SPRING SEMINAR
DON'T MISS IT!

On Tuesday, March 26, 1991 New England Hospital Engineers Society will be holding our Spring Seminar, in Boston, MA at the Hynes Convention Center, room 210. The topic is NFPA 99 - Health Care Facilities. The speaker will be David Elliott, Chief of Engineering Services, State of Conn. Department of Corrections. The program will run from 9:00 AM until Noon followed by lunch. The cost is $40.00 for members, $65.00 for non-members.

Registration information has been mailed to all members. Feel free to photocopy the registration form and pass it along to an associate. Anyone who did not receive seminar information or those needing further information can contact:

Gus Basque Jr., Eng. Supervisor
Haverhill Municipal (Hale) Hospital
Phone: (508) 374-2000
Fax: (508) 521-2574

SIGNAGE

An excellent article written by Jack Berger on signage programs in hospital setting was published this month in Awards & Engraving magazine. The story explains how Jack at J.B. Thomas Hospital developed a new internal signage system which was successfully completed on a very low budget. This was especially important given the economic situation in hospitals these days.

The chances are that you do not have access to this trade journal but Jack Berger will be happy to forward copies to any members who ask for one. Call him at 508-531-2900 or reach him by FAX 508-531-5771.

FIRST QUARTER 1991

EQUIPMENT AND UTILITIES RISK ANALYSIS

The Joint Commission for the Accreditation of Hospitals Plant Technology and Safety Management Standards allow and encourage the use of risk analysis to determine what equipment will be included in the hospitals equipment management program. This can be of great advantage to hospitals, since it allows the facility to control the number of devices which must be aggressively managed by the hospital. Quality of patient care, cost containment, and risk management efforts will be aided through prudent equipment risk management analysis, since available resources can be directed to the areas of greatest need, instead of to areas which pose few problems.

In 1988 our organization developed a system to assist hospitals to comply with the Equipment Management standards, PL3. This system is used in many of the hospitals in Vermont, New Hampshire and New York who subscribe to our clinical engineering shared service. In 1991, we began to expand this to include Utilities Management, PL4. The ensuing discussion of risk analysis is based on these systems.

The first step in the development of a comprehensive equipment management program is to obtain an accurate inventory of all equipment in the facility. Risk analysis should only be performed after the inventory has been finalized, so that all identical devices can be evaluated as a group, which may save a considerable amount of time.

Criteria for performing the analysis can be as basic as the PTSM PL3.1 standard which includes: characteristics of equipment function, clinical application, maintenance requirements, and equipment incident history, or PL 4.1; utilities for life support, infection control, environmental support, and equipment support elements, or as complex as the facility has the time and energy to evaluate. The best approach to setting the criteria, especially when first developing an equipment management program is to start out with basic criteria, which can be expanded upon at a later time. For purposes of discussion, the criteria discussed are based on the recommended criteria included in these equipment management systems, which are drawn directly from the PL3 and PL4 standards.

A simple yet effective set of criteria is a combination of the PL3 and PL4 requirements applied to all equipment. This makes analysis easier since all devices will be evaluated in a consistent manner. The criteria consist of a series of questions, designed to direct the evaluator to make broad decisions concerning the equipment in a minimal amount of time.

The model criteria set consists of four major criteria: clinical equipment, utilities equipment, risk classification, and maintenance requirements.

Criteria One:
The first criteria relates to clinical equipment. Theoretically, clinical equipment poses the most direct source of risk to the patient. While that is not strictly true, clinical equipment is generally managed for risk in a more aggressive manner. The series of questions are to determine if the equipment is used for:

(Risk Analysis continued on pg. 7)
WHITE WATER RAFT TRIP PLANNED FOR HOSPITAL ENGINEERS

This is your chance to have meet other hospital engineers and have some real fun. We are planning a white water raft trip next summer, during July, preferably on a Monday.

We will be running the upper portion of the Penobscot River in Northern Maine.

It is a full day trip, includes a steak lunch. The raft trip costs about $60.00 each, does not include lodging.

Come stay overnight in the Big Moose Inn, have lots of fun.

