically leach out back into our coastal waterways at low tide.”

“Since TV cameras televise pipes when they are dry, no defects are usually found, allowing for the cycle to continue.” Stay tuned as more coastal communities start using Electro Scan to evaluate sewer and stormwater pipes to find & fix the correct leaks.

Electro Scan Developments

Electro Scan (Europe) Limited Deploys EU & UK Demo Van For Projects & Trials

No PACP coding or visual observations required as all readings are automatically collected during the scan and processed on the Cloud.

No third-party data interpretation needed.

While Electro Scan doesn’t replace CCTV, it does locate & measure defects not seen by CCTV, Acoustic Sensors, Smoke & Dye Tests, Sonar, GPR, or Laser Profilers.*

- CCTV can’t see leaks in partially or full pipes,
- CCTV can’t accurately identify or quantify defects inside joints,
- CCTV can’t automatically calculate defect flows for cracks or bad connections,
- CCTV operators oftentimes rate the same defect, using different codes,
- CCTV operators frequently rate different defects, using the same code.

“Now we finally have a tool that can automatically find & measure defect flows, in GPM & LPS, for pre- and post-rehab’d sewer, stormwater & water pipes. Even smaller agencies with less than 100 miles of main are buying Electro Scan to add to their TV truck or CIPP lining specifications. So, don’t get left behind.”

Macy Grubbs, Director of Field Services

Electro Scan Inc.

macy@electroscan.com

* In accordance with ASTM F2550-13.
Switch from CCTV to Electro Scan, and back again - in the field - in less than 10 minutes.

The Three Rs of Rehabilitation

<table>
<thead>
<tr>
<th>Program</th>
<th>Recover Capacity (I/I Reduction)</th>
<th>Repair Damage (Structural)</th>
<th>Reduce Maintenance</th>
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<td>Age, Condition, Etc.</td>
<td>Maintenance Records Review</td>
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<td>MH-to-MH</td>
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<tr>
<td>Basis for Funding Level</td>
<td>Master Plan</td>
<td>Condition Assessment</td>
<td>Maintenance Records Review</td>
</tr>
</tbody>
</table>

(2) Represents post-rehabilitation Electro Scan survey projects in 2013, with no defects identified by CCTV. In 2014, a major metropolitan sewer agency electro scanned forty-nine (49) post-CIPP sewer mains that were lined in the year 2000 (i.e. 14 years old). 100% showed defect flows, while 40% showed defect flows greater than 10,000 GPD, each, or 80% of total defect flows for all lined pipes.
Electro Scan Offers Next Generation Leak Detection for Water Distribution

Continued from Page 24

The U.S. EPA estimates that 700 water main breaks occur every day in the U.S., or 250,000 breaks a year. This represents water losses of 14 percent due to known leaks. That’s not including the potentially larger source of water loss from background leakage, i.e. water losses from bad joints, cracks, and defective service connections that defy detection using conventional devices.

As experienced in the sewer industry, where CCTV is unable to find or measure leaks at joints or bad service connections, similar leaks in water mains are numerous & widespread, and not readily detected with current technologies.

Leak noise correlators, loggers, tracer gas techniques, ground penetrating radar, acoustic sensors, and newer fiber optic acoustic devices, are just some of the legacy inspection techniques that have been unable to consistently and reliably locate and measure (GPM or LPS) defect flows in non-conductive pipes.

As stated in the 3rd Edition of AWWA M36, the majority of leaks and volume losses, worldwide, occur at customer service connections to the water main, and not in the core distribution system of a utility, yet standard acoustic listening devices are unable to reliably locate and prioritize many of these defects.

While pipe material, traffic load, depth of installation, age, ground conductions and water temperature are major factors in many main breaks, the quality of tap installation and material (e.g. in the past, lead and galvanized iron, to current copper and dewatered pipes using CCTV inspection).

