The Certified Environmental Professional
The Newsletter of the
Academy of Board Certified Environmental Professionals

http://www.abcep.org March 2017

President's Message

Mark F. Gerber
ABCEP President

Greetings Environmental Professionals:

As I reflect on the past two years as ABCEP President, I can't help but do a little self-analysis. Was I a part of change? Is ABCEP better now than it was two years ago? It can be very
difficult to be objective in the face of incremental change, but I can tell you that in the five years that I've been on the Board of Trustees, I have seen great changes for the better in ABCEP. Organizations like ours can always get better. They can change with the times and need a "changing of the guard" once in a while. I'll be stepping down as President of ABCEP after our meeting in March but it isn't without some satisfaction in knowing that there are
extremely well qualified people stepping up to take over.

Some of the finest people I've had the privilege of working with have been associated with ABCEP and, while I'd love to name them, I don't want to leave anyone out. I am grateful.
I've grown tremendously through association with these good folks and the energy and ideas that they bring to our profession. In the next year I'll ratchet things down and continue to serve on the Board but in different capacities. I hope to be involved for many years and hope you do too. Best to you,

Mark F. Gerber, CEP

ABCEP President

Inside:

- ***Call for Articles - Habitat Conservation***
- ***Exploring the Universe of Solid Waste Conversion Technologies***
- ***Waste Diversion/Recycling: An Electric Utility's Perspective***
- ***Surface Water Due Diligence Considerations***

This month's topic:

SOLID WASTE & RECYCLING

April Topic:

HABITAT CONSERVATION

LETTER FROM THE EDITOR

Dear CEPs:

I believe CHANGE is not only the mode we are in as a nation but also as a profession. *The Environmental Professional* provides a platform for you and your colleagues to share your thoughts on change - how will proposed changes in regulations and opinions affect your daily duties, your area of specialty, your completed projects as well as those envisioned for the coming months and years.

This month's focus area of **Solid Waste & Recycling** has undergone incredible change from the days of newspaper drives and the inaugural Earth Day, to the development of high tech solutions for converting recyclable materials into everyday household goods and solid waste into energy to power vehicles.

Habitat conservation is another area that has undergone tremendous change. So in April, I hope all you biologists and ecosystem specialists will share your stories with our community.

Times of change bring about new thoughts and new ideas. I hope many of you will find a topic (see page 13) of interest this year to share your thoughts as well as your projects and research with our community.

As always - we don't have a newsletter without your participation.

Your support is appreciated!

Shari Cannon-Mackey, CEP, ENV SP
Newsletter Editor

KEEP STRONG AND MAINTAIN ON

Log on to CEP-EXPRESS today and take credit for all your hard work!

The Newsletter of the
Academy of Board Certified Environmental Professionals

CALL FOR ARTICLES on Habitat Conservation

The April edition of *The Certified Environmental Professional* is devoted to HABITAT CONSERVATION.
What are the issues? Who develops the plans? Where does the money come from? What techniques are working? What are the trends?

We welcome a variety of perspectives on the topic from the environmental practice community.

Deadline for submittal is April 20, 2017 to
scannonmackey@burnsmcd.com

Articles should be submitted in Word, with all graphics/photos provided in either tif or jpg formats. Do not send PDFs. All exhibits/figures/photos must have sources documented and all permissions to use obtained by the author of the article prior to publication.
For questions, please contact Shari Cannon-Mackey, CEP, ENV, SP, Editor
at 512-872-7132 or by email to scannonmackey@burnsmcd.com

Exploring the Universe of Solid Waste Conversion Technologies

Robert W. Craggs

Introduction

For local governments managing the collection and disposal of refuse, a new paradigm exists. Solid waste is now considered a resource. Specifically, some components of the solid waste stream can be converted into energy. The concept of pursuing conversion technologies for solid waste management to promote landfill diversion, generate renewable energy, and/or reduce greenhouse gases can be relatively simple. However, actually determining what technology to choose is considerably more complicated.

But don't despair. Local governments considering such possibilities already are ahead of the game, searching for ways to make the best decision for a community in the short term and for the foreseeable future. Such options can be identified by choosing technologies appropriate for the community's location, size, budget and waste stream.

