

ELCORA

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# **Clearly Committed to Excellence**





# DELCORA 2014 Strategic Plan Sets SMART Goals for Significant Improvement

In autumn 2014, DELCORA's Board of Directors approved a new five-year Strategic Plan identifying significant goals that will enable the Authority to achieve meaningful operational improvements and growth in its service areas. The plan is based on best practices in strategic planning and management, setting SMART goals — Specific, Measurable, Achievable, Realistic, Time-bound — requiring semi-annual progress updates, and issuing a "call to duty" to the workforce to achieve these goals.

The 2014 Strategic Plan identifies four major goals:

- Remain in the 1st quartile ranking in expenses in the National Association of Clean Water Agencies (NACWA).
- Implement a comprehensive Asset Management Program.
- Publish a formal Disaster Preparation & Recovery Plan.
- Increase opportunities for acquisitions and operations in Western Delaware County and Chester County.

To achieve these four major goals within the next five years, the plan has identified the individual objective and mission of each department, with specific initiatives to be completed by quarter/ year, and the team members who are responsible for each department's completion of these initiatives.

Here is a closer look at the four major goals.

Remain in the 1st quartile ranking in expenses in the National Association of Clean Water Agencies (NACWA). DELCORA's leaders recognize that an organization that is not

growing and improving is falling behind. To fulfill its mission "to provide environmentally responsible

and cost-effective wastewater management services to the citizens, businesses, and industries of Southeastern Pennsylvania it is imperative for the Authority to effectively manage costs.

DELCORA placed in the 1st quartile ranking in expenses in NACWA's 2012 membership survey, which is conducted every four years. This is a measure of the Authority's commitment to the cost-effective management, operation, and maintenance of the facilities and infrastructure required to provide high-quality wastewater collection, conveyance and treatment services to protect the public health of the communities it serves.

The 2014 Strategic Plan has tasked the Operations & Maintenance Department with several initiatives to contribute to maintaining the Authority's ranking, including controlling the cost of overtime, utilities, maintenance, materials and supplies. Implement a comprehensive Asset Management

**Program.** Since its founding in 1971, DELCORA has invested more than \$270 million in the construction and development of new facilities and infrastructure. The Authority now owns and manages major capital assets stretching from the Delaware River and Eastern Delaware County to Chester County. One of the key goals of the Strategic Plan is to establish a data-based planning process for all repair and replacement decisions. In 2015, a multidisciplinary team will begin to identify and document the level of criticality of the Authority's assets and establish a program for scheduled maintenance, repair and replacement.

#### Publish a formal Disaster Preparation & Recovery

Plan. To ensure that DELCORA can continue to reliably fulfill

its mission should an event occur with a serious impact on its workforce, assets and/ or operations, the Strategic Plan has tasked a multidisciplinary team with identification of and response to potential disaster scenarios.

#### Increase opportunities for acquisitions and operations in Western Delaware County and Chester County. Since

its establishment in 1970 — with the acquisition and \$43-million upgrade of the City of Chester's wastewater treatment plant to become DELCORA's Western Regional Treatment Plant (WRTP) — the Authority has grown through a prudent approach to the construction, acquisition and management of wastewater collection and treatment systems in its service area. Today, the Authority owns and operates collection systems in Marcus Hook, Trainer, Chester, Upland and parts of

Chester Township, and provides contract wastewater treatment to Eddystone Borough.

Recently, Southwest Delaware County Municipal Authority (SWDCMA) transferred wastewater flows from its service areas to DELCORA for treatment at its WRTP, following the successful completion of the Chester-Ridley Creek Pumping Station and Force Main (see page 3). DELCORA will construct, maintain and operate a new public wastewater collection system under an agreement with Edgmont Township (see page 4). In addition, DELCORA's trucked waste business is growing and thriving (see page 5).

The Strategic Plan calls for continuing growth, especially in Western Delaware County and Chester County, through additional acquisitions, contracts, new products and customer outreach.

clear objectives and time-bound initiatives and issues a 'call to duty' that will enable the Authority to achieve meaningful operational improvements and growth.

The plan lays out





## Chester-Ridley Creek Pumping Station and Force Main are Completed Successfully

In December, the Southwest Delaware County Municipal Authority (SWDCMA) transferred wastewater flows from its service areas to DELCORA for treatment at its Western Regional Treatment Plant (WRTP). It was the successful culmination of a \$14.4-million project to design and construct the Chester-Ridley Creek Pumping Station and Force Main to enable DELCORA to pump up to 16.65 million gallons per day (MGD) from SWDCMA's former Baldwin Run wastewater treatment plant in Aston to DELCORA's WRTP in Chester. The objectives of the project were defined in Western Delaware County's Act 537 Sewage Facilities Plan Update and approved by the Pennsylvania Department of Environmental Protection (PA DEP). The SWDCMA will decommission and demolish the former treatment plant, while continuing to own and operate its existing wastewater collection system.