Gearing up for expected demand for Electro Scan products from the State of California’s $11 billion Water Bond on the November 2014 ballot, look for Electro Scan to deploy its Critical Water® cloud application, similar to its Critical Sewer® app, to serve leading global water companies, with special focus on California water agencies.

Revenue and Non-Revenue Water Distribution


How Does Electro Scan Work in Water Pipes?

The Electro Scan probe is inserted into a pressurized water main and unfurled through the downstream pipe. Once positioned, the probe is retracted at the rate of 45-60ft (15-20m) per minute with data transmitted though to an onboard computer. Leakage results are available on the Critical Water® cloud in minutes.
A major component of the Electro Scan solution is its groundbreaking cloud application -- Critical Sewers® and just announced Critical Water® -- that captures, stores, processes, and displays field data, in minutes.

“Since I decided to come out of retirement to introduce Electro Scan to the global pipeline market, I thought I needed to pull my brother Scott out of retirement, too,” says Chuck Hansen. “A lot of people saw me as the face of Hansen since the early 1980s, but few people realize that the original Hansen Software Inc., founded in 1983 had three shareholders, each holding an equal stake: my father, Robert J. Hansen, Scott B. Hansen, and me.”

“A lot of people saw me as the face of Hansen since the early 1980s, but few people realize that the original Hansen Software Inc., founded in 1983 had three shareholders, each holding an equal stake: my father, Robert J. Hansen, Scott B. Hansen, and me.”

Critical Sewer & Water Cloud Apps

“It was nice being able to start a new multi-tenant (customer) architecture from the ground up,” states Scott Hansen, Electro Scan’s Chief Technology Officer. “I was immediately drawn to the Amazon Web Services (AWS) architecture to allow us to scale the application for both large and small users, wherever they were located on the globe.”

“Looking back, our Release 1.0 looked pretty crude compared to our new 3.X release available at WEFT-EC in New Orleans,” states Scott Hansen. “Today, we use HTML 5.0, Python, PHP, Tableau and SQL to capture, manage, validate, process, post, and warehouse the millions of monthly records our customers are already generating.”

Major enhancements (i.e. what your annual support agreement is allowing you to get as ongoing upgrades to our back-end systems), encompass a more powerful query application, including the ability to rank pipes by GPM (or LPS), pipe type, date, or number of defects.

Also included in our new release is a powerful export tab that allows you to more readily bring your Electro Scan data, via a separately licensed utility, to share with your Asset Management, CCTV, GIS, or Hydraulic Modeling applications.

Call or email Electro Scan’s IT group for more information or to talk about how we are changing the pipe condition market for the water and sewer industry.

“Our IT group not only writes & tests our code,” says Scott Hansen, “but also hits the field to watch how our customers and contractors are using our product.”

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Electro Scan is pleased to announce that Ms. Carissa Boudwin has joined California-based Electro Scan Inc. as Manager, Marketing & Sales Administration.

Moving back to Sacramento, CA after finishing her undergraduate degree at George Mason University, Fairfax, VA, Carissa earned her BS in Accounting while her husband, Cody Boudwin, taught hand-to-hand combat at the Marine Corps Base, Quantico. Starting August 1, Carissa wasted no time heading to the field to get acquainted with the Field Operations team, meeting dealers, developing price quotations, and planning the next issue of the Electro Scan newsletter.

“I was very familiar with Chuck Hansen’s previous software company,” says Carissa Boudwin, “and couldn’t wait to help build traction in his new start-up.”

Carissa will be managing Electro Scan’s global advertising, product marketing, customer proposals, dealer price quotations, and tradeshows, in addition to her new role as Managing Editor of The Critical Sewer & Water Chronicles. “Email me your story ideas at carissa@electroscan.com and look for me at an upcoming exhibition in the U.S., England and Spain,” says Carissa.

Pete Dannenberg and Carissa Boudwin check the placement of an Electro Scan probe in Cleveland, Ohio. (Above) Keith Walda, Director of Technology.

