

Benefits of ISO Programs at Elizabethtown Water Company

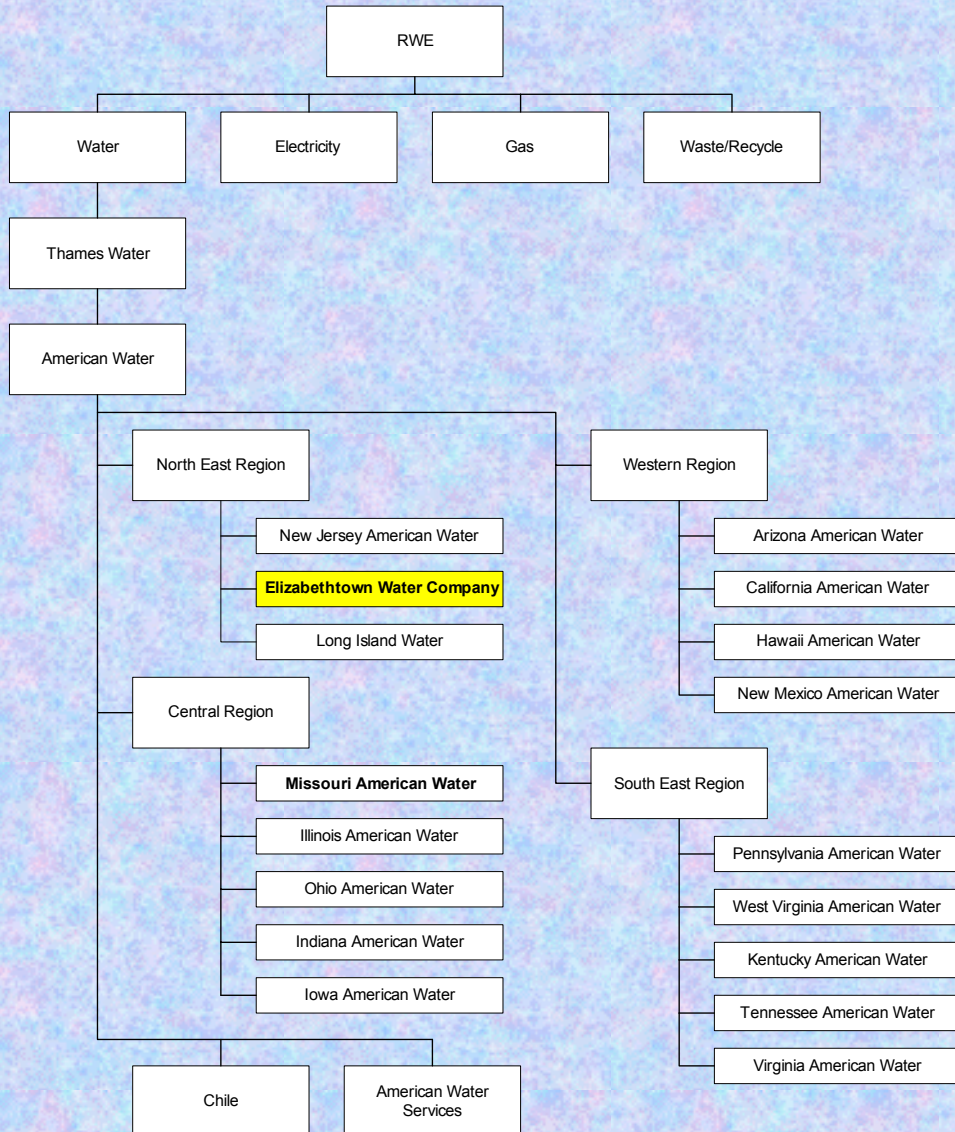
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Elizabethtown Water Company



- E-town became a wholly-owned subsidiary of Thames Water on November 27, 2000.
- E-town supplies water service to homes and businesses in more than 50 municipalities in 8/21 NJ counties (~250K customers). About 135 million gallons produced each day.
- NJ American Water serves 122 communities in 15/21 NJ counties (~350K customers). About 145 million gallons produced each day. Became a subsidiary of Thames Water on January 10, 2003.
- E-town now doing business as New Jersey American Water. Northeast Region serves > 600,000 customers with > 275 MGD.

