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DECEMBER MEETING HIGHLIGHTS

The Association's December 13 meeting began with a morning tour of the Cold Regions Research and Engineering Laboratory in Hanover. Our members were given an introductory presentation by CRREL staff engineers on the technical research projects being conducted by the Corps of Engineers at the lab. The highlight of our tour was a chilling walk through the frigid atmosphere of the ice research labs.

President Lorraine Sander opened a short business meeting at Landers Restaurant in Lebanon at 12:30 p.m., followed by a luncheon attended by 80 members and guests including the President (Mark Simon) and Vice President (Renee Howes) of the Green Mountain Water Pollution Control Association. A joint meeting of the New Hampshire and Vermont association officers was held after the luncheon to discuss common goals and problems. The consensus was that our two groups should work more closely together in the future on training and certification programs.

Where is everyone running to?

FIFTH ANNUAL WASTEWATER TREATMENT PRODUCTS AND SERVICES TRADEFAIR

Thursday, March 29, 1984
New Hampshire Highway Hotel
Concord, New Hampshire
(at Exit #14 on Route 93)
State and Pierce Convention Rooms

AGENDA

9:00 a.m. — Exhibits will be open for viewing in the State Room. Everyone welcome — no fee to view the exhibits, but please register.
11:00 a.m. — Attitude Adjustment Period (cash bar)
12:30 p.m. — Buffet Luncheon in Pierce Room.
Menus: Roast sirloin of beef, salad bar, swedish meatballs, ham slices, chicken tetrazzini, macaroni salad, cold meat platters, veggies, and assorted desserts.
1:30 p.m. — Association Business Meeting.
— Election of incoming officers
— Presentation of awards
— Training announcements
— Guest Speaker: Rep. Danny Gore
Vermont's foremost expert on current environmental issues of concern to all in the water pollution control field.

PRICE FOR THE BUFFET IS $12.00. PREPAID CONTACT BOB LIVINGSTON ASAP. IF YOU WANT LUNCHEON RESERVATIONS.
EXTENSIVE RESEARCH PROVES SUCCESSFUL
Manchester Highway Department
Environmental Protection Division
Belt Filter Project

The only costs not figured into the Belt Filter Project were those long days and hundreds of hours spent analyzing the cost effectiveness of the project that were conducted by Raymond Carter, Director/Chief Sanitary Engineer and George Berlandi, Sanitary Engineer of the Environmental Protection Division, "HATS OFF TO RAY AND GEORGE!"

The City of Manchester's Environmental Protection Division is responsible for the operation and maintenance of 12 miles of interceptors, two major pumping stations, and a 52 MGD regional secondary treatment plant which presently serves a resident population of about 100,000. By mid-May the Town of Bedford's business district will also be tied in for treatment, with the other regional communities to be served at a later date.

Like many treatment facilities, Manchester's major cost in the treatment process is the dewatering operation. In this particular case, dewatering put an excessive load on the centrifuges, causing critical components of the centrifuges to wear out much too fast. At one point they were wearing faster than they could be repaired, which resulted in excessive maintenance costs.

A summary of the research conducted by Ray and George is too extensive to be reported in this article. However, the following is a synopsis of their study.

The excessive wear on the centrifuges was because the material being processed was extremely abrasive. Spinning off excess water from the sludges with a high grit content was like sandpaper wearing down the equipment and was costing the organization about $60,000 (excluding labor cost) annually to keep the centrifuges operational. This cost was eight times greater than the industry average of expected expenses.

To resolve this problem the following four alternatives were examined:

1. Do nothing.
2. Change the characteristics of the material being processed.
3. Modify the centrifuges to handle abrasive material.
4. Replace the existing machines.

After extensive evaluation, the first three alternatives were eliminated because of the following reasons:

1. Do nothing. — This was not viable because the centrifuges were wearing faster than they could be repaired.
2. Change characteristics of the material being processed. — Storm separation would have cured this problem. However, being a 95.6 million dollar project and requiring ten years to complete, this alternative was not considered further.
3. Modify the centrifuges to handle abrasive material. — This was tried with ceramic coating, but the wear and tear were just as rapid. The decision was made not to invest any more money trying other coatings because of a lack in confidence in manufacturers' claims.