Carissa Boudwin To Lead Electro Scan Marketing Team

(Above) Keith Walda, Director of Technology.

(Above) Carissa Boudwin.

(Inset) Carissa’s new real-time tracking of Electro Scan’s demo trucks to direct more utilities to meet up with field crews.

Carissa Boudwin.

Carissa’s new real-time tracking of Electro Scan’s demo trucks to direct more utilities to meet up with field crews.

Carissa Boudwin.

(Above) Carissa Boudwin.

(Inset) Carissa’s new real-time tracking of Electro Scan’s demo trucks to direct more utilities to meet up with field crews.

Pete Dannenberg and Carissa Boudwin check the placement of an Electro Scan probe in Cleveland, Ohio.
Electro Scan Field Guide

**JOB SITE PREPARATION**

1. Job Planning
2. Traffic Control
3. CCTV in Electric Storm
4. Grounding Rod
5. Malachite Green
6. Spray-on Prep
7. Downstream Prep
8. Re-entry Jet Hose
9. Abutment Flare Plug
10. Jet Truck Operation

**EQUIPMENT SET-UP**

1. Probe
2. Re-entry Jet Hose
3. Malachite Green
4. Spray-on Prep
5. Re-entry Jet Hose
6. Downstream Prep
7. Flare Plug
8. Jet Truck Operation

**Grounding Rod**

**Kites and Dragging Parachutes**

**Available sizes from 6 to 15in (150-400mm)**

---

**Compliance EnviroSystems**

Contact: Mr. Casey Smith
Email: csmith@ces-sses.com

**DRS**

Contact: Ms. Danyale Berthleot
Email: danyale@drsamerica.net

**Municipal Pipe Tool Co.**

Contact: Ms. Sharon Waschkat
Email: sharonn@munipipe.com

**MTech Company**

Contact: Mr. Dan Soukup
Email: dsoukup@mtechcompany.com

---

The Safety Company, LLC dba MTech Company
7401 First Place
Bedford, OH 44146
Tel: 800-362-0240
Website: www.mtechcompany.com
for Sewer & Stormwater
New Economy Magazine Names Electro Scan Best ‘Water & Sewer CleanTech’ Company

Electro Scan’s 2013 Clean Tech Award for Best Water and Wastewater Solutions was presented by The New Economy Magazine in ceremonies held at the London Stock Exchange on December 17, 2013.

The New Economy is a quarterly magazine that captures the spirit of global thought leadership by promoting innovation, transparency and sustainability that reshapes the future.

Aimed at unearthing the new global clean tech elite, and the champions of tomorrow, awards were published in The New Economy’s Winter 2014 Edition, representing one of the few periodicals authorized for distribution at the World Economic Forum held January 22-25, 2014 in Davos, Switzerland.

“We are delighted to announce Electro Scan as recipient of the 2013 Clean Tech Award for Best Water and Waste-water Solutions,” states Jan Spiegel, Editor of The New Economy. “Disruptive technologies, like Electro Scan, that alter decisions, often represent the biggest break-throughs in our economy.”

Electro Scan Inc. was pleased to announce that Mr. Liam MacFarlane, Critical Sewers Engineer, Wessex Engineering and Construction Services (WECS), Wessex Water’s in-house construction arm, was selected as the ‘Young Engineer of the Year’ award recipient, presented by the UK Society for Trenchless Technologies (UKSTT).

The award was based on Liam MacFarlane’s technical paper ‘Holistic Approach to Infiltration and Inflow Exclusion’ highlighting an Electro Scan project.

The prestigious award was presented at UKSTT’s 20th Annual Dinner & Awards Ceremony held in Birmingham, England in May 2014. The ‘Young Engineer’ award is presented to the engineer -- under 30 years of age -- who best demonstrates their contribution in the field of rehabilitation. The candidate’s contribution made, the quality of scholarly submission and the candidate’s vision for the future of trenchless technology.