Agreements among SWDCMA, the Middletown Township Sewer Authority and DELCORA, which were signed in 2010, enabled the project to proceed, avoiding the need for expensive upgrades and maintenance to the Baldwin Run plant that were projected to cost in excess of \$15 million.

As a result, the seven municipalities that had been tied into the Baldwin Run plant will benefit from the economies of scale in DELCORA's 44-MGD (million gallons per day) treatment plant. At the same time, the increased revenue stream allows DELCORA to implement process and handling improvements to increase environmental quality and decrease impact at the WRTP and help to stabilize DELCORA rates.

DELCORA's engineering consultant studied four alternatives for the pumping station and four alternatives for the force main. In each case, the selected alternative represented the optimal solution for the project based on geotechnical, topographical and utility considerations; cost; constructability; maintainability and the opportunity for additional future tie-in capacity.

The new submersible pumping station is designed to handle a peak flow of 16.65 MGD. The pumping station component of the project includes tie-ins for two existing interceptors along Baldwin Run and along Chester Creek; four 250-horsepower pumps equipped with efficient variable frequency drives; and integration of pumping station controls with DELCORA's Supervisory Control and Data Acquisition (SCADA) system. The new force main is approximately 14,850 feet in length from the pumping station to the WRTP along the same general alignment as the selected alternative in Western Delaware County's Act 537 plan.

One of the critical success factors was DELCORA's collaborative approach to its design, engineering and construction projects. This project involved an exceptional degree of collaboration, with a project team that included representatives of DELCORA's Administrative, Engineering, Finance, Maintenance Operations and Sewer Maintenance departments; DELCORA's consulting engineer; and consulting engineers from SWDCMA and Middletown.

The pumping station component of the project was substantially completed on November 11, 2014 for approximately \$8.6 million; the force main was substantially completed on December 30 for approximately \$5.8 million. The project was financed through a bond issue, which will be repaid by those municipalities that use the new pump station and force main.

The successful completion of the Chester-Ridley Creek Pumping Station and Force Main is a significant milestone in attaining the Delaware County Sewage Facilities Plan's vision of environmentally responsible, cost-effective wastewater management services. DELCORA generates approximately \$4,200,000 in annual revenue from the Chester Ridley Creek Pump Station that was completed in 2014. The revenue comes from the Southwest Delaware County Authority and the Middletown Township Sewer Authority.

#### Moody's 'Aa3' Rating Reflects DELCORA's Strengths

In May 2013, Moody's Investor Service assigned an 'Aa3' rating to DELCORA an upgrade from 'A1' — in association with the authority's issuance of \$34.5 million in Sewer Revenue Bonds, Series 2013.

Moody's rationale for the 'Aa3' rating and "stable" outlook cited the authority's strengths:

- Large and stable service area with strong demographics
- Satisfactory security provisions
- Healthy debt service coverage levels
- Modest debt burden

Proceeds of Sewer Revenue Bonds Fund Chester-Ridley Creek Pumping Station and Force Main

DELCORA used proceeds from this series to fund the Chester-Ridley Creek Pumping Station and Force Main project, in addition to other capital improvements.

The authority is gratified to be recognized for its prudent financial management and business development strategy. DELCORA's high rating increases confidence among bondholders and reduces the premium (interest rate) on the authority's bonds.





#### Edgmont Crum Creek Sewer Project is a Milestone in Edgmont Township

In summer 2014, DELCORA completed the first milestone in Edgmont Township's planned implementation of a public sewer system to serve eastern Edgmont. The project involves the installation of a new public wastewater collection system for a community of about 1,000 equivalent dwelling units (EDUs) in the Crum Creek District of eastern Edgmont. The total flow from these users is expected to average 350,000 gallons per day (GPD) of mostly residential wastewater. This project also marks an important expansion in DELCORA's service area into new areas of Delaware County, as DELCORA will construct, maintain, and operate this system under its agreement with Edgmont Township.

The first phase of the project involved the installation of a 7,650-foot 10-inch fusible polyvinyl chloride (PVC) force main along Gradyville Road. This force main will convey the wastewater flow that is collected in the Crum Creek District to the interceptor of Central Delaware County Authority (CDCA) located in Marple Township. CDCA will convey the flow to DELCORA's Central Delaware Pump Station, which will send the flow to DELCORA's Western Regional Treatment Plant (WRTP) for treatment. The force main construction was completed on July 19, 2014 for a total project cost of approximately \$1.1 million.