If interested contact:

Bob Lord
Parkview Memorial Hospital
329 Maine Street
Brunswick, Maine 04011
(207)729-1641

A CHECKLIST OF WATER CONSERVATION IDEAS FOR HEALTH CARE FACILITIES

GENERAL SUGGESTIONS

Increase employee awareness of water conservation.

Seek employee suggestions on water conservation; locate suggestion boxes in prominent areas.

Conduct contests for employees (e.g., posters, slogans, or conservation ideas).

Determine the quantity and purpose of water being used.

Install signs encouraging efficient water use in employee and patient restrooms, lounges and rooms.

When cleaning with water is necessary, use budgeted amounts.

Read water meter weekly to monitor success of water conservation efforts.

Assign an employee to monitor water use and waste.

Use paper cups for drinking water instead of free-flowing drinking fountains.

Minimize the water used in cooling equipment, such as air compressors, in accordance with the manufacturer recommendations.

Avoid plant fertilizing and pruning that stimulate excessive growth.

Remove unhealthy plants so remaining plants can benefit from the water saved.

In many cases, older established plants require only infrequent irrigation. Look for indications of water need, such as wilt, change of color, or dry soils.

Install soil moisture overrides or timers on sprinkler systems.

Time watering, when possible, to occur in the early morning or evening when evaporation is lowest.

Irrigation equipment should apply water uniformly.

Investigate the advantages of installing drip irrigation systems.

Mulch around plants to reduce evaporation and discourage weeds.

Remove thatch and aerate turf to encourage the movement of water to the root zone.

BUILDING MAINTENANCE

Check water supply system for leaks and turn off any unnecessary flows.

Repair dripping faucets and showers and continuously-running or leaking toilets.

Reduce the water used in toilet flushing by either adjusting the vacuum flush mechanism or installing toilet tank displacement devices (dams, bottles, or bags).

Install flow reducers and faucet aerators in all plumbing fixtures, where possible. As fixtures wear out, replace them with water saving models.

Shut off the water supply to equipment and rooms that are unused. Discontinue water circulation pumping in unoccupied areas.

Ensure return of steam condensate to the feed water tank for re-use.

Shut off spray coil units, except where humidity in critical areas cannot be maintained by other means or where the units are used to reduce chiller operation.

Keep hot water pipes insulated.

Avoid excessive boiler and air conditioner blow down. (Monitor total dissolved solids levels and blow down only when needed.)

Avoid runoff and make sure sprinklers cover just the lawn or garden, not sidewalks, driveways, or gutters.

Do not water on windy days.

Water only during prolonged hot and dry periods. (During spring and fall, most plants need approximately half the amount that they need during the summer.)

Source: State of Rhode Island and Providence Plantations - Governors Water Conservation Program
Robert K. Griffith, Director, (401) 277-1220

Submitted by: Ken Boyer
Womens and Infants Hospital
MASSACHUSETTS REPORT
February 1, 1991

Since this is my first day as the N.E.H.E.S. Massachusetts Representative, I do not have a formal report. However, I would like to outline what my goals will be for this year.

1. Introduce myself to the Massachusetts membership via a letter, and let them know what N.E.H.E.S. has to offer and how I can better serve them.

2. Attend at least one meeting of the four established engineering clubs to introduce myself and hear what problems they have and if N.E.H.E.S. can help.

3. Encourage membership enrollment and possibly bring some of the lost sheep back in the fold.

Presently (as of 1990), there are 113 active and 9 honorary members on the Massachusetts roster.

I would like to thank George Hawley for this opportunity to serve as the Massachusetts Representative. The challenges I face will be most welcomed.

Respectfully submitted,
Terry Ringer
Massachusetts Representative of N.E.H.E.S.

RHODE ISLAND REPORT
February 1, 1991

The last meeting of the Rhode Island Hospital Engineers took place at Women & Infants Hospital, 101 Dudley Street, Providence, Rhode Island on Friday, January 25, 1991.