To do so requires a thorough, methodical approach that takes a number of factors into account. Shown at the right and described below is a five-step process recommended for consideration.

Step 1: Explore the Universe

The first step is to become familiar with various alternatives available — the universe of technologies that could convert your waste into power.

Provided below is a summary of a set of eight technologies most frequently identified by waste managers as being considered.

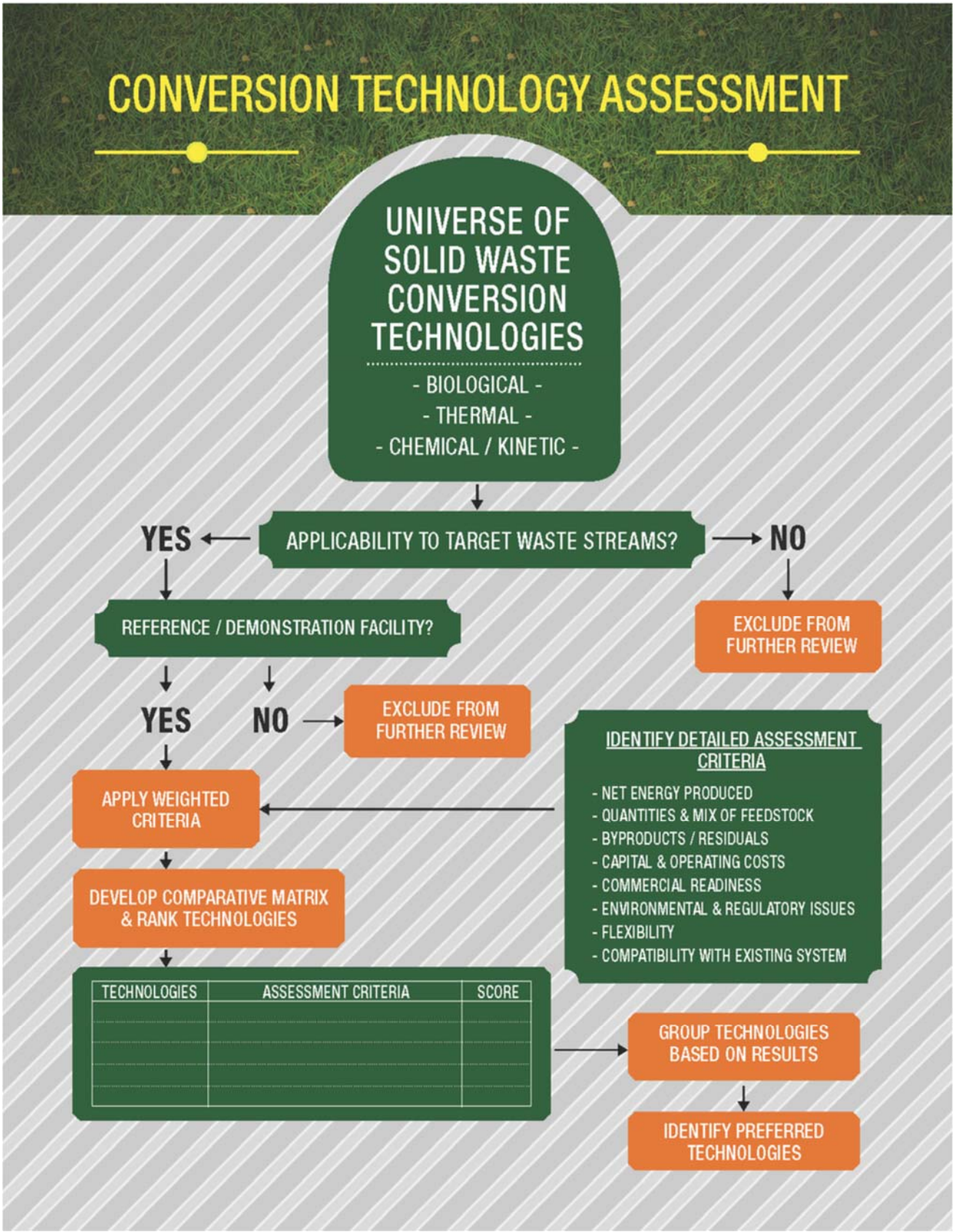
- **Mass burn combustion.** Whether it's a modular starved-air system — historically used for smaller applications, typically less than 400 tons per day — or a field-erected excess air system, such technologies combine refractory-lined combustors to reach desired capacity with ash as a residual. Tubes form the incinerator walls, allowing water to circulate as part of the steam-generation process, which in turn is used to create electric power. Some facilities use steam turbines that produce steam for sale to an end user.