The second phase of the project, construction of the collection system, began on August 27. The collection system will use 38,000 feet of existing sewer pipes that previously were installed in Edgmont, some of which are being used in small community collection systems, while the rest are capped for future use. The project involves the installation of 14,000 feet of standard dimension ratio (SDR) 26 PVC sanitary sewer, 4,000 feet of fusible PVC force main, and 6,000 feet of high-density polyethylene (HDPE) force main. The new and existing pipes will convey the flow from the Edgmont residents to three new pump stations that are being constructed as part of this project.

Edgmont Pump Station 1 (EPS-1) will convey flow from the northern sections of the area, and Edgmont Pump Station 3 (EPS-3) will convey flow from the southern section. The flow from these pump stations will be sent to the main pump station, Edgmont Pump Station 2 (EPS-2), which will convey the flow from EPS-1 and EPS-3 and the rest of the Crum Creek residents through the Gradyville Road Force Main down to the CDCA's interceptor. EPS-2 will be equipped to transmit real-time operating data for the collection system to DELCORA's Supervisory Control and Data Acquisition (SCADA) system, which is used for data gathering and process control.

The Edgmont Crum Creek Sewer Project is being funded by a bond secured by DELCORA, which will be repaid by Edgmont Township sewer users over the life of the system. The Commonwealth of Pennsylvania also provided an "H2O grant" to provide single- or multi-year grants to municipalities or municipal authorities to assist with the construction of drinking water, sanitary sewer and storm sewer projects. An agreement to construct, own and operate the Edgmont Township sewer system will generate approximately \$1,200,000 per year in revenue, starting in late 2015.

This project is a milestone in Edgmont's implementation of a public sewer system to serve eastern Edgmont and an important expansion in DELCORA's service area into new areas of Delaware County.





#### **Revitalized Trucked Waste Business Hauls in \$3.7 Million in Revenue**

In the early days of DELCORA's trucked waste business grease, sludges and septage — it generated revenues under \$300,000 a year. It was the gravy, figuratively and, when it came to restaurant grease, literally, on top of the Authority's main revenue from piped wastewater. Yet, the business was not actively promoted through marketing or customer service initiatives.

In January 2014, DELCORA opened a new receiving facility designed for faster, more efficient customer service. The haulers love it. And it brought in \$3.7 million in revenue. In 2004, with the Western **Regional Treatment Plant** (WRTP) running under capacity at 28 million gallons per day (MGD), the Authority decided to grow the trucked waste business. A multidisciplinary team of representatives from accounting, customer service, engineering, operations and maintenance, and laboratory developed a business plan, competitive pricing plan, and streamlined permitting process for haulers. Representatives started attending regional water association and wastewater management conferences to promote the business and find out how DELCORA could better serve these customers. And

they started building relationships. Word spread fast of the Authority's appetite for the business.

In 2005, the team's first full year of active business promotion, revenues exceeded \$800,000.

Fast forward to 2014: In January, the Authority opened a new 10-bay receiving facility designed for faster, more efficient customer service. The haulers loved it. And by the end of the year, DELCORA's revitalized trucked waste business had hauled it in, providing \$3.7 million in revenue.

That's more than just gravy.

The upgraded receiving facility is a significant improvement over the old, where haulers waited in line until it was their turn to back up to one of seven above-ground piped ports and unload. The process took time — about 20 minutes — and time is money to haulers.

The upgraded receiving facility resembles the fuel islands at a giant truck stop. Haulers can pull in a truck of any size, from a small six-wheel tank truck to a tractor-trailer. They connect a 4-inch quick-connect hose, open a valve and unload — in about 7 minutes or less — and drive straight out. The waste goes from the collection manifold to a pump station, which delivers it to the head of the plant. Thanks to another upgrade in the grease acceptance area, drivers no longer have to pressurize to unload; they simply unload by gravity.

The upgraded facility is averaging 500,000 gallons a day, of which about 300,000 gallons go through the plant and the remainder go directly to solids handling.

The trucked waste business protects the environment and the bottom line. To be permitted, a hauler must show proof of insurance, provide a list of all its equipment and sign an agreement to follow DELCORA's permitting procedures, rules and regulations. Before unloading, permitted drivers must obtain a manifest and a sample for pH testing by DELCORA's trucked waste receiver. All manifests are put into the Authority's Sludge Accounting System by the receiver and uploaded to accounts payable.

In just 10 years, DELCORA's trucked waste business has grown into a model for other municipal wastewater treatment authorities to emulate. SIGN UP

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Home Editorial A Receiving Facility For Trucked-In Grease And Sludges Pays Dividends In Pennsy

#### A Receiving Facility For Trucked-In Grease And Sludges Pays Dividends In Pennsylvania

By Ted J. Rulseh | In My Words | October 2014 | Appeared in print as "Revenue by the Truckloan

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A Pennsylvania treatment facility helps make up for income lost with industrial plant closings by installing an efficient receiving facility for septage, grease and sludges.