“I am proud to be selected for this distinguished award,” states Liam MacFarlane. “I could not have achieved this honor without the help of the team at Wessex Water and Julian Britton, Rehabilitation Manager.”

Liam MacFarlane joined Wessex Water in 2008 in the WECS trainee development programme, providing invaluable experience in all phases of project delivery, including: optioneering, design, construction, commissioning and handover. In 2010, Mr. MacFarlane was appointed Critical Sewers Engineer at Wessex Water, responsible for the project management and delivery of sewer renovation projects that specialize in trenchless installations. Mr. MacFarlane earned his Bachelor of Science (BSc) degree in Civil Engineering from the University of the West of England in 2013.

“My involvement with Electro Scan started in 2013 with several kilometers of surveys in the Southwest of England,” stated Liam MacFarlane. “We robustly trialed the Electro Scan technology identifying improvements to the hardware and working closely with Electro Scan’s onsite team.”

“Electro Scan was very successful in Mark, Somerset, England where forty-three (43) sewers were identified as the most critical assets with a cumulative infiltration rate of 12 litres per second (l/s) or 1000m3 per day, costing the company over £120,000 ($180,000) per annum in operational expenditure,” continued Liam MacFarlane.

“With the UK’s Environmental Agency expectation to have every £1 cost of flood defense expenditure deliver £8 of benefit, all capital expenditures must bring the best value,” stated MacFarlane. “As seen in our Somerset trials during the recent winter flooding, we were able to document the comparative cost/benefit analysis. Prior to using Electro Scan we didn’t have the analytical tools to effectively use oxygen sealed CIPP, as CCTV surveys were inconclusive. With Electro Scan, I can now demonstrate to my clients a conservative cost/benefit of at least £10-15; especially in geological areas where ground-water-induced hydraulic lithology threatens the stability of adjacent buildings.”

“We are honored to be a small part in Liam MacFarlane’s success,” commented Chuck Hansen, Chairman, Electro Scan. “We look forward to watching Mr. MacFarlane’s leadership in using technology to accelerate the pace of change in the field of civil engineering.”

During the last seven years, Wessex Water Services Limited has seen four of its engineers win the UKSTT’s prestigious Young Engineer award. In addition to Liam MacFarlane’s selection this year, previous Wessex Water award recipients included Alex Aulds (2012), Leanne Ford (2010), and James Kitching (2008).

UK Young Engineer of the Year, Wessex Water’s Liam MacFarlane, Selected for Electro Scan Project

Come See Us! | Besuchen Sie uns!

RO-KA-TECH

International Fachfachmesse für Rohr-, Kanal- und Industrieverpflanzung

06.05.2015-08.05.2015, Kassel, Germany
Top Sewer Contractor From Japan Visits Sacramento To Meet Electro Scan Leaders

Word of global adoption of Electro Scan, and leading substitution for legacy condition assessment techniques, such as CCTV, pressure testing, and smoke & dye flood testing, is growing.

After numerous trials throughout Japan, including joint participation at national trade exhibitions, seminars, and customer workshops, members of KANTOOL Co. Ltd. (Tokyo, Japan) and KANSEI Co. (Yokohama, Japan), visited the Sacramento, California headquarters of Electro Scan for a series of planning meetings and business discussions, including an all-day series of pre- and post-rehabilitation pipes in Vallejo, CA.

Electro Scan’s senior management was delighted to welcome Mikio Goto, Kiyo Hosaka, and Katsutoshi Shigemitsu from KANTOOL and Atsushi Takada, Department Manager, Industrial Technology from KANSEI.

“KANTOOL provided us with such a warm reception and spirit of teamwork during our visit to Japan,” stated Chuck Hansen, Chairman of Electro Scan. “I hope that we returned the favor during their visit to California.”