Our guest speakers were Ed Zesk, Senior Vice President of the Hospital Association of Rhode Island and one of our NEHES members, Don Svendsen, Executive Engineer, Miriam Hospital, Providence, Rhode Island. Ed discussed the need to conserve water and Don shared with us the how and what he went through in order to obtain a grant that was available through a water conservation audit.

I believe the highlight of Ed Zesk discussion was the Hospital Engineers role in agreeing that we must work towards reducing the usage of water, in a responsible manner, to enhance our image or it will be done for us by others.

Tom Galligan will be supplied with additional tapes to review for our library.

I have signed two applications for membership - Tom Magliocchetti and David Fontes. Both are from Roger Williams Hospital in Providence.

May I suggest another Career Development Bulletin similar to the one by Jack Berger in December, 1988 when he was Chairman of Career Development. My personal interest is in the pay scales of Hospital Engineers, their Assistants, and their Secretaries or Office Coordinators.

Update on the Fall Seminar:
I have mailed to each Board Member a Preliminary Schedule for review. To date, I have had requests to make some minor changes. I am asking for input on your part in order to make this a more successful gathering. I would like to review this schedule under new business, if time permits.

Some additional members are involved: Ovid Bordianu of Newport Hospital is involved with the catering service. He will be working with Kim Schiavone, Catering Sales Manager of the Newport Marriott Hotel.

Tom Borden of Women & Infants Hospital is working on the vendor participation. We will have 55 booths available for vendors and 1 for our personal use. I have enclosed a preliminary vendor application for your review.

The scholarship is being handled by Ed Fazzi and George Silva of Bradley Hospital. They are working with an Engineering Professor at the University of Rhode Island.

The Spouses Program is a joint effort involving Newport Hospitality, Marie Slover (wife of NEHES member, John Slover, Newport Hospital), and myself. I have attached a preliminary schedule of the Ladies Program for your review.

May I suggest that the New Hampshire Fall Seminar Chairman be given copies of all of my reports.

I will update the Board at future meetings.

Respectfully submitted,
Ken Boyer
Rhode Island Representative

NEW HAMPSHIRE REPORT
January 04, 1991

The New Hampshire Society held a meeting on December 20, 1990. The meeting was held at B. Mae Denny's Restaurant & Lounge in Concord, NH. The meeting consisted of the following items.

1. New officers were elected, they are as follows:
   - President - James Meehan
   - V. President - Wayne Holtt
   - Sec/Treas. - Ken Waite
   - State Rep. - Steve Shaw

2. Long standing member Ray Sullivan announced his retirement, the group voted to give Ray honorary membership. I request that Ray be given honorary membership into the New England Society as well. I have added his address to facilitate the process:
   - Mr. Raymond Sullivan
   - P.O. Box 591
   - Concord, NH 03301
3. The program for this meeting consisted of a Safety presentation given by Mr. Arnie Andersen safety consultant with Peerless Insurance. It was delivered very well and served as a timely reminder to all.

4. The next meeting will be held on January 17th at the Nashua Memorial Hospital in Nashua NH.

February 01, 1991

The New Hampshire Society held a meeting on January 17, 1991. The meeting was held at Nashua Memorial Hospital in Nashua, NH. The following items made up the business meeting.

1. It was decided that one of the most important objectives in the Society is to have an active membership. In an effort to get more members to participate it was decided to hold meetings at the facilities of less active member.

2. The members decided that Jim Meehan would approach one or two members to be Fall seminar chairman for the 1992 NEHES program.

3. The education program for this meeting consisted of a presentation by the NH Department of Environmental Services Waste Management division. It was an interesting session especially to those that presently operate on-site incinerators.

4. The next meeting will be held on February 21st at Exeter Hospital in Exeter NH.

Respectfully submitted,

Stephen Shaw
NH Representative

VERMONT REPORT

December 1990

Minutes from the June meeting were read and accepted without change.

Old Business:

Update, Life Safety Code 101: A ruling was requested by Rutland Hospital with regard to the Fire Marshall's interpretation. At this time ducts that serve corridors and adjoin spaces do not require smoke dampers. However, the conflict in the purpose of the wall resisting the passage of smoke and and open grill in the same barrier is being discussed with NFPA.

