

Turnround at the Preston plant (Revised)

*“Before the crisis the quality department was just for looks, we certainly weren’t used much for problem solving, the most we did was inspection. Data from the quality department was brought to the production meeting and they would all look at it, but no one was looking **behind** it.”* (Quality Manager, Preston Plant)

The Preston plant of Rendall Graphics was located in Preston, Vancouver, across the continent from their headquarters in Massachusetts. The plant had been bought from the Georgetown Corporation by Rendall in March 2000. Precision coated papers for ink-jet printers accounted for the majority of the plant’s output, especially paper for specialist uses. The plant used coating machines that allowed precise coatings to be applied. After coating, the conversion department cut the coated rolls to the final size and packed the sheets in small cartons.

The curl problem

In late 1998 Hewlett Packard (HP), the plant’s main customer for ink-jet paper, informed the plant of some problems it had encountered with paper curling under conditions of low humidity. There had been no customer complaints to HP, but their own personnel had noticed the problem, and they wanted it fixed. Over the next seven or eight months a team at the plant tried to solve the problem. Finally, in October of 1999 the team made recommendations for a revised and considerably improved coating formulation. By January 2000 the process was producing acceptably. However, 1999 had not been a good year for the plant. Although sales were reasonably buoyant the plant was making a loss of around \$2 million for the year. In October 99, Tom Branton, previously accountant for the business, was appointed as Managing Director.

Slipping out of control

In the spring of 2000, productivity, scrap and re-work levels continued to be poor. In response to this the operations management team increased the speed of the line and made a number of changes to operating practice in order to raise productivity.

*“Looking back, changes were made without any proper discipline, and there was no real concept of control. We were always meeting specification, yet we didn’t fully understand how close we really were to not being able to make it. The culture here said, “If it’s within specification then it’s OK” and we were very diligent in making sure that the product which was shipped **was** in specification. However, Hewlett Packard gets ‘process charts’ that enables them to see more or less exactly what is happening right inside your operation. We were also getting all the reports but none of them were being internalized, we were using them just to satisfy the customer. By contrast, HP have a statistically-based analytical mentality that says to itself, “You might be capable of making this product but we are thinking two or three product generations forward and asking ourselves, will you have the capability then, and do we want to invest in this relationship for the future?”* (Tom Branton)

The spring of 2000 also saw two significant events. First, Hewlett Packard asked the plant to bid for the contract to supply a new ink-jet platform, known as the Vector project, a contract that would secure healthy orders for several years. The second event was that the plant was acquired by Rendall.

“What did Rendall see when they bought us? They saw a small plant on the Pacific coast losing lots of money.” (Finance Manager, Preston Plant)

Rendall were not impressed by what they found at the Preston plant. It was making a loss and had only just escaped from incurring a major customer’s disapproval over the curl issue. If the plant did not get the Vector contract, its future looked bleak. Meanwhile the chief concern continued to be productivity. But also, once again, there were occasional complaints about quality levels. However HP’s attitude caused some bewilderment to the operations management team.

“When HP asked questions about our process the operations guys would say, “Look we’re making roll after roll of paper, it’s within specification. What’s the problem?” (Quality Manager, Preston Plant)

But it was not until summer that the full extent of HP’s disquiet was made. *“I will never forget June of 2000. I was at a meeting with HP in Chicago. It was not even about quality. But during the meeting one of their engineers handed me a control chart, one that we supplied with every batch of product. He said “Here’s your latest control chart. We think you’re out of control and you don’t know that you’re out of control and we think that we are looking at this data more than you are.” He was absolutely right, and I fully understood how serious the position was. We had our most important customer telling us we couldn’t run our processes just at the time we were trying to persuade them to give us the Vector contract.” (Tom Branton)*

The crisis

Tom immediately set about the task of bringing the plant back under control. They first of all decided to go back to the conditions which prevailed in the January, when the curl team’s recommendations had been implemented. This was the state before productivity pressures had caused the process to be adjusted. At the same time the team worked on ways of implementing unambiguous ‘shut-down rules’ that would allow operators to decide under what conditions a line should be halted if they were in doubt about the quality of the product they were making.

“At one point in May of 2000 we had to throw away 64 jumbo rolls of out-of-specification product. That’s over \$100,000 of product scrapped in one run. Basically that was because they had been afraid to shut the line down. Either that or they had tried to tweak the line while it was running to get rid of the defect. The shut-down guidelines in effect say, “We are not going to operate when we are not in a state of control”. Until then our operators just couldn’t win. If they failed to keep the machines running we would say, “You’ve got to keep productivity up”. If they kept the machines running but had quality problems as a result, we criticized them for making garbage. Now you get into far more trouble for violating process

procedures than you do for not meeting productivity targets.” (Engineer, Preston Plant)

This new approach needed to be matched by changes in the way the communications were managed in the plant.

