

Bristol Town Administrator

From: Jill Marsano <jill@vtums.com>
Sent: Thursday, March 16, 2023 3:42 PM
To: Bristol Town Administrator
Cc: Bristol Clerk; Treasurer; Cyrus Marsano
Subject: Leak Detection Scheduled for April 10-13, 2023

Valerie,

We are able to book the leak detection with Allan's firm for the week of April 10th (the wait is for the snow to melt). A portion of this work may occur in the night hours in certain high traffic areas. Allan anticipates completing the macro portion of the inspection on Monday and the deeper level micro details Tuesday and Wednesday. This will give us the detail we need to perform the highest-level priority leak repairs first.

Jill Marsano
Owner/President
VTUMS Vermont Utility Management Services, LLC

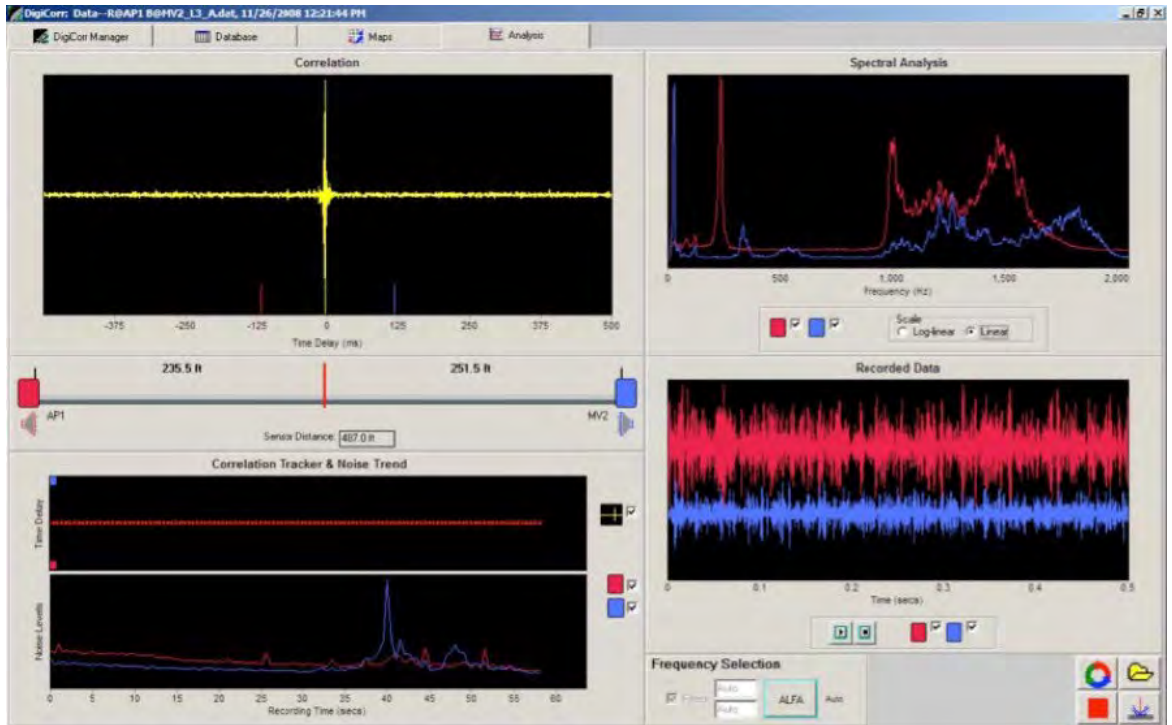
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Vital Services
365 Boston Post Rd, #145
Sudbury, MA 01776
Tel: +1 (978) 793-2104
email: info@vitalleakdetection.com
Website: www.vitalleakdetection.com

LEAK DETECTION SURVEY PROPOSAL



OUR GOAL IS TO CONSERVE RESOURCES AND SAVE YOU MONEY



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Quote

Customer Name:

Address:

City:

State:

Zip Code:

Company Contact:

Date:

Quote No:

Valid Until:

Description	Miles	Days	Cost
<p>Comprehensive Leak Survey Details:</p> <p>The survey will utilize state of the art digital leak detection equipment including digital correlators and correlating loggers; and digital ground and contact microphones.</p> <p style="text-align: center;">***</p> <p>The survey will be conducted by a Senior Field Engineer with over 25 years experience surveying towns and cities of various sizes throughout the U.S.</p> <p style="text-align: center;">***</p> <p>A detailed survey report will be issued at the end of the survey specifying the location of all pinpointed leaks and estimating loss rate.</p> <p style="text-align: center;">***</p> <p>References given in the following proposal.</p>			

If you have any questions regarding this quote, please contact:
 Allan Williams at (978) 793-2104 or allan@vitalleakdetection.com

Firm Background

- Vital Leak Detection has over twenty-five years' experience in providing advanced digital leak detection services.
- The proposed surveyor has specialized exclusively in leak detection since 1995.
- All work conforms to industry best practices.
- Good communication is valued and our reporting is clear and comprehensive.
- This proposal constitutes a considered, realistic proposition for a thorough survey, and aims to offer the best return on your investment.
- Professional and customer letters of recommendation with contact details are given in Appendix B.