New Business:

1. Various motions were put before the voting members to change the wording of the following articles:

   Article 3, Section 3 - Dues
   Recommendations for annual dues will be made by the Executive Board, and presented to the voting members for approval at the annual meeting. Dues will be assessed in the month of January. Tabulation of the membership will be completed in the 1st quarter. Delinquent members will be notified by March 1st with 30 days to pay.

   Article 4, Section 1.2
   Secretary and Treasurer are changed to read Secretary/Treasurer

Article 4, Section 3
The Secretary and Treasurer positions and responsibilities are combined.

The board has received an application for membership by Ken Pease, State Fire Marshall. In the past the society has accepted the Construction Review Architect for the Vt. Health Department and Vt. Fire Marshall associated with hospital inspections. A motion was made to accept Mr. Pease as a full member.

Election of Officers:
A motion was made to re-elect the present slate of officers:
Chairman: Norm Welch
Vice Chairman: Mark Capello
Sec./Treas: Wayne Parry
The motion was passed:

Meeting schedule - 1991

March - Medical Center Hosp of Vt.
April - Copley Hospital
May - TSP Spring Seminar
June - N.E. Vermont Reg. Hospital
July - No meeting
August - Brattleboro Mem. Hospital
September - VHA Annual Meeting
October - NEHES Fall Seminar
Nov & Dec - No meeting

The topic for each meeting will be the responsibility of the hosting hospital. Mailing and announcements will be coordinated with the chairman. A suggested agenda is:

   Start: 10AM
   Lunch: 12 noon
   Tour of facility: 2pm
   Departure: 3pm

Respectfully submitted:

Norm Welch, Springfield Hospital

EXPERT WITNESS TESTIMONY

NEHES Vice President Jack Berger was recently involved as an expert witness in a medical malpractice litigation. The experience was very different from the normal daily routine of a plant engineer. A great deal of time was necessarily spent studying the subject and gathering information relating to the type of accident. Taking advantage of what was learned in the process, Jack documented the entire process and put it into an article for publication. At this time the article is being reviewed and is not available. If, however, you have questions about being called upon as an expert witness, or any of the aspects of forensic engineering, Jack will do his best to help you out. He may be contacted at (508) 531-2900 in Plant Engineering.
GENERAL INTEREST

36. Wiremold Perimeter Raceway - Wiremold - 10 Min
37. Building a Data/Computer Facility - 7 Min
38. JCAHO - Emergency Preparedness: (Discusses the JCAHO requirements for disaster preparedness using the real life example of Forest Hospital, Des Plaines, Ill. Features Ode Kell, Director, Plant Technology and safety JCAHO, who reviews the various requirements of the regulations and what surveyors look for in a Disaster Plan.)
40. When Seconds Count
41. The NEC Today by NFPA: Changes to the National Electrical Codes 1990
42. Fastener/Welding Seminar
43. Fire Safety
44. Cooling Tower Cleaning & Repair

Videotapes are available to members by contacting:
Thomas Galligan
New England Sinai Hospital
(617)344-0600

DONT GET BURNED BY HOT WATER

Most people associate burn injuries with fire. Yet a large percentage of burns treated are the result of scalds caused by hot grease or steam.

Most involve hot water. The victims are frequently small children, the elderly and the handicapped.

Many of us have experienced a scald as a momentary discomfort. Coffee or tea splashes out of a cup and causes a small hand burn, or the shower has suddenly gone hot when someone else in the house has turned on the cold water.

Greater public awareness of scald hazards from tap water and stove-heated liquids can reduce the incident of this painful and sometimes crippling injury.

Very young children are susceptible to scalds when they inadvertently turn on the hot water tap, pull a kettle off of the stove or are placed in a bathtub full of hot water.

Children need constant supervision when they are bathed, because severe scalds can occur within a few seconds. Never leave a child in the bathtub to answer the door or telephone. Pot handles on stoves must always be turned inward so that a small hand cannot grab this potential hazard.

The elderly and handicapped are particularly vulnerable to scald injuries, because they may react too slowly when they adjust bath or shower temperatures, or they may fall and end up lying in scalding water.

