

Solid Waste Processing

Editor: Sherman "Pat" Patton

Summer 2005



MESSAGE FROM THE CHAIR

by Len Grillo, P.E.

These are exciting times to be involved in the solid waste processing industry.

Waste-to-energy is reemerging. Many facilities are planning expansions to existing capacity, and other communities are investigating waste-to-energy as an alternative to their existing disposal methods.

Waste-to-energy planning peaked in the 1980's in an energy-aware and environmentally conscious climate. At the time, there was often much opposition to this technology and the reasons were varied. People were afraid of the unknown and were not willing to risk having what was construed by some to be a potentially dangerous facility sited near them. The acronyms NIMBY (Not In My Back Yard), BANANA (Build Absolutely Nothing Anywhere Near Anything) and NOPE (Not On Planet Earth) were frequently heard.

Health risk assessments compared the risk associated with living near a facility with other everyday risks. Barbecuing in your back yard. Going on a cross-country flight. Eating peanut butter. And, yes, drinking breast milk. Those times also caused the creation of the longest word in the English dictionary - "dioxinthemosttoxicsubstanceknownntomankind."

Air pollution control regulations were then promulgated, making facilities comply or face shutting down. Most complied with these stringent regulations, installing state-of-the-art equipment, and continued to operate.

During the same time period, communities set aggressive recycling goals that many argued would be thwarted by waste-to-energy plants competing with

them for the waste. In response, materials recovery facilities became increasingly popular, and waste-to-energy waned. Many communities achieved their recycling goals through the use of such facilities.

Integrated waste management systems, incorporating both waste-to-energy and materials processing facilities together subsequently emerged during the 1990s. This combination of waste-to-energy and recycling has been found to be compatible and does not compromise the goals of either. Recycling rates reported at communities that have a waste-to-energy facility have been generally higher than those communities that do not have a waste-to-energy facility, thus disproving the supposition that the two technologies are mutually exclusive.

Waste-to-energy has faced and overcome every obstacle and objection put in its path. Many of the waste-to-energy facilities that were constructed in the 1980's are nearing the end of their initial contractual lives but not their practical or viable lives. Communities are starting to take steps to renew or renegotiate contracts for the next ten to twenty years because of their proven track record. In several cases, this includes adding additional processing capability to the existing facility. Those facilities have demonstrated that they can be a good neighbor and operate without risks, which were once thought by some to be potentially dangerous.

Although large landfills have recently sprung up in many areas, providing an inexpensive solid waste disposal alternative, it is becoming more costly to transport waste to them due to the high cost of energy. Transporting solid waste long distances simply to bury it, although cost-effective in the short term, is not an environmentally attractive long-term solution for our nation's problem.

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The first wave of waste-to-energy facilities was a result of high energy prices, favorable legislation and limited landfill space. Today, we again have rising energy prices. Recent legislation has included municipal solid waste as a renewable resource, giving favorable incentives to waste-to-energy. We are now facing circumstances that appear similar in many ways to the early 1980s when communities were investigating hundreds of waste-to-energy facilities across the country. This may be the start of another wave of implementation of energy recovery facilities.

The technology exists for recycling and waste-to-energy not only to coexist but also to thrive. The ASME Solid Waste Processing Division is dedicated to advancing both technologies to achieve integrated solid waste management plans throughout the country. Careful solid waste management is an environmental responsibility that we all must uphold. ♦

EDITORIAL: CHANGING WASTE by Sherman "Pat" Patton

I have seen many changes in the waste-to-energy business since my early days at Nashville Thermal in 1974. I had hair then, I didn't need glasses, and the Ringelman method (a scale of 1-5 on the opacity of the smoke) of measuring stack emissions is long gone. We started using grains/dscf, percent opacity, milligrams/dscm, micrograms/dscm, and now nanograms. There are so many zeros in front of these numbers that I had to buy a new calculator just to do the math. There's little doubt the State regulators push us around because they can, and in the meantime the giant coal burning utilities still belch their way stock holder profits.

Recently, a municipal client failed a dioxin test by 0.00000001 gram. A week and \$50,000 later the re-test was passed and met the requirement by over 0.000000020

grams. I'm so relieved to know that 1 billionth of a gram of dioxin isn't going to hurt anyone anymore. (It takes 30 years for the average human heart to beat 1 billion times)

There is still over 10,000 MWh of potential electrical energy from waste being buried every hour of the day, all year. That is the energy equivalent of almost 35 million tons of coal or 140 million barrels of oil per year. That should get everyone's attention.

