

The Conduit

Volume 6, Issue 1
January 2009



NEWS & VIEWS OF
ELECTRICAL INSTALLATIONS, INC.

FEATURED PROJECT OF THE MONTH

Augusta Sanitary District's 2008 Water System Improvements

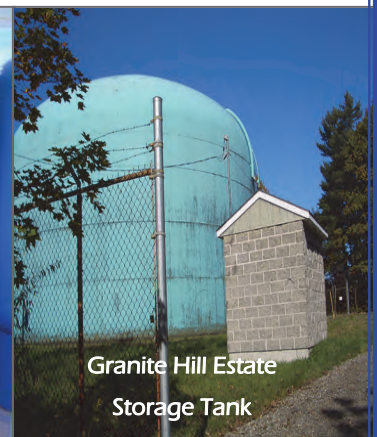
The Greater Augusta Utility District, in Augusta, Maine has contracted with Electrical Installations Inc. to improve and upgrade telemetry and instrumentation at their Pineland Booster Station, Granite Hill Estate Storage Tank, Western Booster Station, North Augusta Storage Tanks and Booster Station, Riverside Drive and Malta Tanks, and Winthrop Storage Tanks. The Greater Augusta Utility District now comprises both their Water and Wastewater Divisions with their drinking water coming from 5 possible ground water sources. Electrical Installations has enjoyed a long-standing relationship with the Augusta Sanitary District, working together for many years on Plant and SCADA improvement projects. We are pleased to be able to, once again, assist in the design and integration of Augusta's growing system.



North Augusta Storage Tank



Western Booster Station



Granite Hill Estate
Storage Tank



Happy New Year
2009



EMPLOYEE SPOTLIGHT



Happy Birthday!



- 1/5 Keisha Baker
- 1/13 Wayne Wickens
- 1/18 Cory Glines

Once again, Electrical Installations is proud to have supported the following organizations with Christmas donations: The Salvations Army, St. Vincent de Paul, Cash-N-Cans, Meals on Wheels, Community Health & Hospice, David's House, Twin Rivers Interfaith Food Pantry, Habitat for Humanity, Community Caregivers, UMCOR, Carroll County Health & Home Care Services, Center Harbor Food Pantry and others. We were unable to contribute as much as in past years but we trust our donations will be put to good use.



Darlene is pictured with MIX 94.1FM morning DJ Fred Caruso while presenting El's annual Christmas donation to the station's Cash-N-Cans drive.



Anniversaries

- Tom Therrien 12 years
- Mike Leary 10 years

El's Annual Christmas Party



CHARLIE'S QUALITY CORNER

OUR REASON FOR BEING

As we enter into 2009 we need to remember why our customers hire us. In a word, SERVICE. It may be a cliché but it is important to treat all our customers with courtesy and respect. The customer may not always be right but they are our "Reason for Being".

Number of hours worked without a "Lost Time" injury



363,432



FACTOID OF THE MONTH:

Traditional New Year foods are thought to bring luck. Many cultures believe that anything in the shape of a ring is good luck, because it symbolizes "coming full circle," completing a year's cycle. For that reason, the Dutch believe that eating donuts on New Year's Day will bring good fortune.



The Conduit

Volume 6, Issue 2
February 2009

NEWS & VIEWS OF
ELECTRICAL INSTALLATIONS, INC.



Featured Projects of the Month



Franklin, New Hampshire—Pumping Station Electrical Upgrade at Acme Well

The City of Franklin, New Hampshire has awarded Electrical Installations, Inc. the electrical contract for electrical improvements to the Acme Well Pump Station, engineered by SMR Engineering, PC.

This upgrade includes service entrance work, the supply and installation of a new Motor Control Center with an Automatic Transfer Switch, a 250 kw Generator, and underground work. It is our pleasure to again work with the City of Franklin's municipal services director, Brian J. Sullivan and assistant, George H. Turcotte, Jr.

