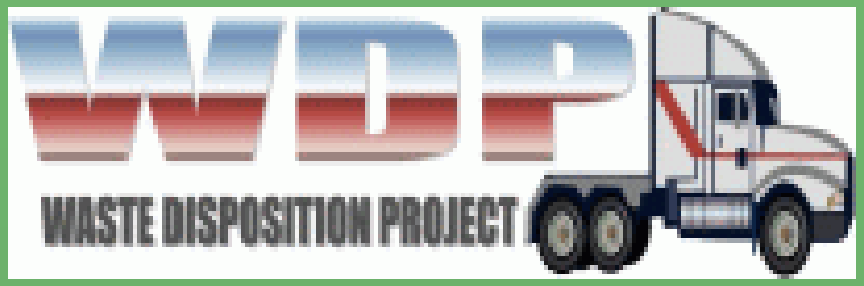

Performance Based Trending of Waste Disposition Project Data Quality

Presented by Gary Coleman *M.S.*
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Gary Coleman Biography

- Gary Coleman is a Nuclear Safety Engineer for Bechtel Jacobs Company LLC, supporting the Waste Disposition Projects at Oak Ridge National Laboratory,Y-12 National Security Complex, and the East Tennessee Technology Park. He has over 17 years experience supporting DOE, DOD, NNSA, and EPA work. He holds a Masters Degree in Safety from the University of Tennessee, and enjoys coaching Rugby Football, and playing in Rock Bands

Presentation Objective:

- This presentation outlines the importance of insuring Waste Disposition Project (WDP) data quality is maintained at a suitable standard of performance, and recommends a simple system used to provide a monthly “feedback” mechanism for data quality, which can affect multiple facets of operations.

What can be accomplished using this system?

- Key system data parameters can be easily tracked and monitored using an acceptable level of system performance
- Data quality is measured monthly, with system performance data analyzed, and system performance feedback is provided to operations personnel, which satisfies core ISMS principle #5 “Provide Feedback and Continuous Improvement”

The Main Issues to Consider:

- Is data quality important for success of the project?
- What areas of operation can be adversely affected by poor data quality?
- How do you determine a minimum performance standard for the system?
- How do you collect, analyze, and track data to insure system performance?
- Does the current system fit into the ISMS philosophy?

Historical Development of The Waste Tracking System

- The Department of Energy's Oak Ridge Reservation is comprised of three different plants: East Tennessee Technology Park (K-25), the National Security Complex (Y-12), and Oak Ridge National Laboratory (X-10)
- Each plant had their own system and databases for tracking waste
- There was no consistent exchange of waste information as the waste traveled from storage point to storage point

FAT-CAT, WITS, and eMWaste

- WITS was the original database used to track waste at all three plants
- In 2006, WDP WITS data was migrated to a new information management program called eMWaste
- FAT-CAT extracts radiological data from eMWaste, and calculates container specific as well as facility specific sum of fractions (SOF) used for compliance with safety basis facility categorization

Data Parameters That Could Adversely Affect Operations:

- Container location: is the container in the right location?
- Is the listed container weight correct?
- Does the container have the correct label i.e. RAD, NCS, PCB, RCRA, etc..?
- Does the container rad data listed in the hard copy file match what is in eMWaste and FAT-CAT?

DOE Lessons Learned Database

- A simple search of the DOE Lessons Learned database revealed 19 instances of the adverse effects of poor data quality on operations
- A variety of operations aspects were affected by poor data quality
- Could a more refined search of the database reveal even more?