But waste-to energy is shrinking, not growing. The cost of technology is taking its toll. Tennesseans decided to close their two waste-to-

energy plants, as well as Key West.

The Clean Air Act has cost taxpayers billions of dollars. We have cleaner skies. We are environmental responsible citizens. Let's continue our fight to push for Renewable Energy Credits, Green Power Acknowledgement, and a fair price for the power we generate. ♦



SCAVUZZO BESTOWED ASME DEDICATED SERVICE AWARD

Steven A. Scavuzzo has been selected to receive the ASME Dedicated Service Award for his contributions to the ASME Performance Test Code (PTC) Committees. Mr. Scavuzzo is Chairman of PTC 34, Waste Combustors with Energy Recovery; an Alternate Member of ASME PTC 4, Fired Steam Generators; and an Alternate Member of PTC 4.3, Air Heaters.

Mr. Scavuzzo is an Advisory Engineer, Performance Analysis Group, Fossil Power Division of Babcock & Wilcox in Barberton, OH. His responsibilities include heat transfer

calculation methods and computer programs related to functional boiler design (including on-line boiler diagnostics), approval responsibility for functional performance related guarantees, conducting boiler performance tests and analysis, and preparing test protocols and conducting acceptance tests on boilers, fans, pulverizers, and other major equipment in B&W's scope of supply. He received a BS degree in Mechanical Engineering from University of Akron in 1980. He is the primary support author of Chapter 9 — "Principles of Combustion" of *Steam - Its*

Generation and Use, 40th Edition.

In 1983, the ASME Board of Governors approved the establishment of the Dedicated Service Award. It honors unusual dedicated voluntary service to the Society marked by outstanding performance, demonstrated effective leadership, prolonged and committed service, devotion, enthusiasm and faithfulness. The award is presented to selected individuals who have served the Society for at least ten years. No more than 57 awards are presented annually. ♦

QRO COMMITTEE NEWS by John Norton, P.E., D.E.E.

The ASME committee responsible for the Certification Program for Operators of Resource Recovery Facilities Processing Municipal Solid Waste (QRO) has nearly completed an update of the standard originally adopted in 1989. The new standard incorporates the many procedural guidelines that the Committee has adopted to effectively administer the program. The update includes the changes adopted in 1996 and 1998 by addenda. Current certificate holders should not be concerned - no major changes are anticipated and their current certificate status and renewal dates will be the same as they are now.

The new QRO standard will include a new certification grade for waste combustion plant operators who are responsible for only waste combustion, not energy recovery. There are several such plants currently operating in the United States. Their certification requirements will be very similar to those for the

current "Provisional Certification." This category of operator certification will require a written examination. The question bank and topics will be the same, just no boiler or turbine questions for the Combustion Certification. This new certification level will be known as "Combustion Certification." It will not be a precedent for any other license level.

Resource Recovery Plant site certification, known as "Operator Certification," which requires oral examination by a panel of three, has been the subject of some special attention recently by the QRO Committee members. A special meeting of interested QRO committee members and Board of Examiner members was held this last April 28th at ASME Headquarters in New York City to review and compare examiner practices. The object of this meeting was to insure that uniform procedures were being followed by all of the Board of Examiners members.

Each potential QRO field examiner is a member of the Board of Examiners and is an "independent consultant" to ASME for this purpose; ASME pays his examination expenses and a small stipend. A Board of Examiners member cannot be a member of the QRO Committee. QRO has a detailed set of guidance procedures for the QRO field examinations that includes "key lines of inquiry" for the exam and other such specifics. ASME trains each examiner for this purpose and coordination meetings like this are held periodically to insure the necessary uniformity.

Anyone interested in being a member of this QRO certification committee should e-mail me at jnortons@aol.com or call (937) 223-5848. Also, as always, new test questions are happily received (with citations of authority, i.e., textbooks, peer-reviewed papers, etc.). They should be faxed to Gus Miller, FAX (516) 471-7807. ♦

14th Annual North American Waste to Energy Conference (NAWTEC-14)

May 2006, Florida

(Stay tuned for specific dates and location!)