- **Advanced thermal recycling.** This is the term given to mass burn technology plants that are enhanced - either with a pre-processing system similar to a materials-recovery facility (MRF) added to remove recyclable materials from the MSW prior to the MSW being introduced into the furnace; and/or with an advanced emission-control system designed to capture and recover components in the flue gas, converting them to marketable byproducts. Such systems segregate fly ash from bottom ash, from which metals can be recovered and recycled for use, potentially, as road base and construction material.

- **Refuse-derived fuel (RDF) Combustion.** RDF systems have been used for multiple decades to improve the quality of MSW leading up to combustion, recover materials and generate energy. RDF can be burned in different types of combustors. Several material-processing systems typically are used in an RDF plant, including shredders, magnets, eddy current separators, trommels and picking stations, using different combinations and arrangements to optimize results. Most RDF systems in the U.S. use field-erected, excess air grate combustion units that include boilers similar to those used by the modern mass burn system to generate energy.

- **Pyrolysis.** Pyrolysis typically occurs at temperatures in the range of 750°F to 1,500°F and degrades the feedstock without addition of air or oxygen. This process produces oils and fuel gases that can be used directly as boiler fuel or refined for higher quality products such as engine fuels and chemicals. Solid residue from pyrolysis, often called "char," contains solid carbon and most of the inorganic portion of the feedstock. Burning gases produced during the pyrolytic reaction in a separate reaction chamber releases significant thermal energy, which can be used to produce steam for electricity generation, heat the pyrolytic reaction chamber or dry feedstock entering the reaction chamber.

Continued from page 4



Continued from page 5

- **Conventional gasification.** These technologies cover fluid bed gasification and fixed bed gasification, both of which involve the thermal conversion of organic carbon-based materials with a limited supply of air/oxygen in the presence of internally produced heat, typically at temperatures of 1,400°F to 2,500°F. This process produces synthetic gases (syngas) composed primarily of hydrogen and carbon monoxide (CO).
- **Plasma arc gasification.** Developed for the metals industry in the late 19th century, plasma arc technology - a collection of free moving electrons and ions formed by applying a large voltage across a gas volume at reduced or atmospheric pressure — uses very high temperatures to break down feedstock. Plasma can reach temperatures of 7,000°F and higher, breaking up the molecular structure of organic material to produce simpler gaseous molecules such as CO, hydrogen and CO2, while inorganic material is vitrified to form a glassy residue. Byproducts of plasma gasification are similar to those produced in high temperature gasification.
- **Anaerobic digestion.** This biological process, known as AD, involves the microbial breakdown of large organic molecules into biogas, which can be treated and combusted in engines, turbines or boilers to produce power, or otherwise processed to create a fuel comparable with natural gas (sometimes referred to as bio-methane). The process also produces a residue that contains inorganics, nondegradable organics and other materials - solids that may be cured in standard composting-type processes to produce a usable compost product. While AD has been used for decades to process solids removed at wastewater treatment plants, it has been used more recently, primarily in Europe, to process source-separated organics from MSW. But nondegradable materials that exist in MSW can be problematic because they remain in the solid byproduct and significantly reduce the value and usability of the resulting soil amendment.
- **Mechanical biological treatment.** This approach combines mechanical treatment of the incoming waste stream with biological treatment of the organic fraction of the waste. It is presently common in Europe, where landfilling of untreated waste is limited. Recyclable materials often are recovered, and remaining materials are used as feedstock for a thermal treatment process.

The above list is not an exhaustive one. A number of other technologies also are marketed as being viable for converting MSW to energy. However, there is limited evidence of application to solid waste.

