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Rochester District Heating Insurance Case Study

Abstract: In the five year period of 1987, to 1992, RDH's Liability Insurance Premium (including the umbrella) was reduced from \$280,000 to \$27,300 while the coverage increased 120% to \$22,000,000. Since the liability coverage is the single largest cost component in our total insurance coverage, it is indicative of the overall insurance picture. It is felt that this dramatic reduction is a result of wise investment in men and equipment in the plant, a team approach with our broker and competitive market forces.

Discussion: RDH is a seven year old, member owned and run Cooperative providing 200 pound super heated steam to the downtown business district, and a major hospital, through approximately 9.2 miles of pipe. Last season we delivered 280,200 Mlbs. The system formerly was a sub-set of the local gas and electric utility's steam distribution system, now abandoned.

Throughout the period in question, all the insurance carriers used have had an A. M. Best rating of at least "A". While this dramatic reduction in premiums partly reflects changes in the insurance market, most of the reduction reflects changes in the way RDH does business.

Sometimes financial managers are accused of squeezing costs to the detriment of the assets they are safeguarding. Here, we spent money in one area to achieve significant savings in another: our premiums. Economic theory states that the rate one is charged reflects general market expectations, such as inflation, and project specific risk expectations. We tried to reduce the risk component by spending carefully on equipment and personnel, and then effectively communicating these changes through our broker to the underwriters quoting on our coverage. When the underwriters understood that our risk was being assessed and managed, our rates lowered. In the communication component we were helped to a large degree by having a broker who thoroughly knew the steam business, being a graduate of the Maine Maritime Academy, and an insurance company boiler inspector from 1973 to 1990. A graphic representation of our premium history is presented in Exhibit I, and their tabular values in Exhibit II.

Some of the things we did were:

- 1) To begin an annual mapping of the steam system using infra-red, and comparing last year's pictures to this year. Initial Investment = \$0, annual cost for 9 miles = \$5,000. Benefit: helps in sales and in assessment of risk, particularly as it relates to our liability exposures, by demonstrating that the catastrophic loss potential is being managed through a loss prevention effort. Side benefit, helpful in marketing and when dealing with governmental oversight. Sample reports and addi-

tional information is attached as Exhibit III. This information is also invaluable when addressing the management question of whether or not the costs of digging to repair poor insulation will be offset by the benefits of lower condensate loss. The mapping is done from a utility van and involves marking detected hot spots on the pavement with paint. Subsequently, further annual comparative analysis may be done in the engineering office with maps and the VHS video tape.

2) To install a PC based Preventative Maintenance (PM) system and to make each operator personally responsible for his own individual set of equipment. Initial Investment = \$6,000, annual cost = \$0. Benefit: Equipment is periodically, and systematically monitored. Work assignments, with reasonable due dates, are distributed evenly, tracked and the resulting paper trail is powerful in disciplinary cases when needed. Corrective Maintenance is identified and action scheduled and tracked. This proactive approach received very favorable comments from the insurer. They saw benefits in four areas of insured exposure: Property insurance, Liability insurance, Boiler insurance, and Workers' Compensation.

The PM system reduced property and boiler exposure by lowering the likelihood of fire from equipment in poor condition, improving general housekeeping, increasing awareness of potential hazards, and providing a formal corrective action process to correct identified hazards. This system also contributed to lowering our liability exposure from third party injury as better maintained equipment is inherently safer. It has contributed to lowering our Workers' Compensation experience levels by having the men work more safely on safer equipment. The PM system has been expanded to automatically produce confined space entry check offs, and lock out tag out procedures.

3) To intensify training in operations and safety. Initial Investment = \$0, annual cost = \$8,000. Benefit: Workers are more knowledgeable, morale higher, and problems get nipped in the bud. An additional benefit is the lowering of Workers' Compensation premiums due to positive experience history. Training areas covered to date include, but are not limited to, manhole safety, MSDS safety sheets, lock-out/tag out, confined space, pumps and related hydro dynamics (included hands on lab), loop commanders, flow meters, system tracing for new hires and part-timers, and plant wide experiments, to test different operators theories about plant operation. Instructors from vendors, the local technical college, other large corporations, and videos from the IDHCA were all used.

Increased safety awareness reduces the potential for liability, and property losses during routine or emergency maintenance both within the plant and in the distribution system.