Call For Papers & Presentations!

Don't miss this exciting opportunity to reach the largest specialty group of professionals in North America dealing with municipal waste-to-energy, combustion engineering science, and emerging waste conversion and processing technologies.

Abstracts are requested on the following topics:

- U. S. & International Facility Case Studies
- New Thermal Treatment & Waste Combustion Technologies
- Expanded WTE Capacity: Models for WTE Project Development
- Retrofits, Plant Upgrades & Maintenance Issues
- Approaches to Improving Public Perceptions of Waste Combustion
- Managing & Streamlining Plant Operation
- WTE and Recycling: A Compatibility Success
- Renewable Energy Credits (RECs) and Marketing WTE as Green Power
- Tax Credits, Energy Legislation & The Politics of Waste-to-Energy
- Air Emissions & Advances in Pollution Controls Systems
- Economics, Creative Financing & Revenue Generation
- Combustion Science & Engineering Concept

ABSTRACT SUBMITTAL DEADLINE

SEPTEMBER 9, 2005

Please e-mail or fax abstracts to: Brent Dieleman, SWANA Program Manager

Email: bdieleman@swana.org - Fax: (301) 589-7068

Any questions - please call (240) 494-2237

SUBMITTAL GUIDELINES:

Preference will be given to papers that address (1) actual plant operations and experience highlighting problems and solutions; (2) new technologies being implemented or tested; (3) innovative management practices; and (4) applied research. Only one presenter per paper is permitted, unless otherwise arranged.

Abstracts should be 500 words or less and should include the topic description, a summary of the data to be presented, and identification of key conclusions. All abstracts and papers submitted must be original in nature, not having been presented or published elsewhere. Please include contact information on the abstract and all transmittal materials, as well as a biography of the presenter highlighting career and presentation experience.

Presented by:

ASME Solid Waste Processing Division
Solid Waste Association of North America (SWANA)
Integrated Waste Services Association (IWSA)



In Partnership With:

Waste-To-Energy Research and Technology Council (WERT)



NAWTEC PROGRAM KEEPS GETTING BETTER by John S. Austin, P.E.

Many members and industry experts gathered in Orlando, May 23-25, for the Thirteenth Annual North American Waste To Energy Conference (NAWTEC-13). The conference was a great success for technical papers, and the Disney Swan Hotel was an exceptional place to hold the meeting. Attendance was up for the third straight year with 365 people attending the conference, and more exhibitors came. During NAWTEC-13 the Solid Waste Processing Division sponsored the Awards Luncheon, which was the setting for awarding honors to individuals and facilities (see related story elsewhere in this newsletter). Attendees completed the conference by touring the Covanta Lake County Waste-To-Energy Facility, where we also enjoyed a wonderful berry and desert reception.

Papers presented detailed current topics and new technology including managing

fireside fouling and corrosion, new European studies and technology concerning MWC ash, several great plant improvement projects, and many academic papers touching on new areas of research for Waste-To-Energy. Members of the Solid Waste Processing Division again played a major role by reviewing and publishing the technical proceedings. Twenty-four papers were reviewed with the help of over thirty peer reviewers, and almost seventy people participated in putting the papers and technical proceedings together. Especially helpful this year were the people of Covanta Energy and the Columbia University Earth Engineering Center.

We believe the continually improving proceedings are now attracting authors to NAWTEC, and next year we hope to get even better. Mark Bobman from the Bristol Resource Recovery Authority will be our

Papers Vice-Chair and NAWTEC-14 Proceedings Co-Editor. Mark will help to bring in new reviewers and add a little new energy to NAWTEC. If you want to be a part of NAWTEC-14 as a reviewer or author, please contact either one of us.

NAWTEC-14 will be held in Miami Beach next year, where we always get a great turn out. If you have an interesting project, product or research please see the NAWTEC-14 Call for Papers and Presenters to get information on how to get in on the hottest industry conference dealing with waste, combustion and air pollution issues.

John Austin, (757) 865-1914;
jaustin@hampton.gov

Mark Bobman, (860) 585-0419;
mbobman@brrfoc.org ♦

NEXT WTER MEETING IN NEW YORK CITY by Prof. Nickolas J. Themelis

The next Annual Meeting of the Waste-To-Energy Research and Technology Council (WTER) will be at Columbia University in New York City on October 20-21, 2005. Please make a note in your calendar and we will send information for on-line and by mail registration by the middle of August.