“We did two things that we had never done before. First each production team started holding daily reviews of control chart data. Second, one day a month we took people away from production and debated the control chart data. Several people got nervous because we were not producing anything. But it was necessary. For the first time you got operators from the three shifts meeting together and talking about the control chart data and other quality issues. Just as significantly we invited HP up to attend these meetings. Remember these weren’t staged meetings, it was the first time these guys had met together and there was plenty of heated discussion, all of which the Hewlett Packard representatives witnessed.” (Engineer, Preston Plant)

At last something positive was happening in the plant and morale on the shop floor was buoyant. By September 2000 the results of the plant’s teams efforts were starting to show results. Process were coming under control, quality levels were improving and, most importantly, personnel both on the shop floor and in the management team were beginning to get into the ‘quality mode’ of thinking. Paradoxically, in spite of stopping the line periodically, the efficiency of the plant was also improving.

Yet the Preston team did not have time to enjoy their emerging success. In September of 2000 the plant learned that it would not get the Vector project because of their recent quality problems. Then Rendall decided to close the plant. *“We were losing millions, we had lost the Vector project, and it was really no surprise. I told the senior management team and said that we would announce it probably in April of 2001. The real irony was that we knew that we had actually already turned the corner.” (Tom Branton)*

Convincing the rest of the world

Notwithstanding the closure decision, and convinced that their overall performance could be substantially improved, the management team in Preston set about the task of convincing both HP and Rendall, that the plant could be viable. They figured it would take three things. First, it was vital that they continue to improve quality. Second, costs had to be brought down so as to lower the break-even volume of the plant substantially. Third, the plant had to create a portfolio of new product ideas which could establish a greater confidence in future sales.

First – quality

Progressing with their quality initiative involved establishing full statistical process control (SPC) and increasingly capable processes. (Exhibits 1 and 2 show how process variation reduced through this period and how process capability improved). It also meant establishing quality consciousness and problem solving tools throughout the plant.

“We had people out there, professional engineers and operators, who saw themselves as concerned with the project rather than the processes that made it. But taking time out for quality meetings and discussing process performance and improvement, we got used to discussing the basic capabilities that we needed to improve”. (Quality Manager, Preston Plant)

Second - get costs down

Working on cost reduction was inevitably going to be painful. The first task was to get an understanding of what should be an appropriate level of operating costs. *“We went through a zero-based assessment to decide what an ideal plant would look like, and the minimum number of people needed to run it. By the way, in hindsight, cutting numbers had a greater impact on cost than the payroll saving figures seems to suggest. If you really understand your process, when you cut people it cuts complexity and makes things clearer to understand”. (Tom Branton)*

Although most staff had not been informed of Rendall’s closure decision, they were left in no doubt that the plant had its back to the wall. *“We were careful to be very transparent. We made sure that everyone knew whether they would be affected or not. I did lots of walking around explaining the company’s position. There were tensions and some negative reactions from the people who had to leave. Yet most accepted the business logic of what we were doing”. (Tom Branton)*

By December of 2000 there were 40 per cent fewer people in the plant than two months earlier. All departments were affected. Surprisingly the quality department shrank more than most, moving from 22 people down to nine.

“When the plant was considering down-sizing they asked me, “How can we run a lab with six technicians?” Remember that at this time we had 22 technicians. I said, “Easy. We get production to make good paper in the first place, and then we don’t have to control all the garbage. That alone would save an immense amount of time. Also, having someone working with the suppliers so that we can guarantee to give production good material and take that problem out of the equation saves people as well”. (Quality Manager, Preston Plant)

Third - work on new products

Several new ideas were investigated; including some that were only possible because of the plant’s enhanced capability. The most important of these became known as “Greenwrap”, a product, aimed particularly at the Japanese market. Short of landfill space, newsprint companies wanted their suppliers to ship newsprint in a wrap that could be repulped. Producing a protective wrap that was recyclable, an effective barrier against moisture, and could keep the newsprint free of welts and buckles was technically difficult. However the plant’s newly acquired capabilities allowed it to develop appropriate coatings at a cost that made the product attractive.

Out of the crisis

In spite of their trauma in the fall, the plant’s management team faced Christmas of 2000 with increasing satisfaction, if not optimism for the plant’s future. In

December they made an operational profit for the first time for over two years. By spring of 2001 even HP, at a corporate level, were starting to look more favourably on the Preston plant. It was becoming obvious to HP that the plant really had made a major change. More significantly, HP had asked the plant to start work on trials for a new product – ‘heavyweight’ paper.