Over the years, the Delaware County Regional Water Quality Control Authority (DELCORA) lost wastewater flow and revenue as major industries closed down or curtailed operations.



facility at DELCORA are, from left, Barbara Bonnett, Harry Bordlev. Bernadette Bohn. Debbie Zetuskv. Joe Centrone.

DELCORA in the Trade News: "Revenue by the Truckload" is the title of an interview with DELCORA trucked waste business team members Mike DiSantis and Chris Lenton by Editor Ted J. Rulseh as featured in the October 2014 issue of Treatment Plant Operator magazine (tpomag.com). The interview traces the history behind of DELCORA's successful trucked waste business.

#### Grease-Thickening Upgrades Improve Waste Acceptance, Efficiency, Odor Control and Safety

Dewatering or "thickening" of the wastewater from secondary treatment tanks at DELCORA's Western Regional Treatment Plant (WRTP) and of the grease received by truck from off-site sources is an important step in the wastewater treatment process, both to save space in holding tanks and to reduce fuel consumption by the sludge incinerators. Receiving and disposing of trucked waste — including an average of 48,000 gallons per day (GPD) of grease — is an important source of revenue for DELCORA (see page 5).

Several upgrades were completed in 2014 to improve the grease acceptance facility and grease thickening system in the Thickener Building. These upgrades increase convenience for truck drivers, reduce DELCORA's operations and maintenance costs, improve concentrated grease solids, improve odor control within and around the Thickener Building, and increase the safety of the work environment.

This project is phase two of upgrades to the Thickener Building. In phase one, new gravity belt thickeners were installed in 2013 to upgrade DELCORA's thickening process for the wastewater from the secondary treatment tanks.

Phase two includes a new grease acceptance facility, new equipment in the primary and back-up grease thickening tanks, a new biological air scrubber, and related equipment and controls:

 Installation of the Lakeside Raptor Grease Acceptance Plant (GAP): The new GAP screens out large pieces of debris and floating material that can be disposed of without incinerating and which may harm downstream equipment if not removed. Along with this, two new grease transfer pumps were installed to take grease from the GAP to the primary and back-up greasethickening tanks in the Thickener Building.

- Installation of new grease equipment in grease-thickening tank number T-23: The new grease-thickening equipment replaced old dissolved air flotation thickener (DAF) equipment, which works by creating tiny bubbles that adhere to solids that can be skimmed from the water. The new equipment includes top and bottom skimmers, beech section (used to separate grease skimmings from water), discharge screw conveyor and tank cover, as well as new control panels for the thickeners and automatic controls for the top and bottom skimmers and the screw conveyor.
- Installation of duplicate grease-thickening equipment in tank number T-24. T-24, another former DAF unit, has been used as a back-up to T-23 for grease-thickening and is now planned to be used as an emergency back-up. The new equipment will include top skimmers, screw conveyor, and control panel.
- Installation of a new biological odor control system. The existing caustic odor scrubber was in need of replacement and had relatively high operating costs compared to a new, more cost-effective biological packed tower scrubber. The new odor control system uses a biological process to remove odors and harmful gases, including hydrogen sulfide, from air originating from tank T-23, the waste-activated sludge gravity belt thickeners, and the four sludge holding tanks. The scrubber also has lower maintenance requirements.

Phase two also includes:

- Installation of a submersible heater and air diffusion system in the discharge pump of T-23
- Installation of several natural gas unit heaters to warm the interior of the Thickener Building
- Installation of four natural gas instant water heaters to heat water being sent to the Lakeside GAP to prevent the grease from cooling and coagulating and to supply two new hot water hose stations in the grease truck offloading area to aid in cleaning
- Installation of new gas and fire detectors throughout the Thickener Building



#### Ash Conveyance Upgrades Lay Foundation for Increased Incinerator Capacity, Flexibility, and Efficiency

In 2014, DELCORA awarded a contract to upgrade the control system and increase capacity for the ash conveyance system of the two sludge incinerators at the Western Regional Treatment Plant (WRTP). We also released a bid package for a significant upgrade in the incinerators — a new secondary combustion chamber and wet scrubber that is designed to enable operation of each incinerator to its full permitted capacity of 48 tons per day (TPD). In combination, the two projects will enable the Authority to fully utilize the permitted capacity and operational flexibility of its two incinerators, using less fuel to incinerate organic matter and more efficiently convey the ash to the plant's two storage silos prior to disposal. The Authority also will be prepared to meet the U.S. Environmental Protection Agency's (EPA's) 2016 Maximum Achievable Control Technology (MACT) standards, which are designed to reduce levels of hazardous air emissions.

The current project includes replacement of the positive-pressure pneumatic ash conveying system and the center shaft drives on both incinerators, a new 6-cubic-foot airlock for each incinerator (an increase of 2 cubic feet each), and new piping and valves to enable silo selection.