ISO

(a word derived from the Greek isos, meaning "equal")



- ISO 9001: defines a Quality Management System (QMS) that supports:
 - Customer requirements
 - Regulatory requirements
 - Internal requirements

- ISO 14001: defines the Environmental Management System (EMS) that supports:
 - Control of potential impacts on the environment
 - Regulatory requirements
 - Internal requirements

Why ISO?

▶ **ISO certification identified as a:**

- **Best-in-Class** initiative in the Strategic Business Plan
 - ▶ Monitor, analyze, and improve performance and conformance,
 - ▶ Prevent/reduce problems (nonconformances) and pollution,
 - ▶ Operational efficiency through process consistency.
- Commitment to the continual improvement of water quality, cost efficiency, the environment, and customer service.
- Path to distinguish E-town from its competitors.

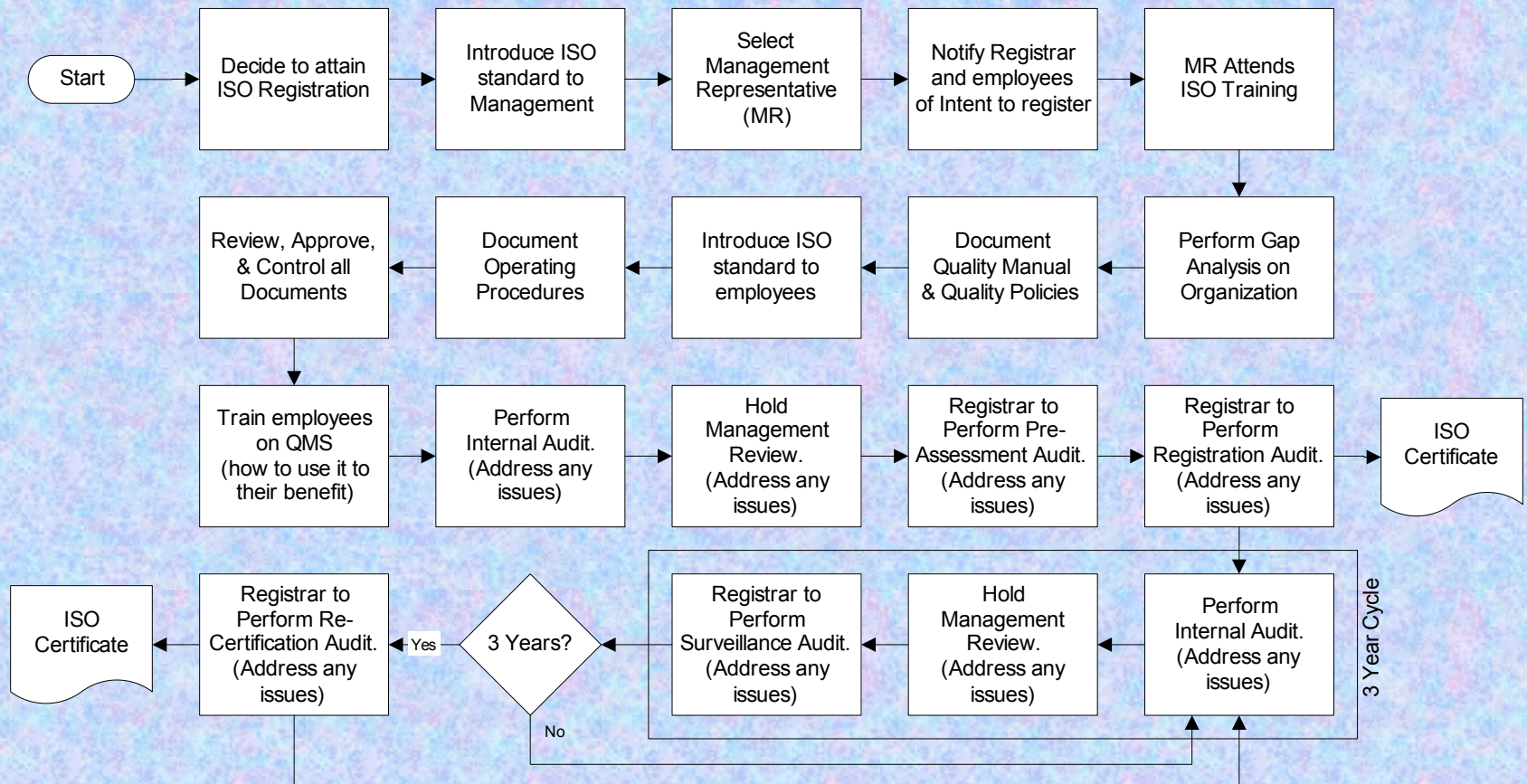
▶ **Leading to...**

- new business, better efficiency (safer, reliable, economical, quicker), improved relationships with employees, customers, stakeholders, and regulators.

Current ISO Programs

- ✓ Raritan-Millstone Water Treatment Plant
 - ISO 9001 & ISO 14001 (obtained 3/21/02 & 12/11/02, respectively)
- ✓ Canal Road Water Treatment Plant
 - ISO 9001 & ISO 14001 (obtained 3/21/02 & 12/11/02, respectively)
- ✓ Bridgewater Water Testing Laboratory
 - ISO 9001 & ISO 14001 (obtained 3/21/02 & 12/11/02, respectively)
- ✓ Engineering and Technical Services (2 sites)
 - ISO 9001 (obtained 11/5/02)
- ✓ CRM- Customer Service (5 sites)
 - ISO 9001 (obtained 12/13/03)

