

THE USE OF TOTAL QUALITY MANAGEMENT AND COMMITMENT AT THE HANFORD SITE

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ABSTRACT

The U.S. Department of Energy Field Office, Richland (RL) recently has begun restructuring its management system to serve new customers and regulators in the joint effort of completing the new mission of the Hanford Site: environmental restoration and remediation. To do this, the RL reviewed its previous approaches, examined its new goals, and hired consultants to help design and implement a new management approach. The result is a plan to use the Total Quality Management approach, which encourages teamwork and supports the values and requirements of the Hanford Site.

BACKGROUND

The RL manages the U.S. Department of Energy (DOE) nuclear facility, a 1,450-km² site in southeastern Washington State. Approximately 350 federal employees manage the multiple contractors who perform the RL's mission at the Hanford Site. The total work force at the Hanford Site is in excess of 15,000.

The Hanford Site began as a major top-secret effort to develop the world's first atomic weapons, vital to the Manhattan Project in World War II. The Hanford Site's primary contributions included designing and operating the country's first full-scale nuclear reactor designed specifically for the production of plutonium (the key ingredient for one type of nuclear weapon). The incredible effort at the Hanford Site, supported by many other research and development activities around the nation, was highly successful. This role continued well into the 1980's.

Several years ago, DOE refocused its attention. The Hanford Site is the caretaker of over 60% of the entire DOE inventory (65 Mgal) of high-level waste. The responsibility of RL to the environment means that the RL must be accountable for this legacy of the production era at the Hanford Site.

The current mission at the Site focuses on a multibillion-dollar job of environmental restoration and waste management that will take decades to complete. This monumental undertaking requires the RL to be vigilant constantly about safety on the Site. This mission also must be completed efficiently, using government funds wisely.

THE HANFORD SITE VISION AND RESPONSIBILITIES

The Hanford Site serves a multitude of customers, so a new management system must value the customers' satisfaction. The DOE Secretary Watkins insists on excellence, but RL is scoring far below the 10.0 level set when the Secretary's goal was implemented.

Secretary Watkins published the following "10-Point Initiative" (Table I) to move the RL aggressively towards excellence. Especially note numbers 1, 3, 5, and 10, which are key to the new work approach at the Hanford Site.

In the past two years DOE has stressed those 10 points, implementing sweeping changes in the operating practices at the RL. Those changes have had a significant impact on the Hanford Site.

Secretary Watkins has stated that the Hanford Site is the DOE's 'flagship' for environmental restoration and waste management. The RL realizes that being the 'flagship' represents a major challenge. The foundation for this new mission was developed previously in the form of a 'vision' for the Hanford Site. The vision comprises the following elements:

- Striving for excellence in science and engineering (the cornerstones of research and development, and of operations in highly technical tasks)
- Conducting disciplined, safe, environmentally sound, and cost-effective waste management operations
- Achieving near-term successful environmental restoration
- Developing, importing, and exporting solutions to environmental problems
- Earning public credibility and confidence.

Two years ago, the DOE signed a landmark agreement with the Washington State Department of Ecology and the U.S. Environmental Protection Agency entitled *Hanford Federal Facility Agreement and Consent Order* (Ecology et al. 1990) (referred to as the Tri-Party Agreement), the first of its kind for the DOE. The Tri-Party Agreement defines roles and responsibilities (both for the RL and the regulators) for cleaning up the waste and contamination that resulted from the previous nuclear materials production mission, fully documents the interaction process with the regulators, and clearly defines a set of significant milestones (i.e., deadlines) for actual cleanup work. This agreement guides the process and establishes the regulators' right to legal action if it is not complied with fully.

The Tri-Party Agreement was established when the DOE was beginning to understand the changes in federal law that required the agency to comply with federal and state environmental laws such as the *Resource Conservation and Recovery Act of 1976* and the *Superfund Amendments and Reauthorization Act of 1986*. This is a new development for the federal government and has led to the cultural change discussed here.