Hull, MA at Nantasket Beach

Under contract with Fall River Electrical Associates Co., Inc. and managed by our South Shore Office's Mike Leary, we have once again secured a contract to Upgrade a SCADA system along the south shore of Massachusetts's Atlantic Coast.

This Hull, Massachusetts project is engineered by Tighe and Bond of Westfield, Massachusetts.

Work at Hull includes the supply and integration of *Programmable Logic Control (PLC)* through an Electrical Installations, Inc., UL listed, manufactured control panel.



Happy Valentines Day



EMPLOYEE SPOTLIGHT



Happy Birthday!



- 2/4 Tom Therrien
- 2/19 Sandra Ringelstein
- 2/19 Bryan Payne

February Anniversaries
Shane Atkinson 3 years

El Welcomes New Electrician



Mike Zompanti has been in the electrical field for 20 years as a commercial/industrial electrician. He and his wife Kellie, have a 10-year-old son, Cody. Mike has been racing karts with his son for about 4 years and they will be going into their 5th season at Race Park 106. Mike enjoys working on the karts, four wheeling and spending time with his family at his Lake house in Ossipee.

Annual Supervisors Meeting & Safety Training Friday, March 27, 2009



8:00AM – 3:00PM (lunch included)

All supervisory employees are requested to adjust their schedules in order to attend El's Annual Supervisors Meeting. In the year since our last meeting economic conditions have adversely impacted our industry in a multitude of ways. The focus of our meeting will be strategies and methods of maintaining profitability during the current economic downturn. With safety our #1 priority, the afternoon will be devoted to CPR and First Aid certification update training. All El vehicles will be inspected while the meeting is in progress. Please notify Eva in advance if your truck will require any scheduled maintenance.

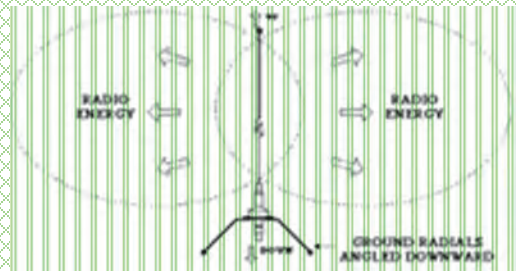
ANTENNA FACTS

OMNI-DIRECTIONAL ANTENNAS

Defined by Wikipedia.org

An **omni-directional antenna** is an antenna system which radiates power uniformly in one plane with a directive pattern shape in a perpendicular plane. "This pattern is often described as "donut shaped".

The only 3 dimensional omni-directional antenna is the unity gain isotropic antenna, a theoretical construct derived from actual antenna radiation patterns and used as a reference for specifying antenna gain and radio system effective radiated power." Antenna gain (G) is defined as antenna efficiency (e) multiplied by antenna directivity (D) which is expressed mathematically as: $G = eD$.



NUMBER OF HOURS WORKED WITHOUT A "LOST TIME" INJURY



388,157



FACTOID OF THE MONTH:

The first PLC was developed in Massachusetts by Dick "The father of the PLC" Morley, of Bedford Associates in response to the automotive industries (GM) request to replace hard wired relay systems. This 'Modicon' system, or Modular Digital Controller, was later sold to Gould Electronics, then acquired by the German Co., AEG and is now owned by the French Company, Schneider Electric.



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Volume 6, Issue 3
March 2009

NEWS & VIEWS OF ELECTRICAL INSTALLATIONS, INC.

Featured Project :

Lewiston-Auburn Water Pollution Control Authority

Wastewater Treatment Facility—Disinfection, Sludge Pumping and Electrical Upgrade



Under contract with our GC neighbors to the north, Penta Corporation, Electrical Installations, Inc. is pleased to once again be working at the Lewiston-Auburn Water Pollution Control Authority in Lewiston, Maine. L.A.W.P.C.A.'s current project consists of the construction of new chlorination system facilities with modifications to their existing chlorination rooms, heating, ventilation, lighting, instrumentation and electrical supply. The project includes the construction of a new electrical room with power, control and instrumentation additions. Installation of new return sludge pumps, motors, variable frequency drives and the replacement of existing raw activated sludge flow meters are some of the many upgrades included. A new instrumentation panel and PLC will be incorporated into their existing SCADA system.