A new Programmable Logic Controller (PLC) and operator interface will be integrated with the plant's information systems, including the Supervisory Control and Data Acquisition (SCADA) system, enabling the plant to optimize operation and control of the ash conveyance system.

The ash conveyance system upgrade will also replace an antiquated hydraulic drive system with a new, efficient, variable-frequency drive (VFD) and gearbox to control the speed of the center shaft.

The total awarded contract cost was approximately \$903,000, and the project is scheduled for completion in spring 2015.



DELCORA sells treated effluent to its neighbor, Covanta, a global waste-toenergy company, as a sustainable, costeffective alternative to Covanta's use of potable water in its process.

#### DELCORA's and Covanta's Business Agreement Benefits the Partners and Community

It is said that "Good fences make good neighbors." But when good neighbors reach over the fence to make a good business decision, it can benefit each neighbor and the larger community.

This was the outcome when DELCORA seized the opportunity to sell treated effluent from its Western Regional Treatment Plant (WRTP) to its immediate neighbor to the north — Covanta, a global owner and operator of infrastructure for the conversion of waste-to-energy — as a sustainable, cost-effective alternative to Covanta's use of potable water in its process cooling towers.

During planning, representatives of DELCORA and Covanta met with neighbors in the Chester Environmental Partnership, an environmental interest group, to explain the process and allay any concerns about potential environmental effects of evaporative cooling using treated effluent. The Pennsylvania Department of Environmental Protection and the Delaware River Basin Commission approved the project.

Under the terms of an agreement signed by DELCORA and Covanta in 2011, Covanta constructed a pipeline from the WRTP to its on-site water treatment facility, which removes minerals and residual organic matter, such as algae, which could adversely affect its cooling tower operation.

In April 2014, the effluent started flowing from DELCORA to Covanta — roughly 1.8 million gallons per day (MGD) — of which Covanta uses approximately 1.3 MGD in their cooling towers. Covanta returns approximately 0.5 MGD of deionized water to DELCORA, which returns the water to the secondary clarifier, where it is disinfected before discharge into the Delaware River.

Reuse of a portion of the treated wastewater effluent provides a financial benefit for DELCORA and Covanta. The agreement with Covanta for them to purchase DELCORA effluent generates approximately \$100,000 a year in revenue for DELCORA. At the same time, it conserves about 1.5 MGD of potable water for use by people in the community, and that's a benefit for the community, too.







#### Natural Gas-Fired Sludge Incineration Fuels Significant Savings

Over the last two years, DELCORA has implemented a \$2.5-million project to modify its two existing 1975 oil-fired sewage sludge incinerators at the Western Regional Treatment Plant (WRTP) with dual-fired burners that are capable of using either natural gas or No. 2 fuel oil. In 2014, the first full year of the two incinerators' operation on natural gas, the Authority saved approximately \$1.9 million on the cost of fuel; combined fuel savings in 2013 and 2014 exceeded \$3.5 million.

Moreover, natural gas is the cleanest fossil fuel. Compared with fuel-oil combustion, natural gas combustion releases lower levels

of harmful air emissions, including a lower ratio of carbon emissions, nitrogen oxides and sulfur dioxide, as well as lower levels of carbon dioxide, carbon monoxide and other reactive hydrocarbons, no mercury, and virtually no ash or particulate matter. In 2013-14, natural gas operation of DELCORA's incineration system significantly reduced emissions of air pollutants, including carbon dioxide, nitrogen oxides and sulfur oxides by almost 10 million pounds.\*

The project involved incinerator modifications, instrumentation and control upgrades, information systems integration and new natural gas utility infrastructure, including:

- 14 new dual-fired burners (ten 2.7-million BTU, two 1.57-million-BTU and two 6.6-million-BTU burners) and burner control panels on each incinerator
- New natural gas piping system, including gas main safety trains, valves, meters, instrumentation, controls, utility gas main, pilot gas system and safety interlocks
- New combustion air turbo-blowers with outside air ducting
- New Incinerator Instrument Control Panel (IICP) with two Programmable Logic Controllers (PLC), operator interfaces, and instrumentation. Replacement of old analog controls with new digital controls
- In 2014, the first full year of the two incinerators' operation on natural gas, the Authority saved approximately \$1.9 million on the cost of fuel; combined fuel savings in 2013 and 2014 exceeded \$3.5 million.

- Power, interlock and control wiring between the burner trains, incinerator main trains, burner control panels, incinerator main burner safety panels and PLC system
- Integration with the Continuous Emission Monitoring System (CEMS), Data Acquisition System (DAS), SCADA system, and e-Ops (database) system

All work was completed while maintaining continuous operation of at least one incinerator. Implementation of the project included extensive training for Operations and Maintenance staff and continuous follow-up on operational

procedures and system control using statistical process control.