Those of you who attended the 2004 Awards Meeting (NYC, October 7-8) know that it was a sterling event with participation and presentations from fourteen nations. This year's meeting is promising to be even better. For the first time, it will be held jointly with the fall meeting of the ASME Solid Wastes Processing Division, who will sponsor two important joint events at this meeting:

- a) In the afternoon of Wednesday October 19, preceding the WTER meeting, there will be a visit of the Hempstead, New York, Waste-to-Energy facility of American Ref-Fuel
- b) ASME will also host the WTER annual dinner to be held in the evening of Thursday, October 20, in the Faculty Room of Columbia University's Low Rotunda where the annual Dupont and Pulitzer awards are made.

At the October 20 WTER dinner, we will present a Distinguished Service Award to Ms. Maria Zannes, who is retiring as President of Integrated Waste Services Association this summer, for her several contributions over the years to waste-to-energy and to WTER.

A WTER Distinguished Service Award will also be presented to Wheelabrator

Saugus, Inc. (Saugus, MA) for completing their 30th year of successful operation and going strong for the next 30. Saugus has demonstrated that under proper management and maintenance, WTEs can be part and parcel of sustainable development.

As in previous years, the technical program of the Fall 2005 meeting will include presentations from around the world on advanced technologies for the recovery of energy and materials from used solids. Also, we plan to hold two special meetings, one on Beneficial Uses of Ash, as we did last year, and another on Corrosion Abatement, in which we will discuss the results of our ongoing round-robin corrosion survey and other research on methods to reduce corrosion in WTE combustion chambers.

We are open to members' suggestions as to subjects they may want to introduce at the meeting, either in the form of presentations or in the poster session. Please send suggestions by e-mail to njt1@columbia.edu.

WTER (www.columbia.edu/cu/wter) was co-founded in 2002 by Columbia University and Integrated Waste Services Association (IWSA). Its mission is to conduct academic research on various aspects of energy and materials recovery from solid wastes and disseminate the findings of its research to professionals and the general public.

We rely heavily on faculty and graduate students who are concerned with integrated waste management and waste-to-energy. All facilities and faculty are provided by various units of Columbia University, in particular

the historic Henry Krumb School of Mines. The major outside sponsor is IWSA. Other sponsors include the American Chemistry Council, the Green Fund and the Solid Wastes Processing Division (SWPD) of ASME.

WTER is a partner, with SWANA, SWPD and IWSA in the annual NAWTEC meetings held each May. In the last few years, WTER has presented over twenty papers on research addressed to advancing waste management and WTE technologies. ♦

UPDATE ON PTC-34 DEVELOPMENT

By Len Grillo, P.E.

The ASME Performance Test Code for Waste Combustors with Energy Recovery (PTC-34) is nearing completion. The Committee is now in the final stages of reviewing and editing the document. We have met twice in 2005 and are expecting to release the document for industry review by the end of August. Anyone interested in reviewing and commenting on the document before publication should contact Jack Karian at ASME at (212)591-8552 or karianj@asme.org. ♦



WASTE-TO-ENERGY SESSIONS PLANNED FOR 2005 CONGRESS

The SWPD is sponsoring a series of sessions on Waste-to-Energy as part of the Energy Industry Track at the 2005 ASME International Mechanical Engineering Congress & Exposition, November 5-11, in Orlando, Florida. The Congress will be held at the award-winning Walt Disney World Swan and Dolphin Hotel.

Organized by Pete Napoli of Martin Conveyor Division, among the planned sessions is a panel on developments over the past 25 years with the original "Green and Renewable Energy Source: WTE." Panelists will discuss technical innovations made to meet environmental issues and EPA requirements in addition to WTE's role providing

power as an important component of an overall national energy program.

For the most up-to-date information on the Waste to Energy Sessions, including the Congress in general, visit: <http://www.asme-conferences.org/congress05/index.cfm> ◆

MEMBERSHIP COMMITTEE REPORT by Peter Napoli



Be an integral part of the leading professional organization of the solid waste recycling, processing and combustion industry...