Bi-monthly News and Views!

Beginning with April's edition, the conduit will be a bi-monthly publication!

Number of Hours Without a Lost Time Injury

393,165



EMPLOYEE SPOTLIGHT



Happy Birthday!



- 3/4 Anne Riordan**
- 3/5 Ryan Pothier**
- 3/10 Eva Fritz**

Anniversaries

Matt Blood 5 Years



ANNUAL MANAGEMENT MEETING

FRIDAY, MARCH 27, 2009

8:00 AM—3 PM

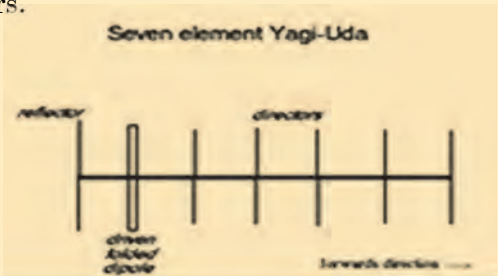
With an ever slowing economy, our emphasis will be on cost saving measures with the afternoon focused on safety.

As in years past, we look forward to a productive and informative day.



Yagi Antennas

A Yagi antenna, correctly known as a Yagi-Uda is a unidirectional antenna, commonly used in communications. The Yagi-Uda antenna was invented in 1926 by Shintaro Uda of Tohoku Imperial University, Sendai, Japan. Udo collaborated with Hidetsugu Yagi, also at Tohoku Imperial University. Although not widely known about by Japanese engineers of the time the Yagi-Uda was widely used during WWII by others because of its simplicity and gain. The Yagi-Uda antenna consists of a reflector and a close array of elements in front of a dipole driven element. A Yagi antenna is used in UHF/VHF frequencies and is often used by amateur ham operators. The Yagi propagates the energy field from the driven element out toward the directors.



CHARLIE'S QUALITY CORNER

IT'S NOT EXPLOSION-PROOF UNLESS IT'S INSTALLED PROPERLY

Too often I see explosion-proof wiring that looks good but is not really functional. We should never, never energize an explosion-proof wiring system unless all the seals are properly made and poured and all the covers, threads, and fittings are done according to manufacturer's specifications. Remember: clearances over covers and threads are vital in order to allow hot gases to escape. Never apply gaskets, thread sealant, or any other coating not specifically listed for the purpose on any classified wiring system.

FACTOID OF THE MONTH:



Daylight Saving Time was first instituted during WWI to save energy for war production and again during WWII. The uniform time act was instituted by Congress in 1966. Don't forget to turn your clocks ahead on March 8th.

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Volume 6, Issue 4
April, May & June 2009

NEWS & VIEWS OF ELECTRICAL INSTALLATIONS, INC.

FEATURED PROJECT OF THE MONTH

Upgrade to The Surfside Wastewater Treatment Facility Nantucket, Massachusetts



Electrical Installations, Inc.'s Jim Fritz and Cory Glines have been booking frequent travel via ferry to Nantucket Island, Massachusetts. Jim and Cory are working on the completion of the Surfside Wastewater Treatment Facility Upgrades. This 39 million dollar upgrade, engineered by Earth Tech, includes the addition of a 3.5 MGD Membrane Bioreactor Wastewater Treatment Facility and modifications to 10 existing filtration basins and the addition of new rapid filtration basins.

Under contract with Carlin Contracting of Milford, CT, EI has supplied major instrumentation including Flow and Level Instruments, EI-manufactured Control Panels and Remote Terminal Units, Fiber Optics, SCADA Graphics and Programming. Cory Glines is pictured completing WINN 911 Software and SCADA graphics.