Personnel & Qualifications

Allan Williams - Surveyor

- American equivalent Bachelors' Degree in Electronic Engineering;
- Senior Field Engineer and tester for Flow Matrix, Inc., (The original developers and patentees of digital leak detection technology and methods);
- Over 25 years' experience surveying municipal water distribution systems, condominium complexes, mobile home parks, pipelines and installations of various sizes across the United States.

Methodology

- Deployment of our equipment is determined by individual circumstances. Conditions including surface type, pipe material and diameter, soil type and depth, system pressure and ambient noise are systematically taken into account when selecting tools and determining listening points and intervals.
- During the initial phase, high-sensitivity ground and contact microphones are used to detect possible leakage. The list of possible leak sites generated by the initial phase is then re-checked to rule out usage or other non-leak sounds.
- For pinpointing, a digital correlator and/or multiple digital correlating loggers are deployed, as circumstances dictate. Exceptionally noisy locations may be resolved by overnight correlative logging.
- Ground microphones are used to confirm results wherever possible. If ground microphony is not possible in a given situation or considered unreliable, for example where pipes are buried very deeply in a sand or gravel bed, in-depth analysis of digital data can be used to provide optimal results.

Listening Distances

Although digital equipment generally has a longer reach than analog equipment, the "rule-of-thumb" distance table, created for analog equipment is adopted as a starting point:

Pipe Material and Diameter	Distance Sounds Travel for 2 GPM Leak at 60 PSI
Cast Iron Pipe (6-inch)	600 to 1000 feet
Cast Iron Pipe (12-inch)	400 to 800 feet
Cast Iron Pipe (24-inch)	200 to 400 feet
AC Pipe (6-inch)	400 to 800 feet
AC Pipe (12-inch)	300 to 500 feet
AC Pipe (24-inch)	100 to 300 feet
PVC Pipe (6-inch)	200 to 300 feet
PVC Pipe (12-inch)	100 to 200 feet
PVC Pipe (24-inch)	50 to 100 feet

These distances are modified by many factors, for example soil characteristics, pressure, type of joints, gaskets, etc..

Because so many factors can affect sound amortization in the pipe, pipes can vary widely in their sound carrying characteristics. Many of the affecting factors are not quantifiable, so if there is any doubt regarding sound travel, the pipe section in question is tested for sound propagation.

This is done by simulating a small leak, for example using a slightly opened hydrant or attaching a mild, vibrating device to the pipe, hydrant or other fitting, then observing how far this simulated small leak sound travels reliably.

If sound propagation is found to be poor, suitable measures are adopted to ensure complete coverage. These may include: shortening listening distances, using available valves and curb-stops; and/or ground microphany; or by surveying at night, when ambient noise and traffic vibration is lowest and pressure is highest. Data loggers can be a valuable aid in difficult situations, providing useful information that can highlight or eliminate sections for further scrutiny.

Equipment

Vital Leak Detection uses the following modern, high-resolution equipment:

- Digital contact microphones;
- Digital ground microphones;
- Digital leak correlators with leak management software;
- Digital correlating loggers with leak management software;
- Various ancillary equipment

Genuine digital equipment has many advantages over equipment using analog components, including: higher sensitivity, longer reach, better accuracy, and simultaneous pinpointing of multiple leaks.

These advantages translate into benefits to the water company, including: Faster, more efficient surveys, better results and more savings.

Communication and Reporting

The company maintains good contact and communications with utility personnel, whilst minimizing the impact of the survey on the utility's work schedule and available manpower. Generally, only part-time assistance is needed from one utility employee with a good knowledge of the system.

All leaks found are reported daily, or immediately in the case of large or potentially dangerous leaks. At the conclusion of the survey, a comprehensive report is provided, detailing all leakage. The report includes:

- A unique leak identifier;
- Street address of the leak;
- GPS coordinates;
- Photo of the leak site with leak position marked and notated;
- Source type;
- Pipe information;
- Ground cover;
- Estimated loss rate;
- Table of leakage by source; and
- Table of estimated annualized loses.