the Road to ISO Certification

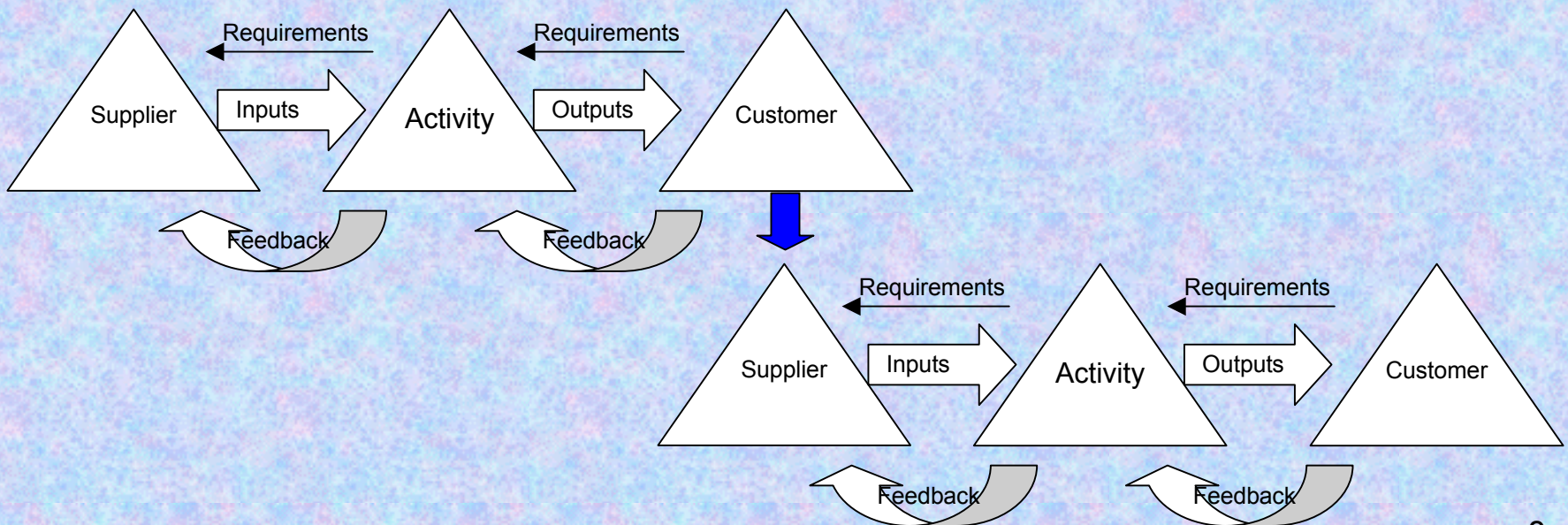


ISO 9001's Intent

- The primary intent is to increase customer satisfaction through the prevention of nonconformances.
- Specifies requirements for a Quality Management System that demonstrates the ability to consistently provide products and services that meet:
 - Customer requirements
 - Regulatory requirements
 - Internal requirements

Process Approach

- For an organization to function efficiently, it has to identify and manage numerous linked activities.
- Each activity accepts inputs and produces outputs. When activities are linked together they create a “process”.



Requirements of ISO 9001

- Quality Manual
- Quality Policy
- Quality Objectives
- Control of Documents
- Control of Records
- Management Review
- Identification of Resource Needs
 - Infrastructure/workplace
 - Qualification & Training
 - Defined responsibilities
- Internal and External Communications
- Product Realization Planning
- Audits
- Customer Requirements
 - Identification & Review
- Design of Facilities, Infrastructure, Process & Services
- Purchasing
- Product Identification
- Customer Property
- Equipment Maint./Calibration
- Nonconforming Product
- Analysis of Results
- Continual Improvement

Summary of Benefits (of ISO 9001)

- The entire organization is aligned to meet/exceed the company's Vision.
 - Goals and Targets are lined up
 - Processes are consistent
 - Communication is flowing up & down and in & out
- Information that employees need to effectively perform their work is readily available and up-to-date.
 - Customer information (requirements and feedback)
 - Policies and procedures (internal and regulatory)
- Process performance and Product conformance are analyzed at regular intervals.
 - Targets are set and objectives are monitored
 - Promotes continual improvement (proactive and reactive)
 - Identifies resource needs (people, equipment, and facilities)

Summary of Benefits (of ISO 9001)

(continued)