Step 2: Ask Threshold Questions

Once you are familiar with the universe of possibilities, you should focus your search on what may work in your community. Here are two key threshold questions to initiate the technology screening process:

1) **Has the technology been used to manage the targeted waste streams?** Some technologies provide volume reduction of waste, generate heat and operate efficiently. Be sure to weigh the prospects for each technology in terms of how each would address your actual waste stream. If there is no technical history reflecting that the proposed technology has been applied to the targeted waste feedstock, then excluding the specific technology from any further review is recommended. For example, plasma arc gasification has been used to manage various types of hazardous and industrial wastes, but historically has not been commercially applied to convert mixed municipal solid waste.

2) **Is there a reference facility using the technology that is operating commercially or as a demonstration facility?** Project developers may advocate the successful application of select technologies to MSW without a specific reference facility. A reference facility is a conversion facility where the select technologies have successfully converted the targeted waste streams to energy on a continuous basis. The distinction between a commercially operating and a demonstration facility is that the commercially operating facility has operated on a continuous basis; the demonstration facility usually has not. However, the existence of a facility that has successfully demonstrated the applicability of the technology to the targeted waste stream provides a basis for further consideration. Without either of these types of reference facilities, then excluding the specific technology from any further review is recommended.

Continued from page 6

Step 3: Identify and Apply the Assessment Criteria

Before moving forward with a detailed evaluation on the remaining technologies, it is recommended that you identify the assessment criteria to apply to the various technologies. The assessment criteria should reflect the economic, environmental, and technical issues critical to the community where siting of such a facility is being considered.

The assessment of the various waste-to-energy conversion technologies will be conducted using criteria that reflect critical factors associated with their application. These criteria relate to the energy benefits, costs, and potential environmental effects of these technologies. They include the following:

- Types and net energy produced
- Quantities and mix of feedstock
- Byproducts/residuals
- Capital and operations costs
- Environmental and regulatory issues
- Commercial readiness
- Flexibility
- Compatibility with existing system

The following is a brief description of each of these criteria. The intent is to provide a recommended list of criteria for decision-makers. The analysis will allow these decision-makers to become more informed about the technologies examined, especially when conducting their own project specific assessments.

- **Types and net energy produced.** The types of fuels or energy produced through conversion technologies include alcohol, biodiesel, methane, steam and electricity. Note that these are reported as the usable energy products created by the technologies. However, some further transformation may be required to obtain marketable energy products. Energy per ton of feedstock represents a viable measure of energy yield.

- **Quantities and mix of feedstock.** Additional criteria that should be considered are the quantities and mix of feedstock available. The technology must be scalable for the types and amount of feedstock being proposed. Many projects fail to provide such information to the level to include the substreams associated with the project. For example, does the project include MSW, construction and demolition waste, source separated organics and/or sludges?

- **Byproducts/Residuals.** Byproducts and residuals can be defined as non-energy materials (e.g. ash, water, wastewater) that are produced during the application of technology processes. Some byproducts or residuals may require treatment and/or disposal. However, other residual materials may be beneficially reused. Select regions of the United States may have markets for some residual materials, such as bottom ash or char. In applying this criterion, the byproducts/residuals produced should be estimated as a percentage of the total inputs when data are available.

- **Capital and Operations Cost .**Estimating costs associated with the various technologies requires defining project parameters. Planning-level capital costs should be estimated, including design and permitting costs, construction and equipment costs, and other direct costs associated with the development of the project. Planning-level capital costs will vary depending on the size, location, and specific details of the project. Project definition typically needs to include, at least, project throughput, selected primary technology, type of energy produced, and general site parameters assumed for costs estimates to be completed. Based on availability of data, capital costs may need to be estimated as a range of values at this stage of the analysis.

  Operations and maintenance costs are typically measured as annual operating, maintenance, and associated non-capital costs. Similar to the planning-level capital costs for a specific technology, the operations and maintenance costs may vary depending on the size, location and specific details of the project. Based on availability of data, operations and maintenance costs may need to be estimated as a range of values at this stage of the analysis.

- **Environmental and regulatory issues.** The environmental and regulatory issues typically associated with specific technologies vary with project-specific parameters and local and regional regulatory agencies. Generally, environmental regulatory issues are addressed through permit applications and reviews of facility construction and operating permits.