Hot water can inflict burns as serious as any flame. Hot water at 156F can produce a third-degree burn in one second, while water at 130F can cause third-degree burns in 30 seconds.

Prolonged exposure to temperatures of 120F can produce a third-degree burn, and briefer exposures at any of these temperatures may result in second-degree burns. Many home water heaters can produce hot water at 160F, while commercial or industrial heaters have a heat potential of 180F.

The hospital policy regarding hot water is that the controls limit the temperature so as not to exceed 125 degrees at all handwashing, shower and bathing terminals in order to prevent inadvertent scalding.

This is checked by Plant Department personnel on a regular basis.

Submitted by:
Jack Berger, J. B. Thomas Hospital

The strength of NEHES is in its membership. To make our society stronger, copy the following page and pass it along to a colleague.
WHY NEHES?
NEHES is a professional organization of Hospital Engineers whose goals are to promote better patient care through mutual exchange of ideas and experiences, professional development by use of continuing educational programs, and effectiveness and efficiency through use of the latest technologies.

NEHES encompasses the six state region of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Through the many years of existence of what we now call the Hospital Engineer, patients and staff members have always relied heavily on this individual. Today, the scope of duties for the Hospital Engineer include facilities and plant management & operation, construction, security, clinical engineering, telecommunications, maintenance for just about everything, and lastly and most important, safety. Most often, the Hospital Engineer is the man behind the scene. Through membership and active participation in professional organizations, this man behind the scene can emerge and grow in his field.

PROFESSIONAL ADVANTAGES - Educational Opportunities
Spring and fall, NEHES conducts professional level seminars covering topics of current interest to the Hospital Engineer. Subjects range from specialty technical, material, eg., fire safety evaluation, construction management, to general type management skills. eg., preventive maintenance programs, mini-computer applications. These seminars are conducted by New England college faculty members or leaders in the field from the private sector and are arranged so that the spring session coincides with the New England Hospital Assembly meeting in Boston. The fall program rotates through each of the six member states of the organization. Certificates and CEUs generally accompany these continuing educational programs.

In addition to the above, membership in your state chapter, which is optional, will provide more of the same educational opportunities, usually on a smaller and more local basis.

INTRADISCIPLINARY AWARENESS
The constantly expanding scope of hospital engineering, through technical and regulatory changes, makes it mandatory for Plant Operations to interact with all hospital departments to that each facet of hospital engineering can cooperate effectively and efficiently.

SERVICES - Seminars
NEHES provides opportunities for members to communicate and exchange ideas to keep abreast of operational disciplines through its local State chapters, meetings, semi-annual seminars, newsletters, and committee activities.

The benefits of our society lies in the sharing and exchange of valuable resources such as: information, skills and experience. Board members can plan and provide the forums for this interchange of ideas but it is most effective when the members take part. To get the most from your dues dollars read the publications of the society, attend seminars, submit items to the newsletter for others to share, communicate with board members to express your own views.

PUBLICATIONS
Four times a year our Newsletter is published and distributed to the membership. Items of interest from the committees and the news from their states is printed in addition to Editorials and full length articles on pertinent engineering topics from our active members. Information sharing is a prime asset of the Newsletter and many member articles are submitted and printed regularly.

AFFILIATION
Members of the NEHES organization through their committee appointments, provide an active liaison relationship to the American Society of Hospital Engineers, National Fire Protection Association, New England Healthcare Assembly, Joint Commission on Accreditation of Healthcare Organizations, and other groups on a less formal basis.

ELIGIBILITY
Membership in the Society is open to individuals who are actively employed in the field of Hospital Engineering. This field embraces multiple disciplines that include the art and science of efficiently planning, managing, operating and maintaining the physical plants, facilities and equipment for health care.

MEMBERSHIP
There are three classes of membership in NEHES. In addition to active members, associate membership is for those who leave New England but remain in Hospital Engineering and wish to continue their association with the Society. Honorary membership is reserved for members retiring from Hospital Engineering after having participated in the Society for at least five years.