April 2001 was a good month for the plant. It had chalked up three months of profitability (which was to be the start of routine double-digit return on sales). HP formally gave the heavyweight ink-jet paper contract to Preston, and were generally more up-beat about the future.

At the end of April, Rendall reversed their decision to close the plant.

The future

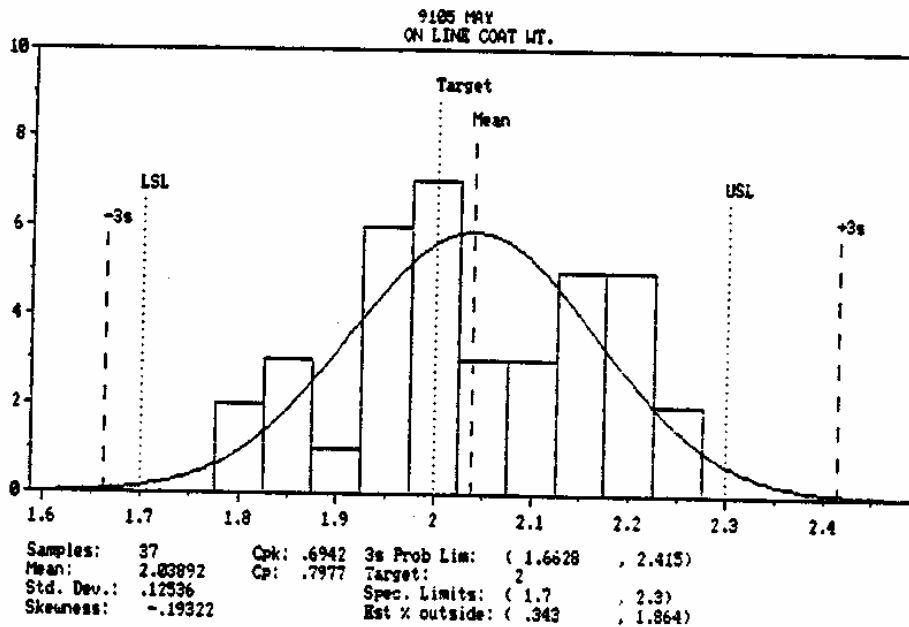
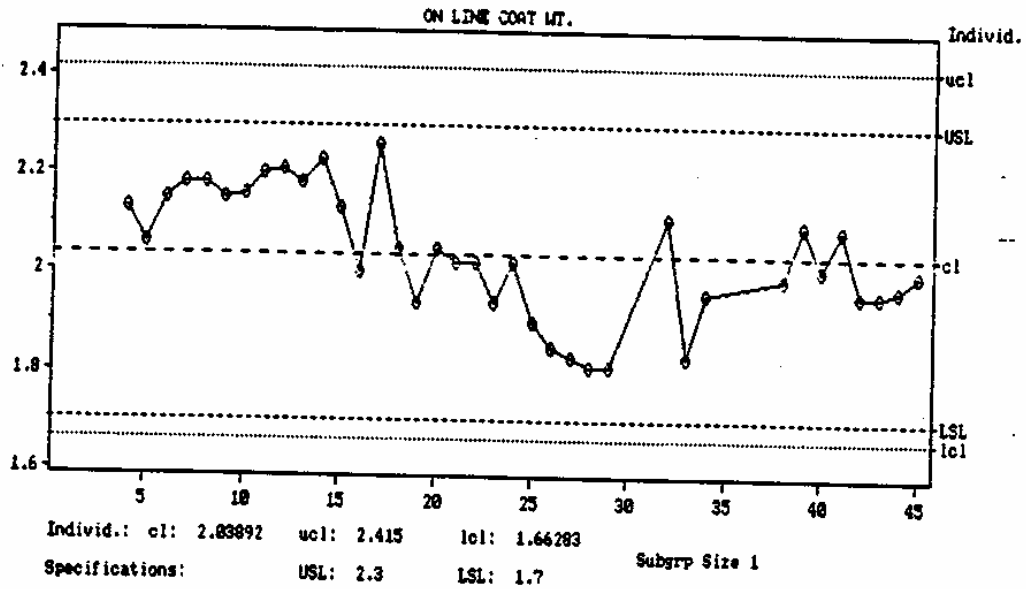
Both 2001 and 2002 were profitable years for the Preston plant. By the end of 2002 they had also captured the majority of Hewlett Packard’s Canadian business and were being asked to work on several other large projects.

