REDESIGNING THE WORKPLACE FOR SELF-REGULATION

THE ROHM & HAAS (KENTUCKY) STORY

BACKGROUND NOTES

There are a number of characteristics about the Rohm and Haas (Kentucky) story of workplace change that make it noteworthy. First and foremost, it appears to have been successful for the business and for most employees. Secondly, it is a "redesign"--there was a lot of history and "baggage" to overcome.

The change did not develop out of crisis. It was the product of leadership, first by senior plant management, and then, by some union representatives. Indeed, improvement of union-management relations was a key background element of this experience. It was not a "quick fix"--it required 10 years to transform the whole organization into self-regulating work units. Development of employee participation was linked closely to the business objective of improved quality. It was also developed in conjunction with major technological change--it was a "socio-technical" innovation.

THE COMPANY:

Rohm and Haas began early in the 20th century as a German partnership that expanded to the United States where it is now headquartered as a multi-billion dollar, multi-national manufacturer of synthetic chemicals. (For example, in 1936, Rohm and Haas pioneered the manufacture of plexiglas.)

In 1960, Rohm and Haas purchased the Louisville, Ky plant-site from Union Carbide, in the heart of "Rubbertown", an area named for the concentration of former World War II synthetic rubber plants.
In 1986, the Louisville plant was designated as a "major future growth facility", as Rohm and Haas invested in a new polymer plant and substantial automation of existing facilities.
The products of the Louisville plant are "invisible" chemicals, important ingredients in house paint, and floor wax, and also, plastic additives that ensure pliability and strength in molded bottles for shampoo and detergent.

THE UNIONS:

Approximately 100 Maintenance workers have been organized within Local 320 of the International Brotherhood of Firemen and Oilers since 1960.
Not until 1979 did the 250 Operators organize as Local 3-367 of the Oil, Chemical and Atomic Workers. Shortly thereafter, the only strike in the plant's history occurred, a 10-week strike that was a precipitating factor in developing what people on-site have described as "a new way to work".

LABOUR-MANAGEMENT RELATIONS:

Before and after the 1980 strike, many managers had an ambivalent, even hostile attitude towards the OCAW union, and consequently, an unwillingness to involve the union in the innovations at the Louisville plant. The plant manager forced the question with his management team: "we either have as our objective that the union get decertified, or we have to recognize and work with the union".

Eventually, the plant manager advocated cooperation with both union locals. Together, they established a Participative Management Steering Committee to ensure that the workplace redesigns did not conflict with the collective agreement and did align with company policies. Also, beginning in 1985, the parties instituted a pre-negotiations, "fact-finding" conference where the purpose is not to resolve issues, but to understand them, before the actual negotiations take place.

BUILDING THE FOUNDATION FOR CHANGE

Since 1980, through a nameless process that is not a "program", and frequently by trial and error, management at Rohm and Haas has pursued the objective of involving employees in the business.

Training:

In 1981, the plant began to involve operators in revising its utilities training program and upgrading its production training manuals. "For years, the company had used on-the-job training, which was really on-the-job cloning." A solid program of on-going technical training was developed, as well as training for leadership and participation. Over several years, virtually all employees were trained in "Group Skills and Techniques" and "Statistical Process Control".

Employee Involvement:

In 1982, employees started to apply this "leadership" training in task forces and problem-solving groups that were formed to address specific production concerns. Tremendous cost-savings were realized as a result of the task forces. The management style of the organization was also beginning to change. Another early innovation in employee involvement was the addition of workers to plant hiring committees Without the agreement of mechanics and operators on those committees, job applicants were not hired. Finally, a formal employee suggestion process was established. The foremen were no longer the middlemen--workers met directly with engineers in monthly meetings to review equipment and process improvement sugestions. This was the beginning of the synthesis between employee involvement and the company's "quality drive".

Quality Leadership:

In 1983, the Rohm and Haas corporation committed formally to the Deming approach for continuous quality improvement. At Louisville, the plant steering committee formulated "Plant Operating Principles" that were based on Deming's 14 Points. Training in SPC went plant-wide, production operators began using SPC charts to track quality, and a quality audit program was instituted for plant vendors and suppliers. Within a few years, Ford Motor Co. conferred its Q-1 Award for Excellence on the plant, and General Electric selected Rohm and Haas (Kentucky) for a World Class Supplier Award.

Communications:

In order to build a common perception of the plant's new work principles, off-site meetings were instituted for all employees, on a once-a-year basis. At the first of these meetings, the plant manager stressed the need and direction for change. The cutbacks occurring at other Rohm and Haas plants were signs of what could happen "if you let a plant get stale". In describing the future work culture at Rohm and Haas (Kentucky), he declared: "we are not going to have people being paid to watch other people--we'll give everyone the training and authority to do their job". Initially, the overall response was to question the need for change in a plant that was already productive.