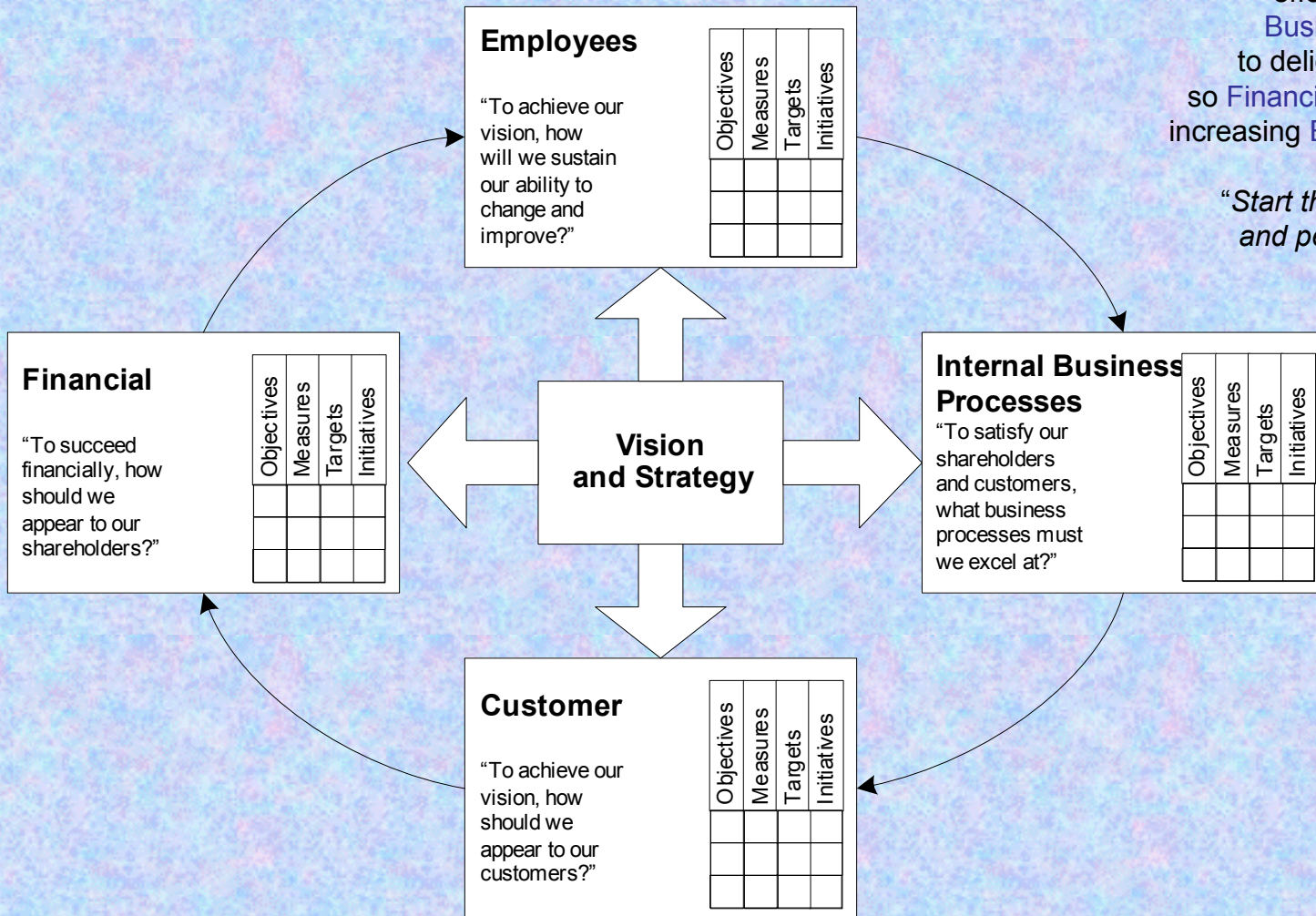
- Product Realization and Designs are planned to facilitate consistent, reliable, and safe products/services and processes.
 - employees gain an understanding of the product and process
 - product and service is protected against damage/loss
- Purchased material/services are evaluated to ensure it meets requirements.
 - Reduces rework and recalls (reduces effort)
- Equipment is maintained to ensure it will consistently and accurately function as intended.

Summary of Benefits (of ISO 9001)

(continued)

- **Benefits to Employees:**
 - **Better communication/consistency**
 - **Training is provided to optimize business practices**
 - **Performance is optimized in a safe and organized environment**

Balanced Scorecard



Satisfied Employees need effective & efficient Business Processes to delight the Customers so Financials will increase; thus, increasing Employee satisfaction...