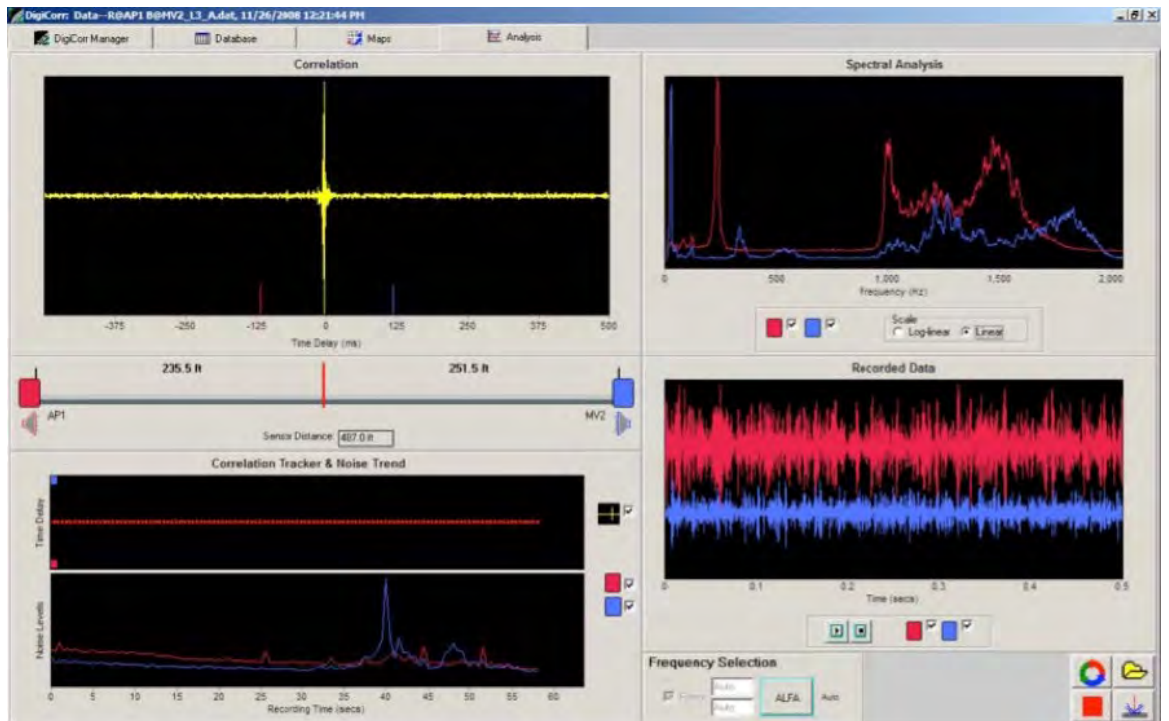
APPENDIX A
Example Survey Report



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LEAK DETECTION SURVEY REPORT

Example



OUR GOAL IS TO CONSERVE RESOURCES AND SAVE YOU MONEY

Leak Detection Survey Report

(Anytown, ME - May 2015)

The Survey Company

Vital Leak Detection is a company with over twenty years' experience in providing advanced digital leak detection services. The surveyor has specialized exclusively in leak detection since 1995.

He can be contacted at:

(978) 793-2104, and at
allan@vitalleakdetection.com

Equipment and Methods Used

Vital Leak Detection utilizes the following modern, high-resolution equipment:

- Digital contact microphones;
- Digital ground microphones;
- Digital leak correlators and software;
- Digital correlating loggers and software;
- Various ancillary equipment

The survey was performed following Industry best practices. It comprised an initial survey, followed by a pinpointing phase. Our goal was to enable unrivaled reduction in water losses for the customer.

Survey Procedure

During the initial phase, high-sensitivity ground and contact microphones were used throughout the system, to detect possible leakage.

During the pinpointing phase, a digital correlator and/or multiple digital correlating loggers were deployed as circumstances dictated.

Ground microphones were then used to confirm the correlation results. The final marking of each leak site was made after consideration of all available information.

The Survey Area

The Town of Anytown, ME, water distribution system has approximately twenty miles of distribution main piping, together with associated fire hydrants, valves, service lines and ancillary fittings.

Infrastructure & Survey Conditions

The infrastructure is old and many parts of the town have worsening problems of leakage. The geology of the area on which the town sits is predominantly gravel bed. Drainage is excellent and leaks almost never surface. Due to the harsh winters that the area can undergo, the distribution mains are generally buried very deeply. In certain of these cases, ground microphony proved unsuccessful. However, the digital correlation equipment used has provided perfectly accurate results.