4) To begin modeling our distribution system for delivered costs. Initial investment = \$0, annual cost = \$3,000 (used part

timers for local technical college). Benefit: quantifies cost to deliver steam to an individual customer, led to justification of time of year pressure reduction in distribution system, and lays ground work for time of day pressure reduction. Lower system pressures lead to lower liability risks and lower operation costs.

5) To begin competitive bidding for the insurance needs. In 1989 we hired a Boston Consulting firm (Tillinghast) to review our coverage and went out to competitive bid. When the Cooperative was first formed we had difficulty finding adequate coverage and therefore did not go out to bid for several years thereafter. Initial investment = \$13,000, annual cost = \$0. Benefit: low bids were \$80,000 below prior year's coverage, (former broker's bid dropped \$40,000), coverage was increased, we gained the benefit of an outside audit of our protection, we increased our coverage and we reduced our cost.

6) To begin using a broker with a strong boiler background, one who could tell our story and sell it to the underwriters. Brian Conlogue of Hatch-Leonard in Rochester, NY had been our boiler inspector when we had our coverage with Traveler's. When he left Traveler's to move to the sales side with his expert knowledge of boilers, and our plant in particular, he was able to get the underwriters to lower our premium an additional \$40,000 over the first year's reduction of \$80,000. The news was so good, our financial committee assumed an error had been made and held a contingency on the books, but the lower premium has held for two years.

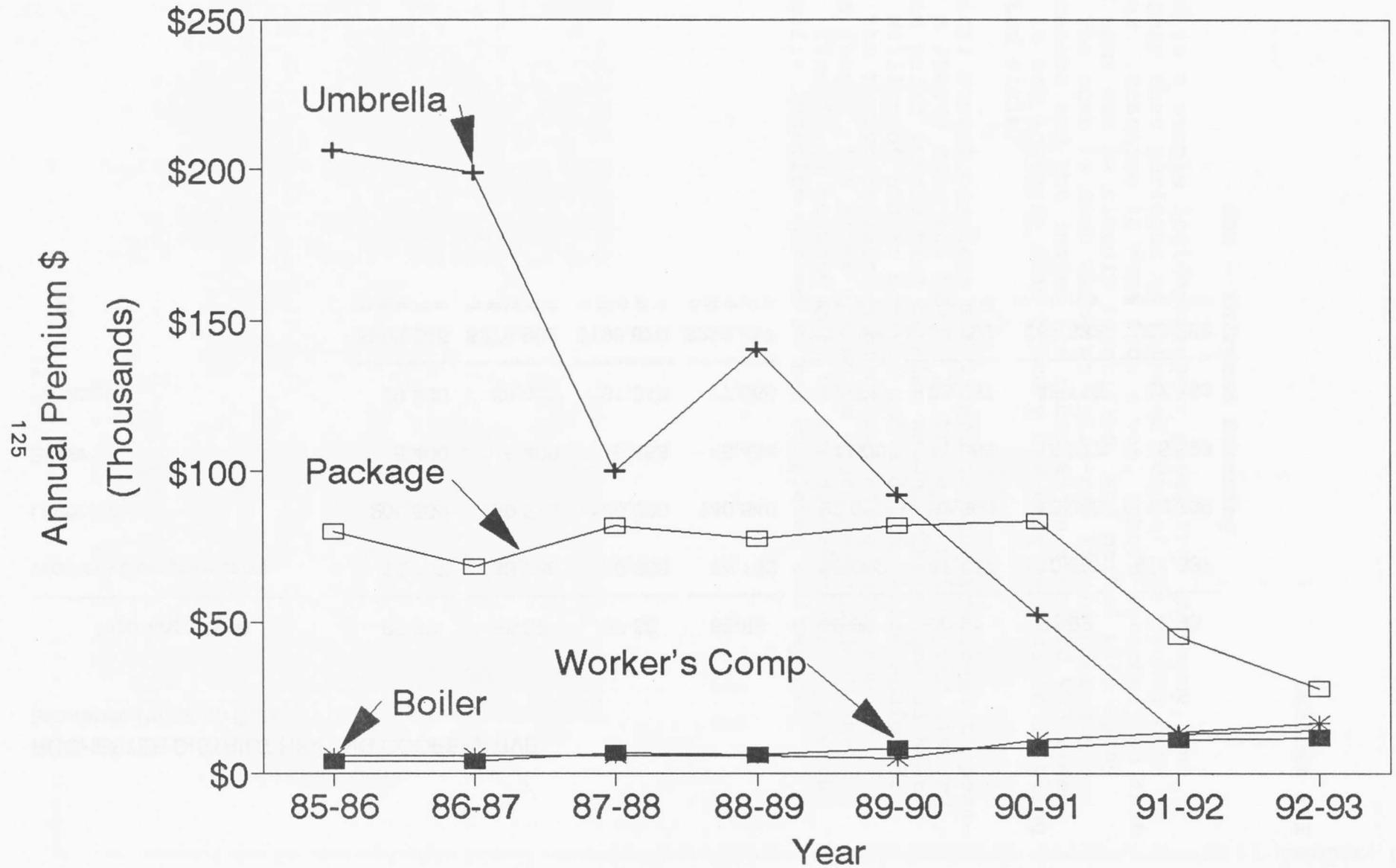
7) To begin installing meters on everything that flowed through the plant and tying that data down with PC based data capture programs. Initial investment: PC + software = \$5,000, meters and wiring = \$100,000. Annual Cost = negligible. Benefit: Operators have the opportunity to identify a potential problem and take corrective action while there is still time. Since the data is automatically logged, we can reproduce an actual event, see what was happening to the physical parameters, and take action to make the system stronger. On the behavioral side, operators are much less likely to skip their rounds when we can compare their readings to automatically recorded ones. There is nothing better than a well trained operator *in situ* to define and correct a potential problem.