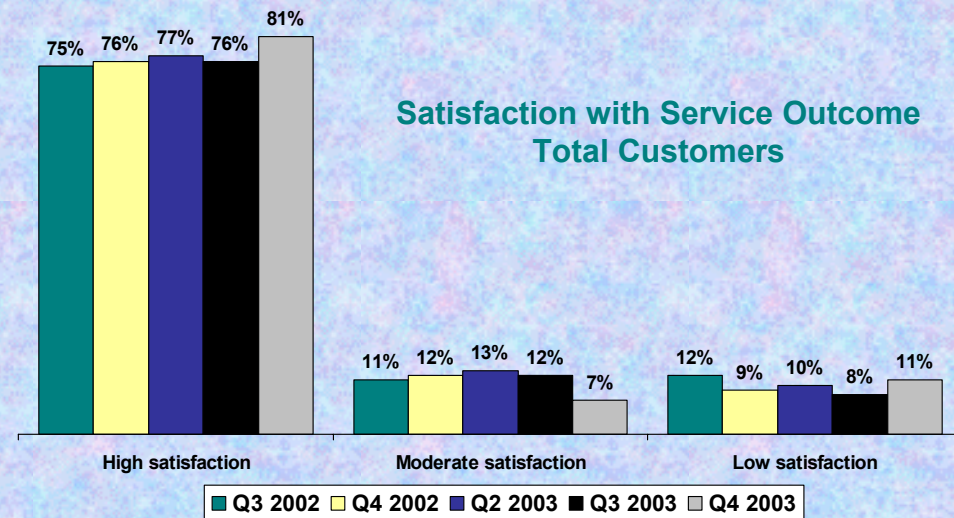
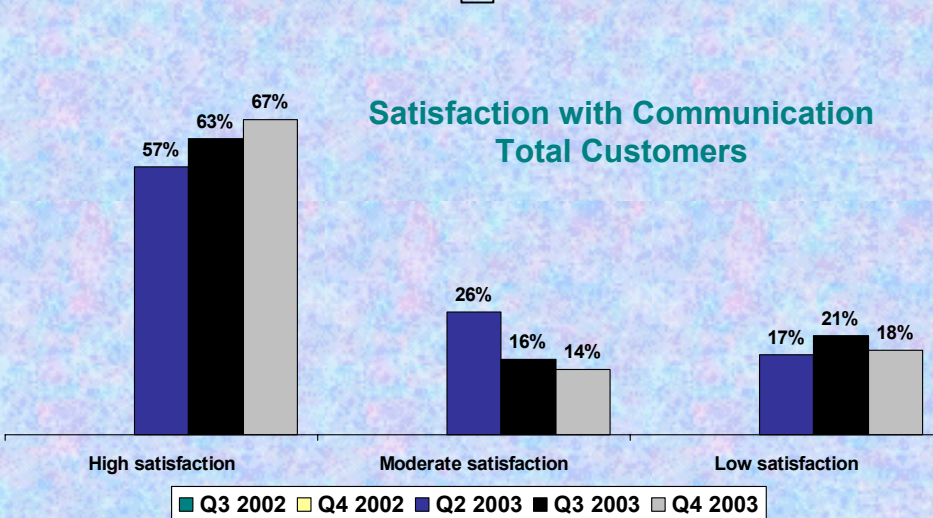
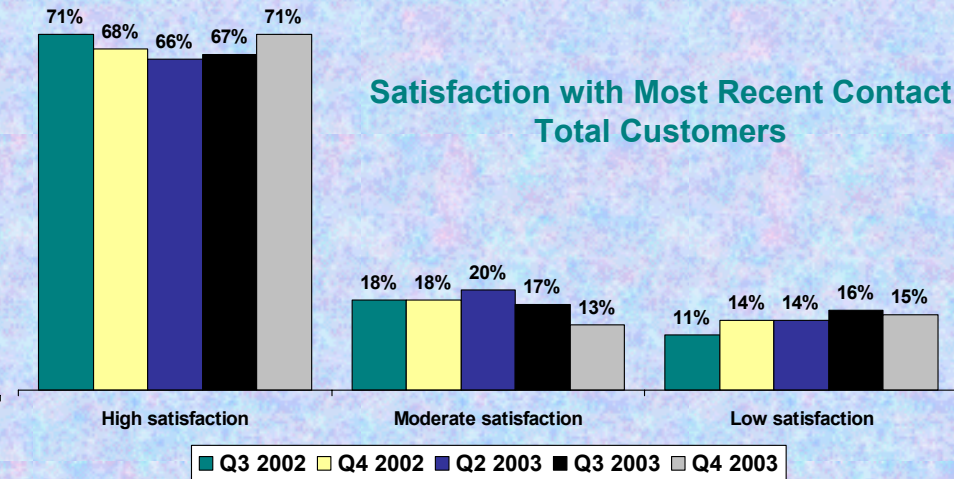