Survey Results

Thirteen leaks were identified and pinpointed. Estimated combined loss rate for all leakage is 104 gals/min. The estimated annual saving following repair of this leakage is \$53,500 in variable operating costs or \$200,000 in total real costs to the community.

A list of all leaks is given below and includes volume of leakage by source and estimated annualized losses.

The cost estimates were calculated using the EPA, AWWA and IWA average costs figures published in 2011 of \$0.98 per Kgal (Variable Operating Costs) and \$3.67 per Kgal Total Real Costs).

Costs do vary by water system but it is hoped that this estimate will assist in prioritization of repairs.

A detailed report for each leak can be found on the pages following the leak list.

Leak List

Leak #	Address	Source	Loss (gpm)	Pipe Material	Cover	Map #
1	140 Birch Street	Main	30	Galvanized	Asphalt	H4
2	38 Hillcrest Street	Service	5	Galvanized	Concrete	D8
3	Intersection of Hayler and Pleasant	Valve 133	3	Cast	Asphalt	D6
4	35 Cedar Street	Main - T	10	Cast	Asphalt	D5
5	20 Pine View	Hydrant 58	2	Galvanized	Turf	C7
6	Commerce Drive	Hydrant 42	2	Ductile	Turf	D2
7	75 East Bennett Street	Main	10	Cast	Asphalt	B9
8	42 Washington Street	Valve 35	3	Ductile	Asphalt	C5
9	81 Washington Street	Main	7	Cast	Asphalt	C2
10	84 Washington Street	Main	10	Cast	Asphalt	C3
11	Baseball Park, West Street	Main	5	Cast	Asphalt	C3
12	68 West Street	Main	7	Cast	Asphalt	C3
13	16 Main Street	Main	10	Cast	Asphalt	C7
Total Losses			104			

Volume of Leakage Attributed to Sources				
Source	Number	Est. Leakage	% of Number of Leaks	% Leakage
Main	8	89.0	62%	86%
Corporation	0	0.0	0%	0%
Service	1	5.0	8%	5%
Hydrant	2	4.0	15%	4%
Valve	2	6.0	15%	5.77%
Curb Stop	0	0.0	0%	0%
(Total)	13	104	100%	100%

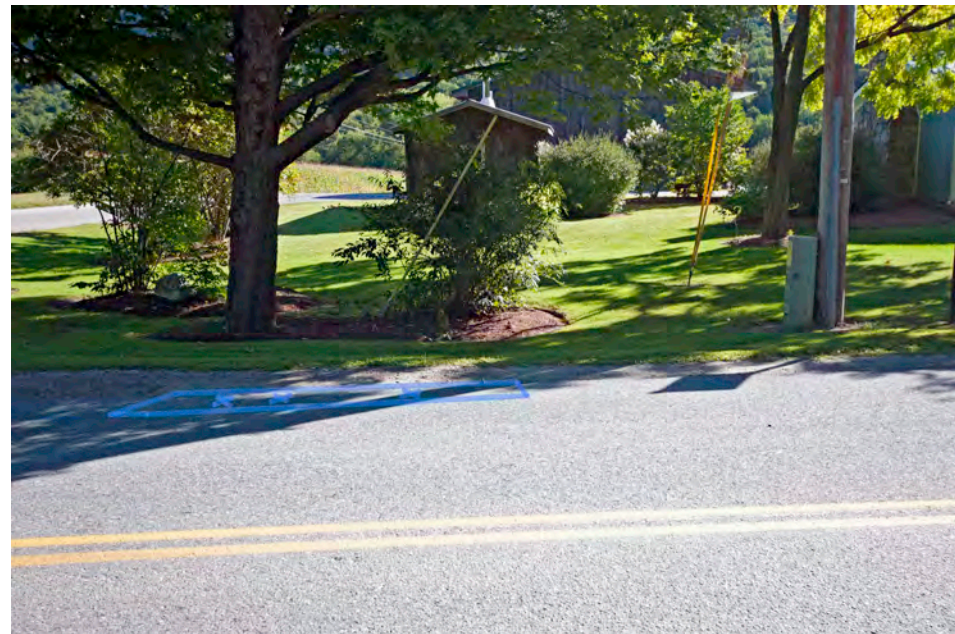
Annualized Losses					
Source	Est. Leakage (gals/min)	gals/day	Kgals/Year	Prod Cost	Capital Cost
Main	89.0	128,160	46,778	45,842.83	\$171,677
Corporation	0.0	-	-	-	\$0
Service	5.0	7,200	2,628	2,575.44	\$9,645
Hydrant	4.0	5,760	2,102	2,060.35	\$7,716
Valve	6.0	8,640	3,154	3,090.53	\$11,574
Curb Stop	0.0	-	-	-	\$0
Total	104.0	149,760	54,662	53,569	\$200,611