Editor's Note: In order to facilitate the conversion of *The Conduit* to a bi-monthly publication, this issue represents April news as well as May and June.

Memorial Day is one of EI's recognized holidays.



Please take time to remember those who have fallen in service to our country.

EMPLOYEE SPOTLIGHT



Happy Birthday!



- 4/22 Peter Fox**
- 4/30 Brian Chevrette**
- 6/2 Mike Zompanti**
- 6/8 Shane Atkinson**

<i>Anniversaries</i>	
<i>Wayne Wickens</i>	<i>8 Years</i>
<i>Tom Brosious</i>	<i>5 Years</i>
<i>Cory Glines</i>	<i>4 Years</i>
<i>Bryan Payne</i>	<i>4 Years</i>
<i>Mike Merrill</i>	<i>3 Years</i>
<i>Eva Fritz</i>	<i>3 Years</i>
<i>Casey Damon</i>	<i>2 Years</i>

Remember Mom on May 10th!

El Welcomes New Office Manager

Anne Riordan comes to us from Wolfeboro. She is happily married with two children, an 18-year-old daughter and a 15-year-old son. Anne has an IT background in Training and Project Management; she also has accounting experience. She is returning to work after taking time as a “stay at home mom”. She formerly worked at Ernst & Young, LLC in Boston, and Enterasys Networks, Inc. in Portsmouth and Rochester. When Anne isn’t working she enjoys the outdoors with her family. She loves horseback riding, hiking, skiing, boating and swimming. Anne also enjoys her animals; she has two cats, three labs, and a 2 year old Paint Horse in training. Welcome to EI Anne!



New Apprentice Joins EI

Dan Ronan is EI’s newest apprentice and is working with Chuck Fritz. Dan graduated from NHCTC Laconia, and lives in Derry NH. He has a love for the outdoors; many of his favorite activities include snowboarding, mountain biking, hockey, and hiking in the white mountains!



FACTOID OF THE MONTH:

Mother’s Day got its start when Anna Jarvis of Philadelphia, wanted to find a way to honor her deceased mother. She began a letter-writing campaign to create a Mother’s Day observance and in 1914 the US Congress passed legislation designating the second Sunday in May as Mother’s Day!



Celebrate Dad on June 21st!



Number of hours worked
without a "Lost Time" injury
404,084



The Conduit

Volume 6, Issue 6
July & August 2009

NEWS & VIEWS OF ELECTRICAL INSTALLATIONS, INC.

Manchester School Of Technology PLC Class

Jim and Chuck Fritz recently taught a class at the Manchester School of Technology. This was the second year that Chuck has conducted a PLC class at MST. The young adults that are enrolled in the class are juniors and seniors handpicked from all the Manchester, Hooksett, Auburn, Londonderry and Goffstown High Schools. The class is a 2.5 hour electrical class and 85% of the participants go on to the Technical Institute for more electrical classes! For more information visit their website:

<http://www.mansd.org/mst/pages/programs.html>



MWWA Training Session

Charlie Fritz was recently invited to conduct a training session for the Massachusetts Water Works Association (MWWA). On June 9th Charlie conducted *SCADA System, Instrumentation & Analyzer Maintenance* training in Gardner, MA. The MWWA training day also included a tour of the Gardner, MA Water Treatment Plant.

Ryan Kelly, Answering the Call of Duty

Ryan Kelly, apprentice electrician and active member of the National Guard, will depart for Germany on July 10th for three weeks of National Guard training. We commend you for your service, Ryan, and look forward to your safe return.

HAPPY 4TH OF JULY

The office will be closed Friday July 3rd for the Holiday

EMPLOYEE SPOTLIGHT

Happy Birthday!