Thanks to new state-of-the-art digital controls and integration with the plant's information systems, including the SCADA system, plant operators and supervisors are better able to optimize operation and maintenance of the incinerators. For example, automated control of temperature, draft, scrubber pressure and associated operating parameters decreases fuel use and reduces the build-up of residue (slag) that must be removed.

Looking ahead, project design specified sizing and layout of the new natural gas piping system to provide for a transition to gas-fired domestic heating in the WRTP Thickener Building and Control Building (Laboratory). Installation of natural gas unit

heaters and water heaters were included in 2014 upgrades to the Flotation/Thickener Building (see page 6).

<sup>\*</sup> Calculations are based on a comparison of fuel oil and natural gas consumption in pounds to operate the two incinerators and U.S. Energy Information Administration emissions data.



#### DELCORA's Environmental Laboratory Helping to Assure that DELCORA Fulfills its Mission

On any given day at the DELCORA Environmental Laboratory at the Western Regional Treatment Plant (WRTP), the Authority's laboratory technicians, environmental specialist and manager:

- Test the sludge bound for WRTP's incinerator for total solids to calculate incineration tonnage, helping the Operations team to adjust the feed control to assure that the WRTP is coming as close as possible to its maximum of 48 tons per day without exceeding the limit
- Test fecal coliform numbers of wastewater samples in the chlorine tank to verify sufficient contact time and to ensure compliance with the state issued National Pollution Discharge Elimination System (NPDES) permit
- Run samples for the Engineering team to help evaluate a chemical, such as a polymer, under consideration for the treatment process

No matter what the compliance or operational reasons might be for the DELCORA Environmental Laboratory's activities on any given day, one thing is consistent day in and day out: the staff's professional dedication to accuracy, precision and service, while maintaining compliance with all applicable regulations.

The DELCORA Environmental Laboratory is staffed by three full-time lab technicians, one part-time technician, an environmental specialist and the laboratory manager. The laboratory operates seven days a week, providing a wide variety of sampling and analysis services to the Authority's Operations Department not solely for state and federal compliance monitoring requirements, but also to support efficient, effective process control at the WRTP.

The DELCORA Environmental Laboratory has been accredited since 2007 under the Pennsylvania Department of Environmental Protection (PA DEP) Laboratory Accreditation Program. This program evaluates and accredits environmental

The staff's professional dedication to accuracy, precision, and service distinguishes the DELCORA Environmental Laboratory. laboratories that perform testing on drinking water supplies, non-potable water samples or samples of solid and chemical materials, to ensure that they meet state and federal regulations to help protect the environment and assure human health, safety and welfare.

Under the Laboratory Accreditation Program, the DELCORA Environmental Laboratory must meet specific standards for supervisor and staff

qualifications; physical facilities; equipment, supplies, and reference materials; and methodology. The program requires the laboratory to undergo annual proficiency testing, as well as periodic audits of its operations and records to assure compliance with quality assurance and standard operating procedures.

The certified analyses performed by the DELCORA Environmental Laboratory include Total Suspended Solids, Total Solids, Total Volatile Solids, Total Dissolved Solids, pH, Total Residual Chlorine, Biochemical Oxygen Demand, Carbonaceous Biochemical Oxygen Demand, Ammonia as N, Nitrite as N, Fecal Coliforms, Total Kjeldahl Nitrogen, and Oil and Grease.

Every activity, every day of the year, helps to assure that DELCORA fulfills its mission "to provide environmentally responsible and cost-effective wastewater management services."





#### Industrial Hygiene Assessment Finds Airborne Contaminants Within OSHA Permissible Levels

The laboratory reports

indicate that for

each of the studied

contaminants, the

air sample results

were below OSHA

contaminants.

**Permissible Exposure** 

**Limits and Action Levels** 

for each of the studied

Results of a Phase 2 Industrial Hygiene Assessment performed in May 2014 at DELCORA's Western Regional Treatment Plant (WRTP) found that worker exposure to a number of airborne contaminants in the incinerator building and filter press room were within permissible levels set by the U.S. Department of Labor's Occupational Health and Safety Administration (OSHA).

Wastewater collection and treatment requires the use of biological, chemical and physical processes that can expose workers to various health and safety risks during the course of the work day. DELCORA manages these risks at its facilities through proper workplace design, construction and operation, staff education and training to meet OSHA regulations and protect the Authority's most valuable resource: its people.

An industrial hygiene assessment — a scientific method of identifying and evaluating potential health and safety risks in the workplace takes these management practices a step further, providing information that may be needed to reduce workplace risks.

At DELCORA's request, an independent consultant performed a Phase 2 Industrial Hygiene Assessment at the WRTP to assess potential employee exposures to indoor air contaminants in two locations: respirable dust, respirable silica dust, total dust and more than 20 metals in the incinerator building and hydrogen sulfide and ammonia in the filter press room. The locations and potential contaminants that were sampled were selected based on the results of a Phase 1 Industrial Hygiene Assessment conducted by the consultant in November 2013.