A BOLD, FULL-SCALE EXPERIMENT:

In 1983, a new unit, KV-3 making plastic additives (which go into shrink wrap, plastic food containers, and molded bottles) was still in the planning stages when the area manager decided to consider new ways to organize the work. A team of 10 hourly and salaried employees was formed to research plants with innovative work methods. The research led to the design of Rohm and Haas (Kentucky)'s first semi-autonomous work team Members of the KV-3 unit would learn and rotate through all the functions in the unit. All members would take turns at being team leader, replacing the traditional first-line supervisor position.

THE "GREENFIELD" DESIGN of KV-3 UNIT:
The design team included operators, a mechanic, engineer, supervisor, personnel advisor, and an external consultant. They worked full-time, over five months, (August 29, 1983-January 27, 1984), in a trailer beside the site where the new plant was being constructed. Their adjacency to the physical plant symbolized the methodology the team used to design the KV-3 organization--joint optimization of technical and human needs developed through "socio-technical systems analysis".
(For a description of "socio-techical systems analysis", see Work ReDesign:Executive Summary in the Good Reading section of The Modern Times Workplace web site.)

The technical process of KV-3 starts with raw materials (base chemicals, catalysts, soap, and water) pumped into large reactors--this "charge-up" or infeed of materials may take an hour. Then, the batch is "cooked" under pressure and controlled temperatures for several hours. KV-3 includes several different reactors that run simultaneously. The batch from each reactor is eventually transferred as a liquid for processing into powder or pellet form.

KV-3 was one of the first units on-site to use new automated systems to control this process. An earlier stage of computerization had provided for remote operation from a keyboard that sent commands to PLCs controlling the valves and pumps on the shopfloor. Now, remote-control had evolved to computer-control. Raw materials were to be charged-up in a reactor automatically according to a "recipe"/ program, rather than operators' making constant adjustments through remote-control of valves. Now, the real value-added by employees would be timely anticipation and intervention to correct potential or actual problems, and analysis of ways to make continuous improvement in the process.

To reinforce employees' understanding of the whole technical process, and to provide maximum flexibility and response capability, the 10-member research/design team proposed a KV-3 organization with a one-rate job structure, and pay-for-knowledge built on 6 skill blocks, starting at raw material handling, and progressing to the various kettle/reactor control functions. It was anticipated that all employees in the unit would become trained in all the skill blocks to the highest rate, and be able to rotate through all the functions. (This design built on an innovation several years earlier when the company adopted a "compressed rate structure" of A, B, and C operators.)

The KV-3 organization includes virtually all the job functions (such as quality control laboratory testing, packaging, and order-taking) needed to be self-regulating. (In the first KV-3 design, a mechanic was part of each shift team. However, mechanics have since been organized as a sub-unit serving 4 reactor units in the plastic additives business.) Nevertheless, the operating team orders its own raw materials, schedules and conducts quality control, makes, coagulates, and dries its emulsion, packages the product , and ships it. As each shift begins, guided by one of their peers in the week's designated leader role, team members meet briefly to decide who will perform which functions during the 8 hours.

Main Implementation Issues:
The KV-3 design replaced 4 tiers of management with only 2 levels. There would be no shift foreman. The 4 shift teams of hourly employees, each with their own rotating leader role reported to a Team Manager. This was where "the rubber met the road" as far as what to do with displaced foremen.
The other large challenge was to obtain commitment, especially from older, more senior hourly employees to rotate through all the job functions, including materials handling.

Reference:See team leadership of KV-3 in the Modern Times Productions video: "Everybody Leads".

RESULTS:
During the first 18 months, KV-3 struggled to achieve performance expectations. Fires and other technical problems occurred, which led corporate officers to propose a retreat to traditional practices such as re-establishing the foreman role or restricting job rotation. Senior plant management resisted the pressure and responded with an intense training and re-training effort with the operators.

By the end of two years' operation, KV-3 was producing better quality, lower cost product than any of the other units. Furthermore, employee's commitment to their jobs was evidently very high. Therefore, plant management made the decision to extend the concept of work team self-regulation across the organization, on a gradual, unit-by-unit basis, in order to manage the resource requirements of back-filling for each design team of employees.

REDESIGN of KB (B-Rack) UNIT:
In the summer of 1985, the KB design team began their work. The redesign was completed by November, and by the following April 1986, the unit was working effectively without a shift foreman.