The Tri-Party Agreement directs the cleanup and waste management actions at more than 1,000 individual 'operable units' on the Hanford Site. An operable unit can be defined as anything from a soil area contaminated 30 yr ago with fluids from vehicle maintenance and repair to 1-Mgal-capacity storage tanks full of high-level radioactive waste. The Tri-Party

TABLE I
10-Point Initiative

Initiative Number	Initiative
1.	Environment, safety, and health objectives will take precedence over production objectives.
2.	Contractor award fees will reflect an increased emphasis on environment, safety, and health.
3.	Tiger Teams will conduct environmental compliance assessments.
4.	Assessment of potential environmental impacts will be thorough and fully disclosed.
5.	A new DOE management team will be established that will emphasize safety over production.
6.	Technical capabilities of line managers concerning environment, safety, and health will be strengthened.
7.	An independent panel will be appointed to help restructure the DOE epidemiological program.
8.	A comprehensive epidemiological data repository will be established.
9.	Full compliance with Occupational Safety and Health Administration standards (OSHA 1988) will be achieved.
10.	Cleanup of DOE facilities will be accelerated.

Agreement contains thousands of milestones that must be achieved during a period of time that stretches well into the 21st Century.

The employees of the RL face many demands in meeting Tri-Party Agreement commitments and other mission goals. They have been requested to do the following:

- Upgrade nuclear and industrial safety
- Comply with the federal and state environmental laws
- Conduct unclassified business openly
- Program work into detailed tasks with clear scopes of work, resource-loaded schedules, milestones, and formal status controls
- Stop supporting a defense mission
- Clean up the Hanford Site.

Also, dozens of new and substantially "stiffened" DOE orders and 33 Secretary of Energy notices (executive directives) have been imposed, most of which allow little or no time to achieve compliance. The RL employees have been asked to concentrate on field work to have closer contact with facilities, contractors, and issues. These changes have been requested of the RL employees with little increase in resources, making productivity improvement a factor as well.

TOTAL QUALITY MANAGEMENT AND CURRENT POLICY

The RL has developed a set of values to implement the vision and satisfy the Tri-Party Agreement (Ecology et al. 1990) regulators. These values are derived from previous efforts, because they are germane and easily understood by management and everyone on staff. The values are as follows:

- Responsibility...for protecting the public, worker, and environment [the embodiment of the Tri-Party Agreement (Ecology et al. 1990) and highly regarded principles]

- Excellence...in whatever we do (non-negotiable, it means continuous improvement)
- Accountability...stewardship of the Site and ownership of work (the reason to strive for excellence)
- Caring...for the aspirations, contributions, and concerns of employees (human resources have no equal and contribute invaluable)
- Honesty...integrity and trust (without it, there are no 'negotiations')
- Openness...open dialogue and active listening (to communicate, one must listen)
- Understanding...our customers and community (regulators are customers)
- Teamwork...solving problems together (work together successfully).

Notice that these values form the acronym "REACH OUT." The RL sought and accepted input from an employee committee on these important guideposts for this journey.

Because of the need for major cultural changes that has resulted from the dramatic change in the RL's mission responsibility, the RL sought a new approach to the job. Approximately 1 yr ago, the RL began discussions with the Federal Quality Institute (FQI), seeking their assistance in making some positive changes in the approach to the Hanford Site mission. This first step actually was driven by 12 individual contributors who believed in Total Quality Management (TQM), and they now are formalized as the RL Total Quality Advisory Team. The FQI agreed to initiate a Model Quality Project, and in November 1990 the quality journey began.

The process of TQM within the field office began 6 mo ago. Total Quality Management consists of three principles: focus on achieving customer satisfaction; seek continuous improvement; and involve the entire work force. These principles provide the precise tools needed to facilitate the cultural transformation at the Hanford Site.