“Hewlett Packard now seems particularly keen to work with us. I’m sure that one reason is that we have been obliged to understand their way of doing business. It has helped us with our own suppliers also. We have ready given considerable assistance to our main paper supplier with improving their own internal process control procedures. Recently we were in a meeting with people from all different parts of HP. There was all kinds of confidential information going around. But you could never tell that there was an outsider (us) in the room. They were having arguments amongst themselves about certain issues and no one could have been there without feeling that basically we were a part of that company. In the past they’ve always been very close with some information. Basically the change is all down to their new found trust in our capabilities”. (Tom Branton)

Exhibit 1

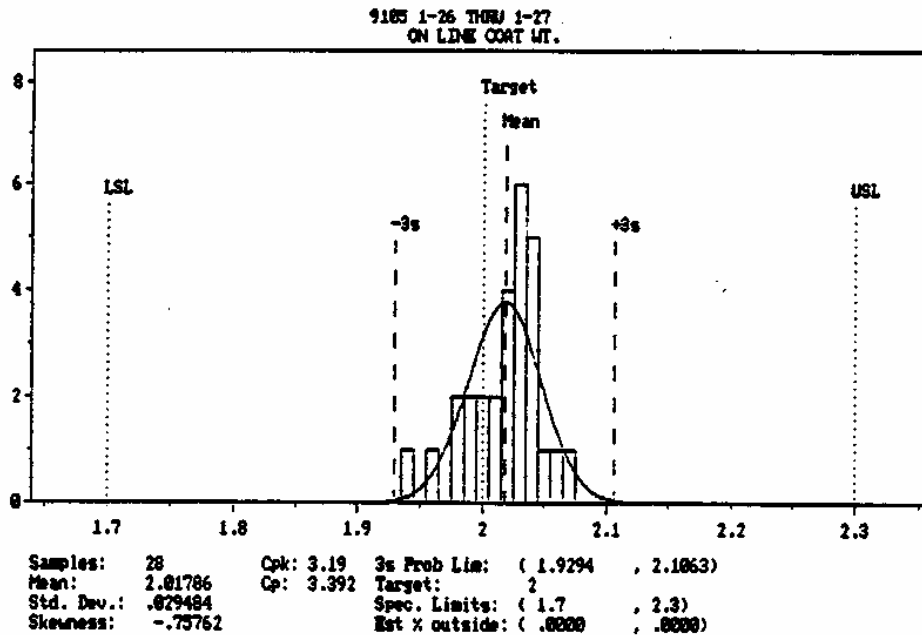
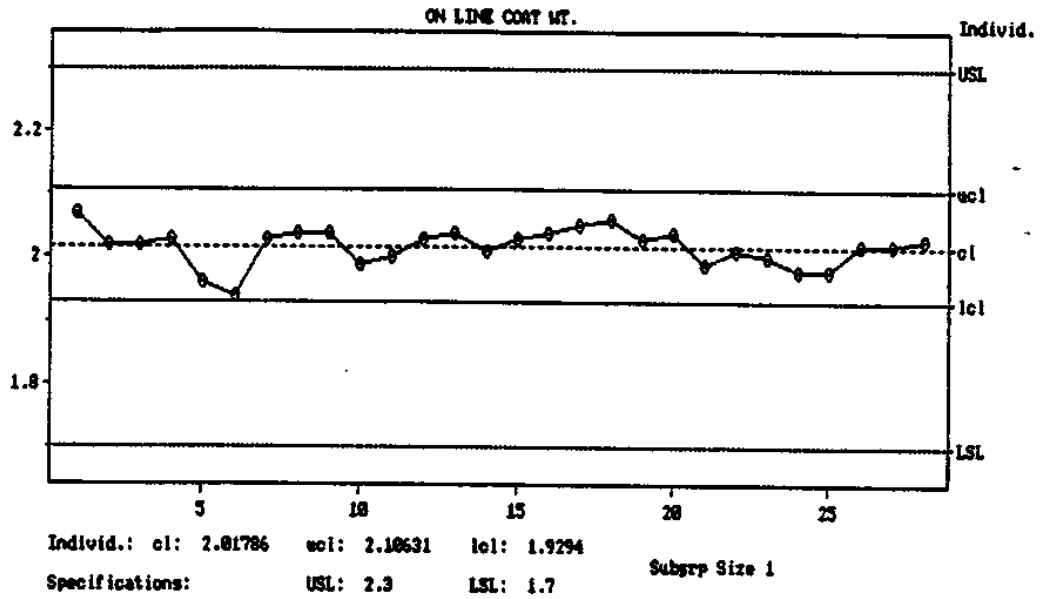
Typical process control charts May 1998

- 1.
- 2



14. Exhibit 2

Typical process control charts
Jan 1999



Implementing Lean in a UK Hospital¹

¹ Case written by Nicola Burgess, April 2010 based on real data (all names have been changed).