Continued from page 7

In applying this criterion, the analysis should characterize the fatal flaw regulatory issues (e.g., pollution control for air emissions, disposal of contaminants) and identify the environmental and regulatory issues recommended for further investigation.

One of the most prominent environmental impacts of a conversion technology project is the potential for reductions in greenhouse gas emissions. The amount of such reductions related to a technology should be assessed with the designation of a high, medium, low or no change. Greenhouse gas emission generation activities considered should include collection, transportation, processing and disposal. Other environmental impacts that may be characterized include byproducts/residuals, contamination issues and stormwater management.

- **Commercial Readiness.** Commercial readiness refers to the technical maturity of the technology. Some of the technologies described above have been operating successfully in locations across the United States and/or Europe. However, other technologies may still be in the pilot phase or research-and-development stage of production. Based on this information, a general risks assessment of the relative commercial readiness of each technology should be discussed. For example, in some cases the technology may have been successfully applied to one type of feedstock, but also may have limited application to another type of feedstock.

- **Flexibility.** The flexibility of a technology refers to how well a technology can be adapted to changing internal and external project factors (e.g., regulatory, project throughput, feedstock quality, feedstock mix). For a technology to be flexible over time, it must be able to be maintained and updated appropriately with advances in technology. In applying this criterion, the analysis should discuss the general parameters of each technology and characterize its flexibility using a ranking of low, medium or high.

- **Compatibility with existing system.** Even if the application of the criteria results in favorable outcomes, the proposed technology should be compatible with the solid waste management system in the community where the facility is being considered. Compatibility should be linked to projected integration into the existing system and planned programs. For example, anaerobic digestion may fit a specific system because of the quantities and mix of available organics, but the lack of available project sites may preclude the application of such an opportunity from being considered.

Step 4: Develop Comparative Matrix and Rank the Technology

To reflect the application of the criteria to the various technologies, the next step should include a comparison of the outcomes. The relative importance of the criteria should be determined by weighting each of the criteria. It is recommended to develop a matrix listing the technologies assessed and a summary of the application of the criteria to each technology as shown at the right.

Once the framework of the matrix is developed, each technology should be scored to create a ranking of technologies from preferred to least preferred. A total score for each criterion should be calculated by multiplying the weighting of individual criteria by the ranking, then summing to obtain a total score. Usually, the results will reflect groupings of technologies. From these groupings, a set of preferred technologies can usually be identified.

Step 5: Seek Assistance

Upon identifying a short list of preferred technologies, the framework has been established for conducting detailed evaluations of specific proposed solid waste conversion projects. Numerous local governments have received both unsolicited and solicited proposals to convert solid waste and its various substreams into energy. With the list of preferred technologies, you can move efficiently into a detailed evaluation of specific proposals. Detailed review of site-specific projects by a qualified professional(s) is recommended to address specific local and regional market conditions, future system needs, detailed costs, applicable environmental regulations and hone in on technologies that accomplish your mission: making the best decision for your community, environment and budget.

Continued from page 8

Technology Assessment Comparative Matrix

TECHNOLOGY	QUANTITIES AND MIX OF FEEDSTOCK	BYPRODUCTS/ RESIDUALS	CAPITAL AND OPERATIONS COSTS	ENVIRONMENTAL AND REGULATORY ISSUES	COMMERCIAL READINESS	FLEXIBILITY	COMPATIBILITY WITH EXISTING SYSTEM	SCORE

Author - *Robert W. Craggs, Solid Waste and Resource Recovery Manager for the Environmental Services Global Practice at Burns & McDonnell, has more than 24 years of experience in the industry and has helped more than a dozen local governments evaluate conversion technologies. Among his current projects, he is working with the Cadmus Group to assist the U.S. EPA evaluate waste-to-energy technologies and infrastructure.*

Almost 20% of the glass produced in the US is recycled.

SOURCE: www.factmonster.com

A ton of paper made from recycled paper saves:

- 7,000 gallons of water
- 17 to 31 trees
- 60 lbs. of air pollutants

SOURCE: www.factmonster.com

Each person generates approximately 4.7 pounds of solid waste every day.

SOURCE: www.recyclingfacts .org

In 2009 there were approximately 1,908 municipal solid waste landfills in the continental US.