HOW TO APPLY
Complete and mail the application below to:

Joe Mona, Plant Engineering
Spaulding Rehab Hospital
125 Nashua St.
Boston, MA 02114

A membership application will be sent to you and, if desired, you will be contacted by a chapter membership in your area. After the chapter has approved your application, you will receive your membership certificate, pin and folder of general information.

___ Please send me an application
___ Please contact me

Name

Title

Department

Employer

Address

City State Zip

Business Telephone
(Risk Analysis, cont. from page 1)

a. Direct patient diagnosis?
b. Direct patient treatment?
c. Life Support?
d. Patient care in direct contact with the patient?

An affirmative answer to any of these questions indicates that the equipment should be managed under a clinical equipment category, PL3 standards. Placement in this category assumes a moderate degree of risk to patients, and hence a moderate degree of liability to the hospital.

Criteria 2:
If the equipment did not prove to be directly clinical, the second criteria will determine whether or not it belongs in the utilities category. Does the equipment have a role in:

a. Facilitation of life support?
b. Support of infection control systems?
c. Environmental support systems?
d. Critical equipment support systems?
e. Communications systems?

Any affirmative response indicates that the equipment should be managed using the PL4 standards as part of a utilities inventory. Utilities equipment may be even more critical to patient care and safety than an individual clinical device, since a single piece of utility equipment may be supporting the lives of a large number of patients.

Criteria 3:
The next query is used to determine the relative level of risk that the equipment poses in the facility. This criteria should be used on all equipment, even if it is not clearly clinical or utilities equipment.

a: What level of risk does the equipment pose to human health while used in the facility, misused by staff, or if the device fails during use?

Rate that risk: 0 1 2 3

b: Would loss of use of the device adversely affect patient care or safety of staff, visitors, or patients?

Rate that risk: 0 1 2 3

c: Has the device or ones like it been involved in an incident or safety related product recall?

Yes = 1 = 0

Key:
0 = little or no risk
1 = not likely to cause adverse human health effects
2 = may cause temporary affects or medically reversible health effects
3 = likely that serious or permanent health effects or death may result.

The resultant score is derived by adding the risk scores in a, b, and c. The higher the score, the more aggressively the piece of equipment should be managed. Additional maintenance or user education may be required to ensure continued safety. If the device was not previously classified as clinical or utilities equipment and has a non-zero score for this criteria, it is recommended that the hospital include it as part of a non-clinical equipment inventory, which could follow the PL3 or PL4 standards.

Criteria 4:
The last criteria deals with degree which maintenance of the equipment affects its reliability and overall safety. In order to support optimal patient care and safety in the facility, does the equipment require:

a. Periodic preventive maintenance?
b. Periodic overhaul?
c. Periodic replacement?
d. Periodic calibration or verification of calibration?

If so, what is the recommended interval of this maintenance?

______ Months

The four criteria just described represent a relatively simple set for basic risk analysis. The project as a whole will be a lot more enjoyable (spelled tolerable) if the experts in clinical application, risk management, clinical engineering, facilities management, and data processing work with singular purpose throughout the process.

The information resulting from the risk analysis process is intended to be used in the development of the hospitals equipment and utilities management program. All items will fall into one of four categories: clinical equipment; non-clinical equipment; utilities equipment; or equipment not worth worrying about. Within each category, there will be a relative level of risk assigned, which may be used to determine testing, educational, or replacement intervals. Lastly, for each device, the minimum maintenance requirements will be specified and there will be a recommended interval for scheduling preventive maintenance functions.

The effort required to perform equipment risk analysis is offset by the degree to which equipment can be managed once the process is completed. After the initial process, it is relatively painless to perform the analysis for new equipment, loaners, demonstrators and whatever else hits the loading dock. Risk analysis, as a component of a comprehensive equipment management program, will meet PL3 and PL4 standards, and act to improve the quality of care, reduce hospital liability, and conserve the financial resources of the facility.

Submitted by
Ray Forsell, CCE
Technical Services Program
University of Vermont

[Box: IMPORTANT! Please take a minute to complete the enclosed form (return address on back) and forward it through the mail. It will provide information to allow NEHES to better serve its membership. Thanks for your help!]