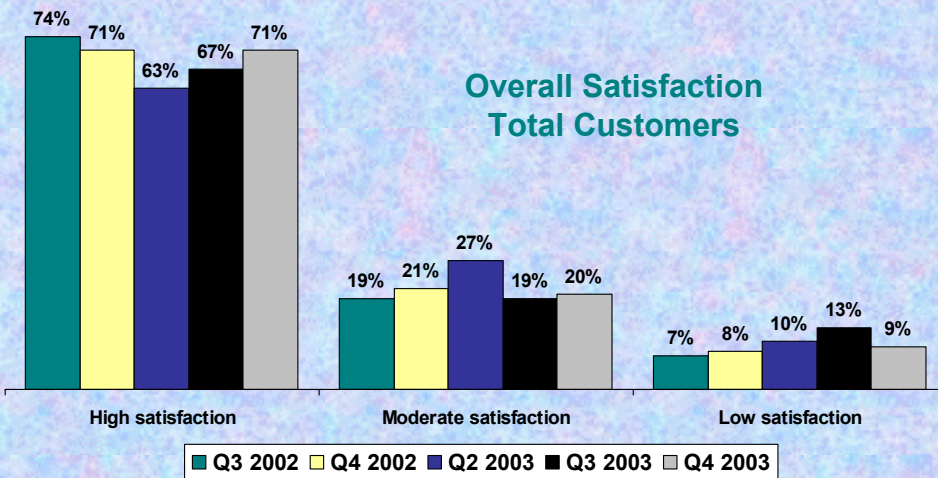
“Start the flywheel spinning and people will jump on”
 -Jim Collins
 Good To Great