Air sampling was conducted during normal facility operations within the incinerator building and filter press

room. DELCORA selected two employees, an incinerator operator and a filter press room operator, based on the anticipation of having the greatest potential for exposure. Eight-hour average personal air samples were collected on the incinerator operator and the filter press room operator for the studied contaminants. In addition, five

8-hour area air samples were collected in selected areas within the incinerator building and one 8-hour area sample was collected in the center of the filter press room for the respective contaminants. The samples were labeled with unique sample identification numbers and shipped to an independent laboratory for analysis.

Results of the Phase 2 sampling effort were analyzed by an independent laboratory and compared to the current OSHA Permissible Exposure Limits: the allowable airborne concentrations that an employee is permitted to be exposed to for an

8-hour work day during a 40-hour work week.

The laboratory reports indicate that for each of the studied contaminants, the air sample results were below OSHA Permissible Exposure Limits and Action Levels for each of the studied contaminants. Based on the study results, the consultant concluded that exposures to the studied contaminants appeared to be in compliance with the current OSHA standards, and no corrective actions were recommended.

The entire report was presented to DELCORA employees at quarterly meetings, and the assessment will be repeated in two years.



IS supports the Authority's operations and management processes in every area from wastewater collection and treatment to environmental laboratory testing and compliance to engineering and business management.

#### **IS: The Virtual Brain Supporting Operations and Management**

A robust information systems (IS) environment, system redundancy, and up-to-date hardware and software are integral to meeting DELCORA's mission. These support the Authority's operations and management processes in every area — from wastewater collection and treatment to environmental laboratory testing and compliance to engineering and business management.

In 2014, the IS team upgraded software applications in the Authority's state-of-theart virtual server environment, enhanced existing IS security and disaster recovery preparedness at the administrative office and Western Regional Treatment Plant (WRTP) operations center, and began an initiative to address regional disaster recovery.

A virtualized server environment enables DELCORA's IS Department to host multiple applications on one reliable device rather than on designated servers for each application. This saves time and money when installing new applications or upgrading existing ones, improves performance and improves disaster recovery efforts.

The Authority's virtual environment is designed around three hardware servers and a central storage device interfaced with 20 virtual servers. Toward the end of 2014, the IS Department upgraded approximately 80 PCs on the local area network (LAN) to the most recent version of Microsoft Office, which is designed specifically for virtual server environments, including virtual desktop computing. This software upgrade, included in DELCORA's Microsoft Office user agreement, enhances the Authority's existing firewall, intrusion-protection and web-search content management security. In addition, IS awarded a contract for Microsoft Office Exchange upgrade in January 2015.

DELCORA's two server environments — one at the administrative office and a second at the WRTP operations center — continuously replicate data to speed disaster recovery efforts in the event of a failure at either site. In 2014, a multidisciplinary team also began planning for the implementation of cost-effective disaster recovery solutions in the event of a regional incident that simultaneously affected both environments.







#### New Payment Solutions: Faster, Smarter, and Better

The DELCORA Accounting Department's motto is "Faster, smarter and better" — and that is also an apt description of pay-by-phone, the Authority's newest payment solution to enhance customer service.

Using DELCORA's secure pay-by-phone service, a customer can call the Authority's main telephone number any time of the day or night — during business hours, when they can speak to a customer service representative or after hours, when their call will automatically be routed to an interactive voice response system — and pay their bill by providing account information and a valid credit card or debit card number.

The Authority implemented the pay-by-phone option in November in response to hundreds of requests from customers, and customer feedback indicates that DELCORA customers are pleased with this new solution. Like the Authority's other remote payment solutions, there is no fee to use the pay-by-phone service.

Pay-by-phone expands the range of options, which include paying by cash, check, money order, credit card, or debit card at the DELCORA administration office during business hours, mailing payments to a post office lockbox, dropping payments in a locked box outside the administration building, and online payments using a secure bill pay section on the Authority's website.

The variety of convenient options enables customers to pay their bills faster, improving the Authority's cash flow; in addition, remote payment options enable more efficient use of staff time.

With new technical billing and payment solutions arriving on the market every year, Accounting is currently exploring email billing and scheduled bill payment solutions with an eye to benefiting customers and the Authority's bottom line. Online and phone payment options help customers to pay bills faster — improving DELCORA's cash flow — and enable more efficient use of staff time.

#### DELCORA Safety Manual Adopted as an "Industry Template"

The DELCORA Employee Safety Manual has been recognized as a template for other wastewater treatment facilities by the Pennsylvania Water Environment Association (PWEA), a technical education and training organization of 1,800 water quality professionals in Pennsylvania.

The Employee Safety Manual was developed in house by DELCORA's Employee Capability Training Coordinator, and completed in 2008.