In the traditional work process, A-level operators performed the more technical tasks--"inside" jobs at the control panels. B-level operators were responsible for manual "outside" work--unloading materials from rail cars, feeding the material into storage tanks, etc..

The redesign proposed that the three operators on each shift be trained to perform all the tasks involved in their business of distillation, and that they regularly rotate through the "inside" and "outside" jobs. This job structure demanded a wide range of new training for the operators. They all had to be licensed as tankermen by the U.S. Coast Guard, in order to unload barges. Operators were also trained to perform laboratory, quality control tests in a mini-lab on-site. Ongoing training emphasizes environmental concerns, such as hazardous waste disposal.

Decisions that were previously handled by shift foremen--issuing permits, executing repair work orders, overtime administration, and shipping orders--are now the responsibility of the team. Operators are involved in visits to customer plants and host customers visiting Rohm and Haas (Kentucky).

Eleven of the twelve employees in B-Rack favoured the new work design. One ex A-operator preferred being a "specialist" running the control roo, although he acknowledged that the new system "works well", provides more flexible holiday coverage, and even rewards A-operators with an increase in pay (for their assuming the team leadership role on a rotational basis).. The persons who perceived the potential for greater loss were the supervisors. Previously, there had been 4 shift foreman (one per shift), a day foreman, and a relief foreman. Now, there was only the one Unit Coordinator/Team Manager who assumed expanded duties from the ex-day foreman role.

THE APPROVAL PROCESS FOR REDESIGN:
The KB redesign team established a pattern followed with the remainder of the 18 units at Rohm and Haas (Kentucky). The redesign team was monitored and guided under a mandate developed by a unit steering comittee composed of management-level personnel who met with the team about every two weeks. Design team members also met informally with workforce peers on an almost daily basis. Once the steering committee approved the design proposal, it was passed on to a plant-wide committee to ensure cross-divisional issues were addressed. Then, the proposal passed a review by the plant manager and senior representatives of the two unions.

CHANGES FROM THE EX-FOREMAN ROLE:

During each unit's transition to self-regulation, Temporary Team Coordinators remained on-shift. The duration of this temporary role varied according to the training needs on each shift and each unit. Nevertheless, it was an important transition for both hourly employees and for the ex-foremen.

Of all the employees at Rohm and Haas (Kentucky), the supervisors harboured the most uncertainty about their work and their livelihood. They were assured that they would retain employment, and that their work would be "meaningful", but no one seemed able to articulate their anticipated role(s) in the organization. Some of this uncertainty can be attributed to the open-ended nature of the organizational redesigns. However, compounding this issue was a failure in the early stages to involve the foremen directly in the process of realigning their responsibilties.

Although many ex-foremen would have preferred to be back in their previous roles of "calling the shots", most believed that the transition to self-regulation was necessary to involve the full talents and commitment of the workforce.

Their new roles were either Team Manager (for several shift teams in a given unit) or support roles like Training Coordinator, Facilitator, or Customer Service Representative. Once in these roles, most ex-foremen found them to be meaningful and rewarding jobs--necessary work that they had been unable to accomplish as foremen who were constantly "fire-fighting".

As Team Managers, ex-foremen had to learn how to exercise accountability without hands-on control. They had to support employees in learning from mistakes, but they had also to learn when and how to intervene, if absolutely necessary. The main difference in "style" of leadership was the focus on out-comes and objectivves, rather than attention to how decisions are carried out. Personal requirements for the new job included patience for what is a long-term development, an ability to listen effectively, and enough "seasoning" to sort out the wheat from the chaff and deal with any potential abuse.

SUMMARY:

Since 1989 when half of the plant's operating units had converted or were in transition towards self-regulation, the quality of production improved dramatically. The number of customer complaints decreased by more than half, and the plant continued to win supplier excellence awards. Pounds produced and shipped per employee also rose steadily. even while the plant added employees.

Data related to employee relations also reveals significant improvement. Grievances reduced greatly in number since the 1980-81 period. Plant absenteeism, as a percentage of scheduled hours became almost insignificant. A further indicator of the likelihood of satisfaction among Rohm and Haas (Kentucky) employees was that wages continued to improve (ahead of the consumer price index) throughout the period of the plant's transformation.

It is important to note that these outcomes were the product of no one single innovation, including work team self-regulation. Rohm and Haas (Kentucky) achieved a unique synergy between work teams, business strategy, a focus on quality, training, and improved labour-management relations. It was all a product of a rather vague vision of "a new way to work", without any "programs" but with many "champions" who persisted in a belief in the power of partnerships, between employees and management, between employees themselves, and between customer and supplier.