Summary of Benefits (of ISO 9001)

(continued)

- Benefits to Employees:
 - Better communication/consistency
 - Training is provided to optimize business practices
 - Performance is optimized in a safe and organized environment
- **Benefits to Customers:**
 - **Faster response with better communication and consistency**
 - **Safer, reliable, and more cost effective services**
 - **More services can be offered**

Impact on Customer Satisfaction



Summary of Benefits (of ISO 9001)

(continued)

- Benefits to Employees:
 - Better communication/consistency
 - Training is provided to optimize business practices
 - Performance is optimized in a safe and organized environment
- Benefits to Customers:
 - Faster response with better communication and consistency
 - Safer, reliable, and more cost effective services
 - More services can be offered
- **Benefits to Business:**
 - **Vision is realized and brand image broadened**
 - **Increased profits, ROI and lower costs**
 - **Higher employee retention**

Examples of Cost Avoidance

Certified Division	Standard	Total Cert. costs	Estimated Annual cost	Process Improvmt cost (est.)	Estimated Avoidance savings	ROI
R-M/CR/Lab	ISO9001	\$61,800	\$5,000	\$1,000 \$2,600	\$32,000 ¹ \$7000 ²	(-\$31,400)
E&TS	ISO9001	\$35,100	\$4,000	\$500	\$300,000 ³	\$260,400
CRM-CS	ISO9001	\$47,800	\$5,000	\$0	\$193,000 ⁴	\$140,200
	Total	(\$144,700)	(\$14,000)	(\$4,100)	\$532,000	\$369,200

1. Improved the chemical delivery process to reduce the risk of combining incompatible chemicals. This process is monitored through objective ISO audits. Estimated Avoidance Savings was based on the cost of cleaning up the 2003 “fluoride in the sulfuric acid tank” accident at the R-M Plant. Luckily, no serious injuries were reported.
2. Installed 2 eyewash stations where they were needed; this was a finding during an ISO9001 audit. Estimated Avoidance Savings was based on the cost of an OSHA fine of \$7,000 minimum (maximum fine could be \$140,000).
3. A system for the addition of lime to the water treatment process was installed at the R-M Plant without a formal design review. The asset owner desired to use a lower grade of lime for the process which clogged the lines of the system. Estimated Avoidance Savings was based on the cost of reworking the design.
4. Accurate and consistent tracking of Quality Objectives enabled us to avoid a penalty of \$193K per initiative if we don't meet/exceed the BPU target. There are 6 CRM-CS BPU Targets (thus, penalty could be as high as \$1.16M).