The FQI also has developed seven practices that, when employed in an integrated system, will result in a TQM work style. The seven practices are as follows:

- Top management leadership and support
- Focus on the customer
- Strategic planning
- Quality assurance
- Employee empowerment and teamwork
- Commitment to training and recognition
- Measurement and analysis.

These practices address two basic subjects: people and work methodology. People are especially important to the RL. The RL employees often feel demoralized and beaten down by a constant series of issues and events raised by the customers. The employees are trusting management to make policies that cope with this new atmosphere. Total Quality Management offers them an opportunity to be part of the planning and strategizing for their future. Total Quality Management focuses on the problems in the process (rather than personnel problems) and encourages employees to find solutions to these problems.

Before TQM was instigated, the RL was developing a culture that values safety and the environment by striving for excellence and by being open to the public. The result of this new culture is improved conditions for human beings. This culture and TQM support each other, often sharing the same priorities including satisfied customers (people); contented workers through empowerment, training, and recognition; self-confidence; high-quality products through sincere attention; and measurement through the TQM process. The RL employees seem willing to accept TQM because it "sounds" fair, but they have reservations that this may be just one more set of responsibilities with little or no additional resources to support them.

By conducting onsite executive awareness seminars for the entire management team and from personal interviews with management and staff, FQI discovered an organization rich in talent and dedication. They also noted that the RL has many customers and multiple priorities, each being given equal importance and, often, without enough resources to succeed.

The FQI recognized the need for a change in rationale and advised the RL on the first steps to accomplishing this. At that time, the Richland Field Office Quality Management Council (the Council) was created, which consists of the senior management team plus a representative of the Total Quality Advisory Team (a crosscutting group of dedicated people who believe in the benefits of TQM). The Council is the driving force in the movement toward quality management.

The FQI defines TQM as "a strategic, integrated management system for achieving customer satisfaction which involves all managers and employees and uses quantitative methods to continuously improve an organization's processes." The RL is beginning to implement the strategic, integrated approach, and teamwork is an invaluable ally.

The first steps on the RL's journey are listed in Table II.

Recently, was hired to help with training and developing the TQM approach. With the FQI continuing their overall guidance, formal training for the senior staff will begin later

this month. To ensure RL's involvement in the education of RL employees, the Council appointed a cross-section of people to the Education Committee, which will work with TQM and FQI to produce and implement an education and training plan. The first overall TQM approach will be established after the senior staff has received 'basic' training.

Even without a clearly defined 'roadmap' for the TQM plan, the RL is attempting to integrate TQM philosophy, particularly teamwork principles. The FQI has been invaluable in helping the RL to recognize that creating a vision of quality and establishing quality values to instigate the process requires management commitment. As a result, the Council has been meeting twice monthly since February, a large number of meetings for a busy senior staff. These meetings are 2 hours long and are devoted exclusively to 'quality' topics. For a management team already working extended hours, this was an act acknowledging serious commitment.

The Council is guided by rules that illustrate commitment to TQM. Some of the more important rules include the following.

- As members of the RL Quality Management Council, we recognize our responsibility to act as quality models, both in our individual behavior and in our group behavior, for everyone in the organization to emulate.
- Quality is our first priority. All members in residence in Richland will be expected to attend the meetings and make all other priorities secondary except in the case of essential travel or other exigencies.
- We will be one-hatted. We will appear at meetings not to represent our individual constituencies, but to work together as a quality improvement team responsible for the whole organization.

The Quality Management Council has done a necessary and basic job of setting part of the foundation for effecting a cultural change by acknowledging its responsibility to do so. This is extremely valuable in establishing a clear vision of the goals of the RL for the Council. The acknowledgment also reinforces that the vision is interaction in a quality fashion.

At one of the recent Council meetings, a quality policy statement was developed that was adopted as the Council's own standard for behavior. This statement has been embraced by each member as a guide for performance of the day-to-day business of the RL. It is a philosophy based on the common-sense elements of the TQM principles. The statement comprises the following elements.