SOLID WASTE PROCESSING DIVISION



MEMBERSHIP APPLICATION INSIDE

To promote involvement in the ASME, the SWPD Membership Committee is performing the following activities. A new division brochure was also released at NAWTEC-13 in Orlando.

Invitation letters will be sent to:

- All QRO Certificate holders that are not ASME or SWPD members;
- All QRO Certificate holders that are ASME members but are not members of the SWPD;
- All ASME members who have SWPD listed as their secondary division;
- All suppliers and vendors of waste to energy components,

air pollution control systems, environmental monitoring equipment suppliers, and compliance testing firms;

- All other firms directly or indirectly supplying and maintaining recycling and recovery equipment; and
- Mechanical engineering or graduate students interested in solid waste activities.

The SWPD is also conducting recruitment booths at relevant trade shows and seminars.

We also encourage the active participation of retirees and "old timers." It is the goal of this membership drive to increase our membership by 20% and increase active participation on each committee. If you have comments or suggestions on recruitment or our programs please let our committee members know. ◆

◀ *New SWPD brochure*

NFMS SYSTEMS FOR WASTE-TO-ENERGY ASH STREAMS

Elevated pricing for non-ferrous metals recovered from ash streams has sparked interest by owners of waste-to-energy facilities for the installation of a non-ferrous metals separation (NFMS) system at their facility. One example is the McKay Bay Resource Recovery Facility in Tampa, Florida. The McKay Bay Facility has 1,000 TPD capacity and is owned by the City of Tampa and operated by Wheelabrator McKay Bay, Inc. An engineering study has been performed to define technical issues and costs to install a system. Currently, ferrous metal is removed from the combined ash stream via a 6" scalper screen, drum magnet, and finger deck screen. Ferrous and ash storage collection and load-out is in the Ash Management Building (AMB). In the design of the AMB, space was allocated for future installation of a NFMS system. Estimated engineering and construction cost for the NFMS system is \$600,000. The projected return on investment is 3-4 years. For information on this project call Thomas White, P.E., at (813) 248-1457. ◆

ASME HONORS INDIVIDUALS AND FACILITIES by Tony Licata, P.E.

On May 23, 2005, the ASME Solid Waste Processing Division conferred the following honors during its Annual Awards Luncheon at the 13th North American Waste-to-Energy Conference (NAWTEC-13) in Orlando, Florida.

Medal of Achievement

The Medal of Achievement was awarded to H. "Lanny" Hickman Jr. P.E., DEE. Mr. Hickman served as the Executive Director and Chief Executive Officer of SWANA until 1996, and under his guidance, SWANA grew from 900 members to over 7000 members in 10 countries. Prior to joining SWANA, Mr. Hickman was Director of Operations for the federal solid waste management program for the USEPA and was deeply involved in the development of the Resource Conservation and Recovery Act. (RCRA). Mr. Hickman currently is a consultant for the World Bank assisting in solid waste projects.



Lanny Hickman (right) and his wife, Kay, receive the SWPD Medal of Achievement from SWPD Honors & Awards Committee past chair, Tony Licata (left).

Distinguished Service Award

The Distinguished Service Award was awarded to Robert Hall, P.E. for his many years of service to ASME and the solid waste industry. Mr. Hall serves as Chief of EPA's

Air Pollution Technology Branch in Research Triangle Park, NC. His research has resulted in over 70 technical publications and one patent. Mr. Hall has focused on NOx control through combustion technology. Mr. Hall also serves as Chair of the ASME's Research Committee for Industrial and Municipal Waste.



Bob Hall(right) receives the SWPD Distinguished Service Award.

Facility Recognition Awards

The following facilities were selected to receive the 2005 Facility Recognition Awards:

The Green River Energy – Elk River Station (Category: Large Combustion Facility - tie)

The Green River Energy – Elk River Station, owned by the Minnesota generation and transmission Co-Op and operated by NRG Energy, Inc., is a converted coal-fired boiler

equipped with state-of-the-art combustion controls, scrubber/baghouse, and boiler maintenance technology. In operation since 1989, it fires up to 1500 tpd of RDF supplied from a consortium of five counties in the Minneapolis/St Paul area.