ISO 14001's Intent

- Improve company's environmental performance through the prevention of pollution efforts.
- A structured approach to:
 - Set environmental objectives and targets
 - Achieve the set objectives and targets
 - Demonstrate that targets have been achieved

Requirements of ISO 14001

- Define Environmental Policy*
- Define Environmental Risks
- Establish formal Programs to achieve objectives
- Emergency Preparedness
- Set Objectives/Targets*
- Define Responsibilities*
- Provide Training*
- Measure Competence*
- Control of Documents*
 - Access to Legal/Regulatory documents*
- Control of Records*
- Internal and External Communications*
- Product Realization*
- Equipment Maint/Calibration*
- Management Review*
- Analysis of Results*
 - Audits
 - Changes in Requirements/Regulations
 - Nonconformances
- Continual Improvement*
 - Corrective Actions
 - Preventive Actions

Summary of Benefits (of ISO 14001)

- Lowered Environmental **Risks** through:
 - Identifying them and addressing how to prevent catastrophes
 - Reduction in environmental accidents
 - Reduction in worker accidents
- Increase **Effectiveness** through:
 - Defined, accurate, consistent Processes
 - Managed Environmental Programs with defined Goals and Targets
 - Communications
- Many of the same benefits ISO 9001 provided.
- Assessments (Audits) help us stay on track.

Examples of Cost Avoidance

Certified Division	Standard	Total Cert. costs	Estimated Annual cost	Process Improvmt cost (est.)	Estimated Avoidance savings	ROI ²
R-M/CR/Lab	ISO14001	\$35,400	\$5,000	\$10,000	\$100,000 ¹	\$49,600 \$436,000 ²
					Total	\$485,600

1. Improved tracking of UST permits to reduce the risk of ground contamination. Replaced UST that was not compliant to state regulations and was found during an ISO internal audit. Estimated Avoidance Savings was based on the cost of cleaning up 1000 gallons of fuel oil.
2. Environmental Programs in Progress:
 - Energy Conservation (so far, ROI \$436,000, Target ROI \$600,000, expecting ROI \$1,000,000)
 - Recycling
 - Water Conservation

Summary of Cost Avoidance

Certified Division	Standard	Total Cert. costs	Estimated Annual cost	Process Improvmt cost (est.)	Estimated Avoidance savings	ROI
R-M/CR/Lab	ISO14001	\$35,400	\$5,000	\$10,000	\$100,000	\$49,600 \$436,000
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CRM-CS	ISO9001	\$47,800	\$5,000	\$0	\$193,000 ⁴	\$140,200
	Total	(\$180,100)	(\$19,000)	(\$14,100)	\$632,000	\$854,800

Lessons Learned

- 🔥 Baseline and measure your process **before** and **during** improvement activities (PDCA).
- 🔥 Limit consultant assistance.
- 🔥 Provide training on **Root Cause Analysis**.
- 🔥 Aim to reduce paper documents and forms.

What's next?

▶ Five Year Business Plan

- Auditor Training
- Implement consistent processes throughout NJ and US
- Standard documentation format
 - ▶ ISO-9001, ISO-14001, HACCP, OSHAS-18000, AWWA
- Knowledge Management initiative

▶ Realize our Vision:

“To be your trusted water resource company, dedicated to delivering innovative solutions.”

- Strive toward **Best-in-Class**

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