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Individual Leak Report

Client Name	Client Address		
Survey Area	Survey Date		Leak #
Leak Address			
GPS	Ref. Point		Map #
Leak Category	Pipe Material		Diameter
Cover	Loss Rate		Status
Remarks			



APPENDIX B

Letters of Reference (Professional and Customer)

Letter of Professional Recommendation

CONSERVATION TECHNOLOGIES, INC.

P.O. BOX 384, SEEKONK, MA 02771 (508) 212-7684

Sept 12, 2017

To Whom It May Concern:

I am pleased to provide a professional reference for Mr. Allan Williams. He was employed as Senior Field Service Engineer in my leak detection services consultancy between February 2009 and March 2011, and I have known him through professional contact since 2003.

Mr. Williams came to his employment with my company with excellent qualifications. He had over 15 years experience in the field of water leak detection at that time. He has thorough and practical knowledge of the latest digital leak sound processing equipment. He particularly excels at difficult or unusual field applications of digital correlation equipment.

Mr. Williams has demonstrated proficiency in all aspects of the operation and management of a water conservation consulting enterprise. He was an asset to my company and continues to be an asset to our industry.

Sincerely,

A handwritten signature in black ink, appearing to read "Jack Luizzi", written in a cursive style.

Jack Luizzi
President CTI

Letters of Customer Recommendation



August 24, 2017

To Whom It May Concern:

I am writing to recommend, without reservation, the services of Vital Leak Detection. I first engaged the services of Mr. Allan Williams in 2003 and in the years since, all of my dealings with his firm have been positive and of great benefit to the company and myself.

Vital Leak Detection is exemplary in the field of Leak Detection. We have utilized Mr. Williams for both emergency and scheduled leak detection services.

I am confident that engaging Vital Leak Detection is a decision you will not regret. Please do not hesitate to contact me if you would like further information.

Yours truly,

Shawn Meunier

Shawn Meunier
Devens Project Manager

shawn.meunier@suez.com



Since 1986

Thursday, September 14, 2017

To whom it may concern,

My Company has been doing business with Allan Williams of Vital Leak Detection since 2005. I own a heavy civil company that performs all phases of site work and road building work including the installation of underground utilities. My company has been in business for over 30 years. Any utility company that has installed any large quantity of water main has at one time or another dealt with water leaks on new installations. Whether it be from a manufacturers defect or from a mistake made during the installation process, water leaks can be extremely difficult and expensive to locate. Fortunately, I have not had to use the services of Vital Leak Detection very often, but the times when I've needed to locate a leak, even the smallest drip or weep, Allan has come through every time with 100% success. Every time I've had to use Vital Leak Detection, I'm amazed at the accuracy that Allan is able to pin point the problem area. I would highly recommend using the leak detection services of Vital Leak Detection to any contractor, municipality, or commercial property owner that is looking to solve any type of underground water main/service leaks.

Michael N. Opachinski

Vice President

Phone: 508-866-9061 (ext.26)

mikeo@sltconstruction.net



Naval Station Newport

Friday, April 24, 2015

To whom it may concern,

I've known and worked with Allan Williams on several leak detection projects here at Naval Station, Newport. Allan's company has always demonstrated to be professional and thorough on all leak detection projects we've worked on together. Allan's tireless dedication in locating and finding leaks has saved the government 1000's of dollars. The reports I receive from Allan are thorough and clearly outline where the leaks are. Making it easy for the excavation crew to locate. I highly recommend Allan Williams and Vital Leak Detection for any leak detection project.

VR, Brian Simmons
Naval station Newport
Mechanical Engineering Utilities Division
Public Works

Tel: 401-405-7078

TASCON CORPORATION
P.O. BOX 850527
BRAintree, MA 02185

May 1, 2014

To Whom it may concern:

Tascon Corporation of Braintree, MA. has used Allan Williams of Vital Leak Detection on many of our underground water main breaks over the past several years.

We find Mr. Williams to be an outstanding contractor who has saved us many hours of unnecessary excavation work with his almost perfect leak detecting system.

I would highly recommend Vital Leak Detection to any of my associates.

Respectfully,

Jack Tassinari

(President of Tascon Corporation)

Tel: (781) 760-0058