SOURCE: www.usepa.gov

What happens to solid waste in the US?

33.4%

is recycled or composted

12.6%

is burned in combustion facilities

54%

makes its way to landfills

SOURCE: www.usepa.gov

Waste Diversion/Recycling: An Electric Utility's Perspective

Jake Elder, AES
The Dayton Power and Light Company

Introduction

In 2015, the Dayton Power and Light Company (DP&L), a subsidiary of AES, implemented a waste diversion program to reduce the amount of waste going to landfills, leverage the company's existing practices to improve recyclable recovery, create a narrative to share with the public to improve corporate relations, and promote an internal culture of sustainability and environmental stewardship. Overall, DP&L businesses generate a host of waste and recyclable streams, including scrap metal wire, used utility poles, structural wiring, lead cabling, cardboard, wooden pallets, wooden cable reels, office paper, Styrofoam™ cups, plastic bottles, miscellaneous solid waste, and scrap electronic waste. A portion of these waste streams can be diverted from landfills, generating potential revenue and lowering operational costs. DP&L realized that the business lacked a clear waste management/recycling strategy and set out to create a program that integrated current waste handling procedures with improved practices that would be easily implemented by field and office staff.

Phase One - Office Waste Program

The design and implementation of the program began with a focused environmental initiative aimed at improving office waste diversion. The first step in the program was to create a cross-functional work group to increase employee engagement and ensure that the proposed procedures would dovetail with existing waste management practices. The team first completed an assessment of how office waste and recycling was handled in Regional Service Centers and Corporate Offices. During the assessment, the team determined that DP&L was landfilling large numbers of Styrofoam™ cups (4,000 per month at one of our lager service centers.), plastic cups and bottles, cardboard, and paper. After identifying potential recyclables, the team developed a plan to implement a company-wide office recycling program, which was rolled out to align with Values Day in Fall 2015. On Values Day, the team distributed recycling containers to offices throughout the Company's service territory. The containers were placed at a number of locations within each building and branded with DP&L designed images to depict the types of acceptable recyclables.

During Values Day, the team also removed Styrofoam™ cups from all locations and distributed DP&L branded coffee tumblers to employees.

The tumblers serve as both a replacement for Styrofoam™ cups and a reminder of DP&L's commitment to recycling and sustainability.

The addition of office waste recycling was extremely successful and decreased the amount of waste being landfilled substantially. However, the implementation of the program increased the overall waste handling contract costs. In order to improve the program, and lower costs below 2014 levels, the team examined the materials being recycled to determine if potential revenue streams existed. The team determined that 75% of the office waste being recycled was cardboard, which can be baled and sold as a commodity. In order to utilize the cardboard as a source of revenue, DP&L purchased a baler to process/prepare the cardboard on-site. The cost of the baler was supplemented with a grant from the local waste district which covered 75% of the cost. As a result, the return on investment for the baler is estimated to be less than one year. Overall, the office recycling program is estimated to have successfully diverted over 50 tons of office waste in its first year.

Continued from page 4

Phase Two - Construction and Field Services Program

After successful implementation of the office recycling program, a new team was formed to explore opportunities to recycle waste generated through business operations related to field maintenance of electrical infrastructure. The targeted areas of the program were utility poles, wooden pallets, wooden reels, and scrap metal. Similar to the office program, the team completed an initial assessment focused on quantifying the current recycling efforts and costs of disposal. They then created a comprehensive summary of waste disposal practices and quantified DP&L's current level of waste diversion.

The team found that DP&L has a robust metal recycling program, but lacked a way to recycle or reuse wooden waste, including utility poles, wooden cable reels, and pallets. In order to divert this waste, DP&L invited companies to provide proposals for reuse of these materials. Through the bidding process, DP&L received bids from a number of companies who specialize in repurposing utility poles and other wooden waste streams.

Pole recycling

Ultimately, a contract was negotiated which requires recycling of all reusable utility poles and disposal of those not considered reusable. Implementing the utility pole recycling program will not only divert waste from landfills (approximately 800 tons annually), it will also reduce man-hours and safety concerns associated with preparing utility poles for disposal. DP&L also plans to use the same contractor to handle wooden pallet and reel recycling. This additional recycling program will further allow DP&L to save man-hours related to breaking down the reels and provide an additional level of commitment to sustainability.