“Japan’s population density presents a number of unique challenges,” says Mark Grabowski, VP Electro Scan. “It’s great to see their innovative solutions and how Electro Scan can easily address their pre- and post-CIPP assessment needs.”

A special thanks to Kenneth Kerri, from the Office of Water at California State University, Sacramento, for participating in discussions in Sacramento.

Vallejo Sanitation and Flood Control District Hosts International Visitors

Electro Scan thanks Managers, Supervisors, and Operators for hosting a day-long Electro Scan demonstration attended by leading experts from Tokyo and Yokohama, Japan.

Visiting dignitaries were given a first-hand look at the operating procedures and field production rates for surveying pre- and post-rehabilitated pipes:

Three pipes were surveyed, including Vitrified Clay Pipe, PVC, and CIPP lined pipe, with comparison to existing CCTV reports.

Special thanks to Melissa Morton, Andy Jannings, and Joy Frazelle from VSFCD and Thomas Johnson from WECO Industries, Electro Scan’s authorized dealer in Northern California.

Street Address
450 Ryder Street
Vallejo, California 94950
Tel: 707-644-8949

VSFCD Field Maintenance Building, Vallejo, California.
Electro Scan & Grout: A Winning Combination in O’Fallon, MO

The City of O’Fallon MO, one of St. Louis’ largest suburbs, prides itself on its proactive approach to pipe rehabilitation.

Located just 15 minutes west of Lambert Field/St. Louis International Airport and encompassing 29.69 square miles, the City of O’Fallon is home to both MasterCard’s Global Technology Center and SAK Construction, LLC.

Utilizing its in-house crews to operate their CCTV inspection truck, in addition to their own Test and Seal Chemical Grouting truck, their dexterity allows them to address small issues before they become large problems.

Like many agencies around the globe, they’ve found that Electro Scan gives them the ability to better prioritize their rehab and help determine the best method to rehabilitate sewers.

That’s why, in January 2014, the City of O’Fallon went out to bid for an ES-620 system, which was ultimately supplied by EJ Equipment (Manteno, IL).

Installed on their Grout Truck, the City of O’Fallon now uses Electro Scan to help rapidly decipher between pipes worth grouting, lining, or simply to be left alone; all in about 1/10 of the time it would have taken a traditional packer to complete joint pressure testing the same sewer main.

Certainly, faster production means that small issues never become large problems!

Leading Trenchless Supplier, LMK, Conducts Electro Scan Test

“It’s better for lining companies to make sure their product is watertight, first, instead of having the Owner find out for themselves, after the job is completed, that it’s not.”

Pete Dannenberg, Field Operations Supervisor

June 2014 (Above) Pete Dannenberg, formerly with LMK, pictured on-site at LMK’s headquarters in Ottawa, IL where Electro Scan technology was used to test LMK’s proprietary hydrostatic test tanks.

June 1, 2014 (Singapore) - Chuck Hansen, Chairman of Hansen Investment Holdings, LLC, and principal investor of Electro Scan Inc., wearing one of his distinctive Hawaiian shirts, addressed delegates at TechXchange to discuss his experience in deploying high technology products and services to the global water business.

Also, as an investor in several start-ups, Chuck participated as a judge/panelist, evaluating new company presentations.

Similar to America’s Shark Tank and Great Britain’s Dragon Den, distinguished panelists asked questions after company CEOs presented 7-minute snapshots of their company’s solutions.

Singapore International Water Week Features Electro Scan Investor, Chuck Hansen, as Keynote

June 2014

Singapore International Water Week

City of O’Fallon, MO
Infrastructure Profile
Population 80,000
Sewer Main (Miles) 195
WWTP Capacity (MGD) 11.25

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Electro Scan Attracts Record Crowds

May 5-9, 2014–München, Germany. Electro Scan attended its first IFAT Exposition taking the largest booth of any American company and attracting record crowds. During the exhibition, Electro Scan showed off its recently activated EU Demonstration Van, fresh from a tour through France, Belgium, The Netherlands, and Germany, where it also conducted a major benchmark for a leading European lining company.