- Quality is everyone's responsibility at the RL.
- Listening to and understanding the customers' expectations guides everything RL does.
- The RL continually strives for improvement in performance.
- Teamwork, trust, open communications, and employee recognition govern all interactions.

This policy will be shared organization-wide as soon as some of the basic TQM educational needs are implemented that are required office-wide. Senior managers have agreed to abide by the Council's policy statement on quality to demonstrate their commitment to the process. This demonstration of commitment will facilitate the culture change with the rest of the employees.

TABLE II

The First Steps Toward Total Quality Management

Step Number	Step
1.	Establish a quality council
2.	Establish an employee advisory team
3.	Train all management for awareness/identify barriers
4.	Establish the vision statement (preliminary)
5.	Identify values (preliminary)
6.	Establish a vision/values committee (cross-section) to develop shared vision and values for all of the Hanford Site
7.	Hire Process Improvement International as a consultant
8.	Establish an education committee (cross-section)
9.	Inform everyone of current status through a letter from manager
10.	Implement more specific training (to begin this month)
11.	Visit Sacramento Air Logistics Center (winner of <i>FQI Prototype Award</i>)
12.	Use FQI as a guidepost

The RL realized that, using the previous system, the federal staff spent most of their time in an office reading reports (from multiple contractors) and listening to briefings. The new culture, as envisioned by the RL, will allow the federal staff to be in the field more often, and they will be trained to understand operations better, which will enhance their ability to evaluate programs and projects. This is defined as "ownership" of responsibilities. Additionally, the mission for the Hanford Site is totally new, not just for this site but also for the nation. There is no prototype for the environmental restoration and cleanup work envisioned, so it will be designed at the Hanford Site.

Late last year, the RL senior management met for 2 days away from the office to reassess the vision and values statement previously developed. The following statement encompasses the vision for the RL:

To become internationally recognized for Environmental Research, Development, and Demonstration for Science and for Operational Excellence in all that we do.

The RL has asked an employee committee to refine, modify, or change this current vision to produce a shared vision for all the RL and contractor employees at the Hanford Site. If the employees define the vision, the Site will reach its goal sooner. This is truly empowering the RL employees. Likewise, the RL employees will be empowered to improve the work processes through Quality Improvement Teams. The goal here is a culture of continuous improvement through better use of employees.

CONCLUSION

The vision for the Hanford Site means striving for excellence in science and engineering (the cornerstones of research and development, and operations in RL's highly technical tasks); conducting disciplined, safe, environmentally sound, and cost-effective waste management operations; achieving near-term successful *environmental* restoration; developing,

importing, and exporting solutions to environmental problems; and earning public credibility and confidence.

Although the structure of the 'flagship' is not yet complete, the fundamental vision is a sound one and is consistent with today's environmentally conscious world and RL's sense of stewardship for the Hanford Site. The Quality Council chartered a Quality Improvement Team, which is representative of first-line supervisors and employees, to provide comments on the vision statement and to make suggestions for enlisting the work force in this new direction. Ultimately, it will be management's commitment to TQM that clarifies the vision.

The TQM effort at the Hanford Site is designed to raise current reality up to the level of the vision through changes in work procedures, the teamwork principle, and customer relationships so that best efforts are spent doing the right things right the first time.

By applying a spirit of teamwork (the essence of TQM) RL produces a better product, one with which both RL and the regulators are satisfied. This spirit of teamwork is a demonstration of management's commitment to making quality changes at the RL. As the teamwork approach grows stronger, so will the success of the organization as a whole in meeting the customers' expectations at all times.

The RL has teamed top and middle management and a few employees in the spirit of TQM to begin the journey of the Hanford Site vision. The support of the RL employees is being sought in an attempt to enlist everyone in the team. The next year is critical: extensive training will occur, and at least two trial process improvement teams will complete tasks while others begin. The vision statement and the values definitions will continue to be tested and adjusted. The biggest challenge will be to balance TQM with meeting expectations and responsibilities.

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