- 7/1 Jimmy Fritz**
- 7/2 Jake Daku**
- 7/7 Wendy McNaughton**
- 7/9 Darlene Chevrette**
- 7/28 Charlie Fritz**
- 8/11 Andy Fritz**
- 8/26 Zack Fritz**

Anniversaries

<i>Brian Chevrette</i>	<i>13 years</i>
<i>Neil Davis</i>	<i>13 years</i>
<i>Darlene Chevrette</i>	<i>13 years</i>
<i>Ryan Pothier</i>	<i>4 years</i>
<i>Keisha Baker</i>	<i>1 year</i>
<i>Wendy McNaughton</i>	<i>1 year</i>

Upcoming Projects



- Conway, NH PS—Apex Construction
- Hillsborough, NH WTP—ICC
- Intervale, NH PS—Apex Construction
- Leominster, MA WTP—Veolia Water
- Limestone, ME WWTP—Penta Corp.
- North Smithfield, RI—Fall River Electrical
- Plymouth, MA WTP—Waterline Industries
- Portsmouth, NH WTP—Penta Corp.
- South Paris, ME WTP—Apex Construction
- Waterboro, ME PS—Apex Construction
- Wellfleet, MA WTP—Robert B. Our Co.

CHARLIE'S QUALITY CORNER

We install a great deal of radio telemetry systems. Some common mistakes I see are:

Antenna conduit too small — We need to keep a wide bending radius on coaxial cable. Any kink, no matter how small, causes poor results.

Low points in antenna conduit — We must avoid low points which collect water and may freeze. The cable impedance is the ratio of the inner conductor diameter to the outer conductor diameter. Any squeezing or cable distortion causes poor results. All conduit systems must be arranged to drain.

Factoid of the Month



Fireworks were made in China as early as the 11th century. The Chinese used their pyrotechnic mixtures for war rockets and explosives.



Number of hours worked without a "Lost Time" injury

414,715



The Conduit

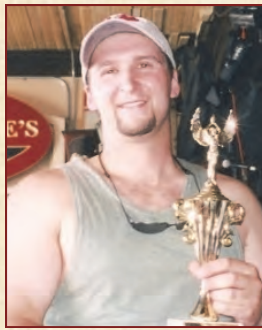
Volume 6, Issue 9
September & October 2009

NEWS & VIEWS OF
ELECTRICAL INSTALLATIONS, INC.



CELEBRATING 22 AMAZING YEARS

Its hard to believe that October 5, 2009 will mark Electrical Installations' 22nd anniversary. We have evolved from a fledgling industrial electrical contractor to a dominant force in the instrumentation and controls market for the water and wastewater treatment industry. The journey hasn't always been easy but we are blessed to have so many dedicated employees who have ensured our success along the way. We are grateful for your commitment and your friendship and we look forward to even greater successes in the future.



EMPLOYEE SPOTLIGHT



Happy Birthday!

- 9/9 Chuck Fritz
- 9/14 Casey Damon
- 9/15 Matt Blood
- 9/17 Jim Fritz
- 10/28 Darlene Fritz



Anniversaries

- CHARLIE FRITZ 22 YEARS
- DARLENE FRITZ 22 YEARS
- CHUCK FRITZ 22 YEARS
- JIM FRITZ 22 YEARS
- JAKE DAKU 15 YEARS
- KIM SOUZA 1 YEAR



Happy Labor Day!

Number of hours worked
without a "Lost Time" Injury  425,720

CHARLIE'S QUALITY CORNER

Identification and Marking, a reminder

Color coding of power conductors and marking of control conductors is good practice and an NEC requirement.

Generally, 480/277 three phase conductors are marked: phase A Brown, phase B Orange, phase C Yellow (BOY), with the neutral gray or white. 208/120 three phase conductors are marked: phase A Black, phase B Red, phase C Blue, with the neutral white. Note that the code requirement for identifying phase conductors was removed from the NEC in the 70's but it is still common and good practice.

Ground is always green or green with a yellow stripe. Remember that ground conductors #6 awg and smaller must be green their entire length and that color code tape is a code violation.