As mentioned earlier, DP&L maintains a well-established metal recycling program that captures scrap metal in the field and at Regional Service Centers. DP&L's metal program utilizes a back hauling procedure to ensure the highest value for scrap metal (scrap companies typically discount payments with increased material handling). Metal is collected at Regional Service Centers and then back hauled by DP&L employees to a centralized location. From there, the metal is collected and hauled away by our scrap metal buyer. In 2015 DP&L recycled approximately 325 tons of material.

Although the program captures the majority of metal, there are areas where the metal recycling program can be improved. During the initial assessment, it was determined that a large volume of metal was being disposed as waste. Through the placement of additional scrap metal containers, DP&L anticipates a recovery of an additional 72 tons of scrap metal. Also discovered during the assessment was that cable reels were being sent to the landfill with unused scrap cable still on the reel. After the situation was communicated to the team, DP&L negotiated with the scrap metal buyer to spot purchase the metal cable still on the reel. By opening up channels of communication with employees and contractors, the team was able to effectively address the concern and capture additional revenue.

Within it first two years of implementation, the DP&L waste diversion program has proven to be very successful. Through systematic assessment of waste generation and recycling efforts, DP&L was able to substantially increase waste diversion and recycling, capture additional revenue streams, and raise our level of corporate citizenship and responsibility.

Author - *Jake Elder is a Senior Environmental Specialist in the Corporate Environmental Policy Group at AES/The Dayton Power and Light Company. He provides environmental support to Generation and Transmission/Distribution businesses with an emphasis on water, waste/ash, spill clean-up, and decommissioning.*

Surface Water Due Diligence Considerations

Etan Hindin, CEP-IT

Environmental due diligence tends to focus on visible or record-based evidence of known or potential impact to soil and/or groundwater. Common examples include the presence of current or historic underground storage tanks, groundwater monitoring wells and significant staining or areas of distressed vegetation. The presence of surface water within or adjacent to the subject property is often merely noted in Phase I Environmental Site Assessment Reports with no further discussion. What are the basic requirements for addressing surface water during the due diligence process to afford Landowner Liability Protections (LLPs) and what if any additional proactive investigation is warranted from a business risk perspective?

In order to qualify for LLPs, an Environmental Site Assessment (ESA) conforming to the All Appropriate Inquiries Final Rule (40 CFR Part 312) must be performed among other requirements in certain cases. The "gold standard" for conformance with 40 CFR Part 312 is the ASTM Standard E1527-13 (hereafter the Standard).

The goal of the ESA as presented in the Standard is to "to identify *recognized environmental conditions*… the presence or likely presence of any *hazardous substances* or *petroleum products* in, on, or at a *property*:

(1) due to any *release* to the *environment*;
(2) under conditions indicative of a *release* to the *environment*; or
(3) under conditions that pose a *material threat* of a future *release* to the *environment*.

The Standard defines *environment* by referencing the definition provided in CERCLA 42 U.S.C § 9601 (8) which reads - "The term "environment" means (A) the navigable waters, the waters of the contiguous zone, and the ocean waters of which the natural resources are under the exclusive management authority of the United States under the Magnuson-Stevens Fishery Conservation and Management Act [16 U.S.C. 1801 et seq.], and (B) any other surface water, ground water, drinking water supply, land surface or sub-surface strata, or ambient air within the United States or under the jurisdiction of the United States."

Part B of the definition of environment includes "any other surface water" and as such in evaluating whether or not a Recognized Environmental Condition exists at the subject property, the ESA must consider potential releases to surface water in addition to other environmental media included in the CERCLA definition of environment above. What if any surface water-specific questions and tools should the Environmental Professional employ?

The first question worth considering is; what is the surface water classification, if any? This can vary by state, however using New Jersey (full disclosure - the state within which the author resides) as an example, the surface water can be classified as Fresh Waters 1 (FW1), Pineland Waters (PL), Fresh Waters 2 (FW2), Saline Estuarine One (SE1), SE2, SE3, or Saline Coastal (SC). The surface water quality standards vary by classification.

Examples are included in the table below.