North American Society for Trenchless Technologies Names Electro Scan ‘Best Innovative Product’ of 2013

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

INNOVATIVE PRODUCT AWARDS

NASST 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 Innovational Product Awards. This year, Electro Scan Inc. and HammerHead Trenchless Equipment were the recipients of this honor.

The award is given in memory of the late Joseph L. Abbott Jr., who was an active member of the society since its inception in 1990. Electro Scan Inc. and HammerHead were formally recognized at the Gas Doctor.

Electro Scan Inc. received the Rehabilitation Award for its Electro Scan ES-520 for Sewer Main technology. Using patent pending technology that measures the variation of electrical current inside pipes, electro scanning is now available to independently test and certify newly rehabiliated sewer mains and laterals as leak free. While CCTV 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 leaks and locate severely leaky pipes.
As more sewer & water utilities, service contractors, and professional engineers, become more familiar with the data accuracy, precision, and productivity improvements over legacy CCTV camera inspections, many are issuing specifications and tenders for stand-alone Electro Scan survey vans.

The mobile inspection van is different than Electro Scan’s usual demo trucks or vans used for pilot projects and demonstrations, as in they don’t feature a double keg and a kiosk used to support a busy exhibition schedule, among other custom features.

Stand-alone Electro Scan mobile inspection vans, available directly from Electro Scan Inc, are outfitted with modern mobile command centers including: customer defined cable and reel infrastructure, rear-mounted operator consoles, and WiFi connectivity. From any Electro Scan Van, anywhere on the globe, results are automatically transmitted to the company’s award-winning Critical Sewers® or Critical Water® cloud application.

Contact Mark Grabowski, Electro Scan, Vice President, at mark@electroscan.com to request a copy of our standard specification and customer options.

Mark’s Corner

Simulating Wet-Weather Conditions With Funnel Cones, Kites, Parachutes & Plugs

A key advantage of the Electro Scan technology—and the reason that it’s not “if” but “when” you will be getting it added to your TV truck—is its ability to assess sewer and stormwater pipes by simulating wet weather conditions. Since we typically CCTV in dry weather periods, i.e. when flow is the lowest, Electro Scan is the first tool that automatically tests a main for defects, not able to be seen by CCTV cameras.

When scanning water mains, the pipe is already full and in pressurized conditions. But, how do we temporarily simulate wet-weather conditions, without inadvertently flooding a customer’s lateral?

Electro Scan Adopts O&M Tools from the 1960s to Temporarily Surround Its Tethered Probe with Water

While CCTV camera still have their place in pipe asset inspection, we all know that finding leaks in sewer systems is outside the wheelhouse of visual-inspection technologies. Call or email me at mark@electroscan.com if you have any questions.

As more sewer & water utilities, service contractors, and professional engineers, become more familiar with the data accuracy, precision, and productivity improvements over legacy CCTV camera inspections, many are issuing specifications and tenders for stand-alone Electro Scan survey vans.

Electro Scan Releases Specification For Standalone Mobile Inspection Van

While 6” to 15” funnel cones are typically used for smaller diameter pipes, other devices like kites and plugs are recommended for larger diameter pipes to temporarily encompass a pipe to conduct electrical current to the pipe wall.
Mapping the Re-Structuring of the Pipe Condition Assessment Market

“Disruptive technologies don’t conquer their markets until they redefine their marketplace. When that happens, mastery of that new paradigm redefines industry leadership overnight.”

Lynara Shenkar
The Artemis Project

Building His Next $100 Million Tech Business

Just as Apple Computers hastened the demise of music CDs and Netflix has changed the landscape for renting movies, Electro Scan has begun the rapid re-structuring of the pipe condition assessment market.

Well on his way to building his next $100 million tech business — after selling his first one (Hansen Information Technologies) for $100 million — Chuck Hansen is reshaping how existing pipes are assessed and new CIPP lined pipes are accepted by their owners.