Replace the existing machines. This solution consisted of evaluating three alternatives.

a. Filter Press.

b. Centrifuge made by a different manufacturer.

c. A Belt Filter.

The Filter Press was dropped for the following reasons: Inadequate storage capacity, additional equipment needed for chemical conditioning, the excess weight of the machines, and the substantial increase of chemical usage and dewatered sludge were prohibitive.

At this point it was evident that the alternatives had been narrowed down to either purchasing a new centrifuge or a Belt Filter. To determine which of these two alternatives was the most cost effective, a field test was undertaken.

After five days of running continuously under very realistic and representative sludges, the total annual costs were estimated as follows:

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Belt Filter</td>
<td>$584,000</td>
</tr>
<tr>
<td>Sharples Centrifuge</td>
<td>863,000</td>
</tr>
<tr>
<td>Existing Centrifuge</td>
<td>1,366,000</td>
</tr>
</tbody>
</table>

From this data it was obvious that the Belt Filter was the most cost effective solution.

This analysis led to replacing the existing centrifuges with two 2.2 meter, Arus-Andritz Belt Filters, anticipating that the city would save $300,000 per year.

Now after five months of running preliminary testing with the Belt Filters, the following savings will actually be realized by the organization:

<table>
<thead>
<tr>
<th></th>
<th>Annual Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel Oil (to incinerate)</td>
<td>$114,000</td>
</tr>
<tr>
<td>Chemical Conditioning</td>
<td>56,300</td>
</tr>
<tr>
<td>Electricity</td>
<td>47,000</td>
</tr>
<tr>
<td>Maintenance</td>
<td>60,000</td>
</tr>
<tr>
<td>Treating By-Products</td>
<td>37,700</td>
</tr>
<tr>
<td><strong>Total Annual Savings</strong></td>
<td><strong>$315,000</strong></td>
</tr>
</tbody>
</table>

Total Investment $1,100,000
Payback Period 3.49 years*
* Industries consider that any investment improvement with a pay back within five years will show a net savings.

Plant managers all over the country, your job is not just trying to operate out-dated, undersized, maintenance-burdening equipment. From this experience the lesson is clear that if you do your research, analyze data and show it to be financially sound, there are ways to acquire capital outlays for improvements. Further, Ray and George also demonstrated that a substantial project with a present value of over three million dollars could be successfully completed without the use of consultants and their concomitant costs.
SAFETY CORNER

The NHWPCA Safety Committee will be participating in this year's Tradefair by sponsoring a booth which will make available Safety Resource Packets, safety handouts, and an ongoing slide presentation dealing with safety. The handouts will contain valuable information regarding the "Workers Right-To-Know Act", the current Material Safety Data Sheets, as well as information on the availability of additional packets from the N.H. Safety Council. For further information, questions or ideas, write: Mike Butler, c/o Monadnock Paper Mills, Antrim Road, Bennington, N.H. 03442.

JOBS

* The town of Wolfeboro, N.H. is presently seeking a N.H. Grade I or II operator for it's .6 MGD Extended Air — Spray Irrigation Treatment Plant. Send resumes to:
  
  Gordon Road
  Water Pollution Abatement Facility
  Box 629, Filter Bed Road
  Wolfeboro, N.H. 03894
  
  Their telephone number is 569-2314.

* Sanders Associates of Manchester, N.H. is seeking Grade II operators for a new Industrial Treatment Plant to go on the line in April. Initially they want two operators and eventually will need two more second shift operators.

  Send resumes to Sanders Associates in Manchester in care of John Rocko, Personnel Manager. His telephone number is 669-4615, extension 302. Salary range is $419 - $499 weekly.

CAN YOU DEPEND ON YOUR SENSE OF SMELL?

Sometimes yes, and sometimes no — depending on the gas that may be present. It would be a good idea to memorize a few values of harmful concentrations of the most prominent gases encountered in wastewater treatment plants and collection systems. The chart below could be easily clipped out and posted for quick reference. Ammonia can be harmful at levels that are close to the odor threshold level. Hydrogen sulfide may deaden your sense of smell before you realize it is there.