Welcome Back DARRIN LAKUS

Past employee, Darrin Lakus, has returned to EI, once again, as a Vermont apprentice electrician. An active member of the National Guard, Darrin is scheduled to depart for yet another tour of duty in Iraq this December so, unfortunately, his time with us will be short.

SCHOOL IS BACK



**Be alert
for
school-
children
while
driving!**

Factoid of the Month



Halloween is second only to Christmas in spending. Consumers will spend over \$2.5 Billion during Halloween. That's a whole lot of candy, costumes, decorations, and party goods.

The Conduit

Volume 6, Issue 8
November & December 2009

NEWS & VIEWS OF ELECTRICAL INSTALLATIONS, INC.

A Time to be Thankful

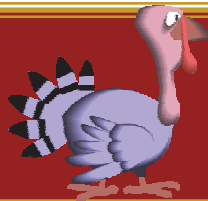
During these difficult economic times we find that Thanksgiving is made especially meaningful. As an employer, we are troubled by the news stories of layoffs, cutbacks and soaring unemployment. We have so many who depend on the stability and continued profitability of our firm and that responsibility influences every decision we make. All of us have so much for which to be thankful and the news stories serve as a reminder of just how fortunate we are. Electrical Installations' success is attributable to many factors but none is more vital than the continued loyalty, proficiency, and dedication of our employees. For you, we give thanks. We are also thankful that our niche of working exclusively in the water and wastewater treatment industry has provided a measure of security that most contractors do not enjoy. Incredibly, \$6 billion of stimulus funding has been designated for wastewater and drinking water projects and we are faced with more bidding opportunities than we can accommodate. The result has been an increasing backlog of work and the need to boost our workforce. To be a contractor currently hiring tradesmen is a blessing indeed.

We hope that you will take time to offer thanks this holiday season. Our mutual success is no accident and we have so much for which to be thankful. As Christmas approaches, we look forward, as always, to celebrating with each of you and to sharing a portion of our success with those less fortunate.

We hope that you and your family have an especially meaningful Thanksgiving and a warm and joyous Christmas season. God bless you all.

Happy Thanksgiving

Number of hours worked
without a "Lost Time" injury



435,928

EMPLOYEE SPOTLIGHT



Happy Birthday!



11/2	Mike Leary
11/3	Dennis Lloyd
11/9	Neil Davis
11/13	Mike Merrill
11/14	Tom Brosious
12/20	Kim Sousa
12/21	Ryan Kelly

Anniversaries

Sandra Ringelstein	11 years
Ryan Kelly	1 year

Merry Christmas!

FACTOID OF THE MONTH:

According to the National Christmas Tree Association, Americans buy 37.1 million real Christmas trees each year; 25 percent of them are from the nation's 5,000 choose-and-cut farms.

Christmas Party Reminder!

Saturday, December 12, 2009
6:00 P.M.-9:00 P.M.
The Bob House (formerly Grille 25)
520 Route 25
Moultonboro, NH 03254
R.S.V.P. 603-253-4525

CHARLIE'S QUALITY CORNER

Licensing

It is imperative that all licensed electricians and apprentices know and follow the laws of the States that they are working in.

Generally, it is a CRIME to allow an unlicensed person to perform any electrical work. States have interpreted that to include an apprentice working alone. This means you, as a licensed professional, can be personally subject to prosecution, fine and possible jail time! While we believe an apprentice can perform non-electrical tasks alone, you must be very careful never to leave an apprentice doing anything that can be interpreted as electrical work by themselves.

Ratios of apprentices to journeymen / masters must also be strictly followed.

EI Welcomes New Electricians

Paul Szalajeski comes to EI from Pembroke NH. An electrician for 16.5 years, Paul is delighted to be a part of the EI team. He hopes to bring his experience and past knowledge to EI, but is eager to see what he can learn from everyone here as well.

Timothy Sawyer, a third generation electrician from Manchester, NH, joins the EI team after working with Interstate Electric for four years. Tim is the proud father of two sons and a daughter. The family enjoys many outdoor activities such as hiking, hunting and fishing.