Impacting some of his old stomping grounds, namely asset management, geographic information systems, hydraulic models, and legacy sewer system evaluations surveys (SSES), big changes are already under way.

“Electro Scan is causing a tectonic shift [i.e. having a strong and widespread impact],” says Chuck Hansen. “Billions have been spent to create systems that currently store (asset management) and display (GIS) coverages that are either outdated, inaccurately cataloged, or simply wrong.”

“To effectively & efficiently prioritize assets that need rehabilitation and how projects are certified for acceptance, software code must be re-written to portray a whole new data set,” says industry veteran, Chuck Hansen.

“With any new technology, you will have people that lag behind the rest of the field — either they are too entrenched in the old way of doing things or just not comfortable in leading others. Not to worry, as they usually stick out like a sore thumb.”

Wanted: Field Techs & Evangelists

Bringing disruptive products to any market is not for everyone. Often resembling a cage fight in Mad Max or the Hunger Games, where two people go in and one comes out, innovators and their evangelists will never be popular with legacy product providers. No one wants to have their weaknesses pointed out in their existing product, let alone show their biggest customers that they often provide the wrong answers.

But, the takedown of giants is fun.

“Tech moves fast,” says Chuck Hansen, “and that’s why legacy suppliers and technology providers, using the same solutions for the past 10 years (or more), are having a difficult time competing and growing.”

Given our success in the wastewater collection business and new entry in the water distribution business, Electro Scan is looking for the next generation of staff that is able to rapidly build, deploy, and extend its reach.

Interested?

Email our CEO directly at chuck@electroscan.com to find out if your talents would be useful in helping us build a suite of new products to serve the next generation community of pipe condition assessment professionals.

New technology from Electro Scan Inc., that does not rely on visual observations and is easier & faster to operate, is displacing legacy pipe condition assessment systems. By finding defects missed by others or incorrectly cataloged, Electro Scan can save billions by selecting the right pipes to fix. And, once repaired, will last.

“People Chuck likes most to work with.”

Chuck Hansen, Entrepreneur and Chief Experience Officer.

Adding Electro Scan To Your Utility Is Easy.
The pipe wall. "If a pipe has no cracks, broken joints, or defective service connections, not typically seen by high resolution CCTV cameras, there will be no electrical reading as it attempts to close its circuit and return to its grounding source. But, if there is the slightest opening, fracture, or crack, Electro Scan's international patent-pending technology will register the Start, End, and Defect Current Height to precisely measure its location and estimated defect flow, often generating from 12,000 to 20,000 data points," states Chuck Hansen, Chairman, Electro Scan Inc.

**Acoustic Surveys That 'Listen' for Water Leaks Are Becoming a Thing of the Past**

Record drought, declining groundwater levels, and global warming are causing major sources of drinking water to disappear at a rapid pace. Yet, many water utilities continue to experience additional water losses with leakage rates ranging from 15-50% of their available supply.

"It may be time to take a closer look at AWWA M36," says Chuck Hansen, former asset management supplier and member of AWWA. "It was good for AWWA to tell its members to forget about using percentages to describe its water losses; instead, to calculate volumes of water losses and the financial cost of loss reduction strategies. While you can't manage what you can't measure, you also can't measure what you can't find. But, now there is Electro Scan for Water."

**ESTIMATED DEFECT FLOW**
66in (1675mm) HDPE Spiral Wound Pipe
- 61.3 gpm or 3.87 lps

15in (400mm) Clay Pipe
- 9.4 gpm or 0.59 lps

* GPM and LPS calculation assumes a 1ft water head and 1% pipe gradient with ±40% accuracy.

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He's At It Again! Find Out How Chuck Hansen Is Overhauling the Pipeline Assessment Market

**'Like Us' On Facebook**
+10,000 & Growing

www.electroscan.com