Wayne Hanson (right) receives the Large Combustion Facility Award on behalf of Green River Energy

American Ref-Fuel, Company of Hempstead (Category: Large Combustion Facility - tie)



Owned and operated by American Ref-Fuel located in Westbury, New York, this facility is a 2,670-tpd mass burn waste to energy facility presently in its 16th year of operation. The facility exports 548,000 MWhrs of electricity per year. The Facility is a designated OSHA VPP Star site and is Long Island's first member of the USEPA's National Environmental Track Program.



continued on page seven



Steve Bossotti (left) receives the Large Combustion Facility Award for American Ref-Fuel.

Bay County Resource Management Center (Category: Small Combustion Facility)



Owned by Bay County, Florida and operated by Montenay Power Corporation, Bay County Resource Management Center is a 500 tpd mass burn waste to energy facility utilizing rotary combustor technology and recently upgraded with scrubber and bag-house to meet the Clean Air Amendment Acts. This facility went into commercial operation in 1989 and generates approximately 75,000 MWhrs per year. The Bay County Resource Management Center is also an OSHA VPP Star facility, ISO 14001 registered, and an EPA Performance Track Site.



Jerry Gross (left) receives the Small Combustion Facility Recognition Award on behalf of Bay County Resource Management Center

Montgomery County Recycling Center (Category: Material Recovery Facility)



The recycling facility is owned and operated by Montgomery County and has processed over 300,000 tons of commingled material since 1991. Over 120,000 students have toured the Facility since start-up. The ageing facility equipment was replaced in 2002 with a corresponding increase on revenues from higher efficiencies and availability and decrease in operating cost.



Tom Kusterer (left) receives the Material Recovery Facility Award for Montgomery County Recycling Center

Honorable Mention

Montenay Savannah (Category: Large Combustion Facility)



Bettina Kamuk - ASME Appreciation Award



Bettina Kamuk (right) receives an ASME Appreciation Award for her presentation at NAWTEC-13.

Lastly, Nat Egosi was recognized at the Awards Luncheon for his two years of service as Chair of the ASME Solid Waste Processing Division from 2003 to 2005.



Nat Egosi (left) receives an appreciation plaque from in-coming SWPD chair, Len Grillo

Call for Applicants!
 If you would like to submit the names of individuals, facility recognition, or research projects to be considered for the ASME SWPD awards programs, please contact the SWPD Honors & Awards Chair, Nat Egosi, via email at negosi@rrtenviro.com or phone, (631) 756-1060 x 108. Facility nomination forms are also available on the SWPD website at: <http://divisions.asme.org/swpd/awards/fraward.html> ◆

◀ Jay Howell (left) receives an Honorable Mention Award on behalf of Montenay-Savannah

Solid Waste Processing

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SWPD SCHOLARSHIP PROGRAM ENHANCED

by Amit Chattopadhyay, P.E.

The Scholarship Program continues to be an important part of ASME-Solid Waste Processing Division activities. The Division awards annual total of \$9,000 in scholarships with a view to stimulate interest in students in solid waste processing and related fields. The program has been generally satisfactory in the past; however, in order to enhance participation in the Scholarship Program, the Scholarship Committee has been making efforts to revise the program for increased effectiveness. For example, the student eligibility base was expanded to include environmental programs with solid waste related courses; a new category of Continuing Education Scholarship was added to our already existing Graduate and Undergraduate categories; and with the assistance of ASME and several individuals in the academia we have been able to enhance our communication efforts to "spread the news" effectively.

This year we have embarked on an industry participation program to increase the total annual scholarship fund outlay. We will be

sending out solicitation letter to the leaders in the industry, and supporting service provider firms. Hopefully, at this time next year we will be able to share some good news in this respect.

We continue to evaluate our program, and based on the outcome of the current program, further enhancements will be undertaken in the future.

Congratulations to the 2004-2005 Scholarship Recipients!

We wish the best to the two Graduate Scholarship Recipients:

- Jon Powell (University of Florida, Environmental Engineering Sciences) and
- Jason Evans (San Diego State University, Civil and Environmental Engineering)

We wish the best to the Undergraduate Scholarship Recipient:

- Sean King (University of Florida, Environmental Engineering Sciences)

All scholarship winners will also receive a complimentary one-year membership in ASME. For additional information about the SWPD Scholarship Program, visit: <http://divisions.asme.org/swpd/studentprograms/index.html> ♦