**Odor Threshold Value** — the minimum value detectable by the sense of smell.

**Threshold Limit Value** — time weighted average concentration for an 8 hour workday to which nearly all workers may be repeatedly exposed day after day without adverse affects.

<table>
<thead>
<tr>
<th>Gas</th>
<th>O.T.V.</th>
<th>T.L.V.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Sulfide</td>
<td>0.0081 ppm</td>
<td>20</td>
</tr>
<tr>
<td>Ammonia</td>
<td>55 ppm</td>
<td>50</td>
</tr>
<tr>
<td>Carbon Dioxide</td>
<td>—</td>
<td>5000</td>
</tr>
<tr>
<td>Chlorine</td>
<td>0.01 ppm</td>
<td>1.0</td>
</tr>
</tbody>
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Familiar Faces

**in new places**

**Rollinsford**

Barry Brescia has been named Superintendent of the Rollinsford .15 MGD oxidation ditch plant. Barry is also an operator at the Somersworth W.W.T.P.

**Epping**

In addition to his duties at the Somersworth WWTP, Bob Lentz has taken on the responsibility for the Epping stabilization ponds which will soon be upgraded to aerated lagoons.

**Newfields**

Bob Allen, formerly at Concord's Hall Street Plant, is now the Chief Operator for the new Newfields aerated lagoon treatment facility. A unique feature of this plant is that it is controlled by a tide clock which restricts discharge to the outgoing tide.

**Sullivan County Home**

Bill Hagadorn has moved up to Chief Operator of the treatment plant for this county facility. The flow scheme consists of aerated lagoons, a package extended aeration plant and sand filters before discharge to a small tributary brook to the Connecticut River.
MAINTENANCE HOT TIPS

I am sure you have heard the old adage “an ounce of prevention is worth a pound of cure.” Well, there is a lot of truth in that statement. We are particularly referring to preventative maintenance on wastewater equipment and machinery. Every plant should have a P.M. program of some kind, depending on the type of plant and the equipment involved. Plunger pumps require very frequent lube and check, while other types need only weekly or monthly. At Somersworth we keep an eye and ear open while traveling about the plant. The operators are also a great help reporting any unusual occurrences.

To set up a P.M. schedule, the individual equipment manufacturers should be consulted. They will be glad to assist in the care and maintenance of their machinery, although like anything else, some common sense must be used.

Just recently we had a motor that started making a very unusual rattling type noise. When pulled and dismantled we found the armature balance weight studs had loosened and the weights were vibrating. Immediate attention saved the price of a 50 HP motor as the studs would have sheared, allowing weights and studs to drop between rotor and windings destroying both.

The name of the game is to “prevent,” if at all possible. If you wait until the equipment fails completely, then repair costs are much higher. Also the aggravation of downtime is a factor.

So you maintenance people out there who don’t have a preventative maintenance program — start one. Those who have one — streamline it. Substantial savings can be had, not only safety-wise, but also from a financial standpoint.

Bill Sywniski
Somersworth

NEWPCA MEETING IN BOSTON

New Hampshire operators swept the New England Water Pollution Control Association awards at the winter meeting held in Boston on January 23-25. The NEWPCA Plant Operations Committee presented awards consisting of a wall plaque and $100 cash in two categories: (1) Odor Control — won by Chuck McDowell, Chief Operator of the Berlin plant, and (2) Energy Conservation — won by Mark Gauthier and the Somersworth treatment plant. In addition, Mark was presented the national George Burke Safety Program Award by Earnest Gloyna, President of the Water Pollution Control Federation, for Somersworth’s outstanding safety program.

For those who could attend NEWPCA’s first winter city meeting, the wide variety of excellent technical sessions and large exhibit area were well worth the trip to Boston. On Monday the Presidents of all six New England operator associations met with President Gloyna and NEWPCA officers. This was the first ever meeting of all six of our operator associations and was so successful that similar meetings are planned at all future NEWPCA conferences.