These actions reduced our liability exposure by reducing the probability of catastrophic loss in plant operations, and reduced the potential for claims due to failure to supply steam i.e., we schedule the outages, rather than the outages scheduling themselves. They were also very helpful in testing different hypotheses as to why we had early failure of our superheater tubes. This analysis, led us to file a patent to prevent this problem from re-occurring, and further evidenced our serious intent in reducing risk exposure.

8) To continue outside review by our Technical Committee and Financial Committee. We have a Technical Committee and Financial Committee which meet monthly in addition to the monthly Board meetings. This review process forces us to maintain an aggressive and cost effective plant improvement program. It also reassures the underwriters that the power plant is getting requisite management attention.

According to Brian, taken as a whole, the cumulative effect of these actions makes the underwriter feel much more comfortable with us, and by extension, allows us to receive lower rates.

RDH - Insurance Premium History



ROCHESTER DISTRICT HEATING COOPERATIVE
Insurance Premium Data

Insurance Type	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93
Workers Compensation	\$3,737	\$3,786	\$6,368	\$6,153	\$8,082	\$7,957	\$10,837	\$11,337
Umbrella	206,509	199,333	100,000	140,545	92,000	52,500	13,000	13,799
Boiler	5,400	5,400	5,453	5,454	4,800	11,055	13,377	16,393
Package	79,900	68,463	81,849	77,665	82,016	83,287	45,118	27,753
	\$295,546	\$276,982	\$193,670	\$229,817	\$186,898	\$154,799	\$82,332	\$69,282
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RDH - Infrared Scanning

Enclosed is a sample incident report sheet from Ergonomy, Inc. the company that performs an infrared scan of our system once each year. Scanning is done from a van, (photo attached) so that the hot spot can be closely identified, and marked with spray paint. The scan is done using an infra-red liquid nitrogen cooled camera and the images are recorded on standard VHS video tapes. In one instance this history has been helpful in settling a disputed claim.

The typical report compares a hot spot to the background temperature at a stated date and time. If there is prior year history, then this prior information is also shown. The estimated heat loss in million of Btu is derived and a dollar value assigned. Usually the report includes a black and white photo and an infrared image. The black and white photo helps orient the viewer. Finally, a reduced copy of our distribution map, with the specific location marked in red completes the report.

Incident 4



Broad Street east of Ajax Alley



Incident # 4

Date: 1/7/93

Time: 20:42

Location: Broad Street east of Ajax Alley

	<u>Current Year</u>	<u>Previous Year</u>
Temperature Hot Spot:	45.0° F.	64.1° F.
Temperature Base:	36.9° F.	56.1° F.
Size:	4'x 45'	3'x 25'
Estimated Annual BTU Loss:	399 MBtu	228 MBtu
Estimated Annual \$ Loss:	\$3,196	