Substance	Fresh Water (FW2)	Saline Water (SE & SC)	New Jersey Residential Direct Contact Soil Remediation Standard
Benzene	0.15 µg/L	3.3 µg/L	2 mg/kg
Tetrachloroethylene	0.34 µg/L	1.6 µg/L	2 mg/kg
Trichloroethylene	1.0 µg/L	12 µg/L	7 mg/kg

SOURCE: New Jersey Administrative Code (N.J.A.C.) 7:9B-1.13 and 7:26D

Continued from page 12

The table shows order(s) of magnitude difference in the standards for different water classifications and an even more dramatic difference between surface water and soil (note the units in red). As such a release of hazardous substances and/or petroleum products on a site could theoretically be a non-issue on a property that has no surface water, yet constitute a Recognized Environmental Condition at a site with FW2 surface water and trigger extensive remediation and regulatory requirements.

The Environmental Professional might also consider the nature and duration of degradation of a known or suspected contaminant of concern in freshwater vs. saline water at a site, and perhaps more significantly in surface water vs. soil.

Asking and addressing the above questions can be crucial for the Environmental Professional to determine if a REC exists and conversely, neglecting this analysis in certain cases might negate LLPs.

From a business risk perspective a different set of questions and tools are worth considering. What are the added regulatory compliance requirements and/or potential liabilities associated with acquiring a property with impacted surface water or pristine water that could become impacted?

The difference can be especially profound if the surface water (e.g., stream) is a conduit for impact to offsite properties. What would the comparative cleanup (e.g. dredging vs. excavating) costs be given an equivalent release at a property with or without surface water? What health and safety protective measures might need to be implemented and what are the costs? What land use restrictions might exist or potentially be imposed in the future?

When there is only an inkling of suspicion that impact to groundwater exists, a consultant might hesitate to recommend sampling given the cost and equipment (e.g., Geoprobe). However, given the ease and low cost of collecting a surface water sample (and the potential liability noted above), a consultant might be more inclined to advise a client to sample.

In conclusion, consideration of potential impact to surface water (among other media) at the subject of an ESA is required to attain LLPs. When media-specific questions are asked and tools are used in addition to a holistic and historic perspective, the Environmental Professional can afford his or her client greater confidence that LLPs are attained *and* business risk is fully understood.

Author - *After successful completion of the New Jersey Department of Environmental Projection Watershed Ambassador Program, Etan Hindin joined the Enviro-Sciences (of Delaware), Inc. team. During the past five years he has been involved in conducting due diligence projects (Phase i/ Phase II), treatment storage and disposal facility audits, and regulatory compliance and permitting activities. Etan recently earned his CEP-IT.*

UPCOMING NEWSLETTER TOPICS:

APRIL

Habitat Conservation
(due April 20, 2017)

MAY

State Environmental Quality Regulations vs NEPA
(due May 19, 2017)

JUNE

Coastal Systems
(due June 16, 2017)

JULY

Renewable Energy
(due July 21, 2017)

AUGUST

Air Quality/Greenhouse Gases
(due August 18, 2017)

Our newsletter is only as strong as our members can make it.

So don't be afraid and GET INVOLVED!

The Certified Environmental Professional

The ABCEP Newsletter is published monthly and is intended to be a:

- Communication vehicle for the Board of Trustees and ABCEP Committees to inform and engage with CEPs and CEP-ITs on current activities within ABCEP and its future direction.
- Forum to report on current and emerging environmental issues, regulation and policy changes, and professional trends.
- Forum to provide professional guidance and advice to expand the professional growth and knowledge of members.
- Means for members to communicate with one another on current accomplishments, interesting projects, or lessons learned on the job with new approaches and successful problem solving solutions.
- Platform to acknowledge, highlight, and welcome active CEPs and CEP-ITs.

All members are encouraged to be active in their profession and affiliated professional organization.

If you have an article or a topic of interest that you would like presented in *The Certified Environmental Professional* newsletter please submit your completed article or topic request to Shari Cannon-Mackey, CEP ENV SP, at scannonmackey@burnsmcd.com; or to Andrea Bower at office@abcep.org .

Thank you,

Shari Cannon-Mackey, CEP, ENV SP
Editor