The DELCORA Employee Safety Manual covers a full range of topics ranging from safe chemical usage to evacuation procedures ... and much more. The manual is reviewed in detail and given in hard copy to each new employee; it is also available on the DELCORA intranet.

The PWEA adopted DELCORA's safety manual as a template for other wastewater treatment plants that might not have the resources to develop one.



# Employee Engagement and Satisfaction Survey Finds: DELCORA is a very good place to work!

DELCORA's most valuable resource is its people, so the Authority strives for continuous improvement in all facets of the workplace — including employee engagement and satisfaction. In September 2014, Human Resources (HR) reached out to employees to ask, "How are we doing?"

Based on responses to an anonymous survey by 92 percent of employees — much higher than the HR industry benchmark of 75 percent — the analysis concluded that DELCORA employees are satisfied overall with their work environment. In particular, employees identified several major positive areas: safety, compensation, recognition of and focus on continuous improvement, and training as a resource to help employees do their jobs better.

In addition to the surveys, one-on-one interviews were conducted with a crosssectional, representative sampling of employees. The interviews were intended to seek information to help DELCORA management better understand the views, perceptions, and needs of its employees.

The high participation rate is a tribute to the Authority's rigorous rollout initiative. The survey was designed by a national survey company whose clients include eBay, IBM, Citibank and Marriott. The survey was tested to ensure that the questions and potential answers were clearly stated and complete and that the process was well organized. Meetings were held with managers and employees to inform them about the upcoming survey, answer their questions and encourage participation; information was also included with pay stubs. DELCORA's supervisors were instrumental in communicating the intention and importance of the survey to employees and providing time during the work day for employees to take the survey.

Survey results were shared and questions discussed at the November 2014 employee and management meetings, individual department-level meetings, and meetings with collective bargaining unit shop stewards. Information collected during interviews was presented to management in a generic, summarized form, preserving participant anonymity.

As a follow-up, DELCORA senior staff met to discuss the general survey results and some attainable goals and action plans associated with several areas identified by employees as opportunities for improvement: accountability, training, communication and morale. Employees will ultimately be asked to be part of action teams to help develop action plans to address areas for potential improvement.

Our employees identified several major positive aspects of working for DELCORA: safety, compensation, recognition of and focus on continuous improvement, and training as a resource to help employees do their jobs better.





The DELCORA Board of Directors



The DELCORA Senior Staff







#### **Condensed Balance Sheet**

	Year Ending 12-31-14	Year Ending 12-31-13
Current Assets PP&E (net) All Other Assets	\$ 81,355,558 \$163,200,336 \$ 8,024,402	\$ 96,148,572 \$147,790,287 \$ 8,056,019
Total Assets	\$252,580,296	\$251,994,878
Current Liabilities Long Term Debt Net Assets	\$ 12,774,958 \$ 83,753,316 \$156,050,022	\$ 15,273,428 \$ 86,859,937 \$149,861,513
Total Liabilities and Net Assets	\$252,580,296	\$251,994,878

#### Statement of Revenues, Expenses and Changes in Retained Earnings

	Year Ending 12-31-14	Year Ending 12-31-13
Operating Revenues	\$ 43,752,347	\$ 42,586,072
Operating Expenses	\$ 40,445,871	\$ 37,177,937
Operating Income	\$ 3,306,476	\$ 5,408,135
Non Operating Revenue (Expenses)	\$ 2,882,033	\$ 2,319,338
Increase in Net Assets	\$    6,188,509	\$   7,727,473
Capital Contributions	\$0	\$0
Net Assets – Beginning	\$149,861,513	\$142,134,040
Net Assets – Ending	\$156,050,022	\$149,861,513

The above condensed statements are for the years ending 12-31-13 and 12-31-14. Complete statements are on file at the Authority's office at 100 East 5th Street, Chester, PA 19013, or can be accessed at www.delcora.org.

### **Financial Highlights**

Management believes the Authority's financial condition is strong. The Authority is well within its debt covenants and the more stringent financial policies and guidelines set by the Board and management.

The following are key financial highlights for 2014:

- During the year, the long-term debt decreased by \$5,104,621 or 6.2%.
- Property, plant and equipment cost value, excluding depreciation and net of disposals are increased by \$20,498,075 in 2014 compared to 2013.
- On December 31, 2014 and 2013, total assets were \$252,580,296 and \$251,965,495 respectively; total liabilities were \$96,530,274 and \$102,133,365 respectively; and net positions were \$156,050,022 and \$149,861,513 respectively.
- For the year 2014, DELCORA treated 56.7 MGD of wastewater, compared to 53.78 MGD of wastewater in 2013. The year 2014 provided 47.57 inches of rain compared to 55.88 inches in 2013.



## DELCORA 100 East 5th Street Chester, PA 19013 610-876-5523 www.delcora.org