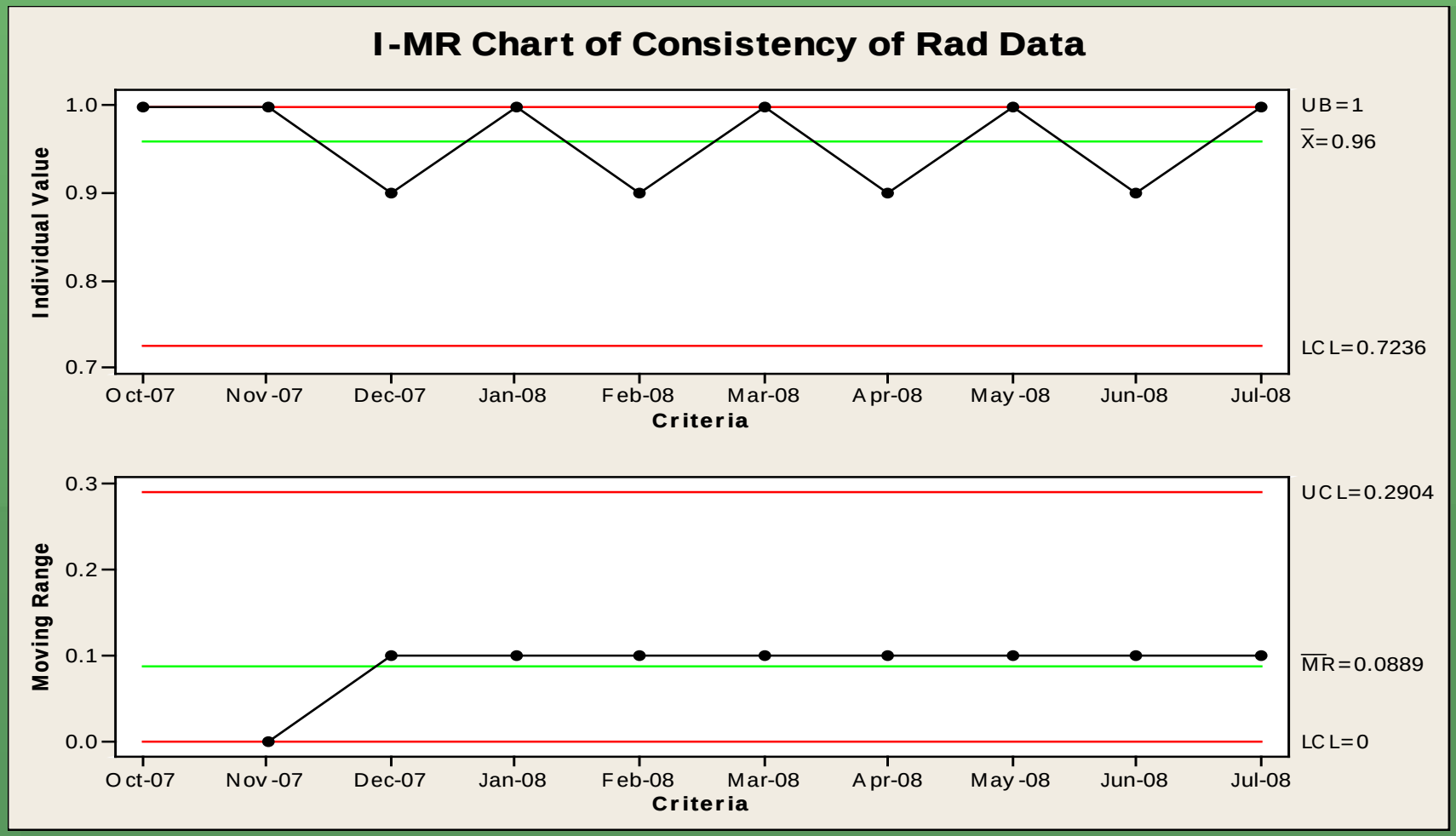
Monitoring eMWaste And FAT-CAT Behavior

- Data is collected on a monthly basis
- 100 containers in storage are randomly selected from eMWaste
- Container location, weight, type of container, and labeling are verified in the field
- 10% or 10 containers of the randomly selected total are verified for consistency between the data in FAT-CAT, eMWaste, and the paper hard copy file
- The data results are then entered into moving range charts

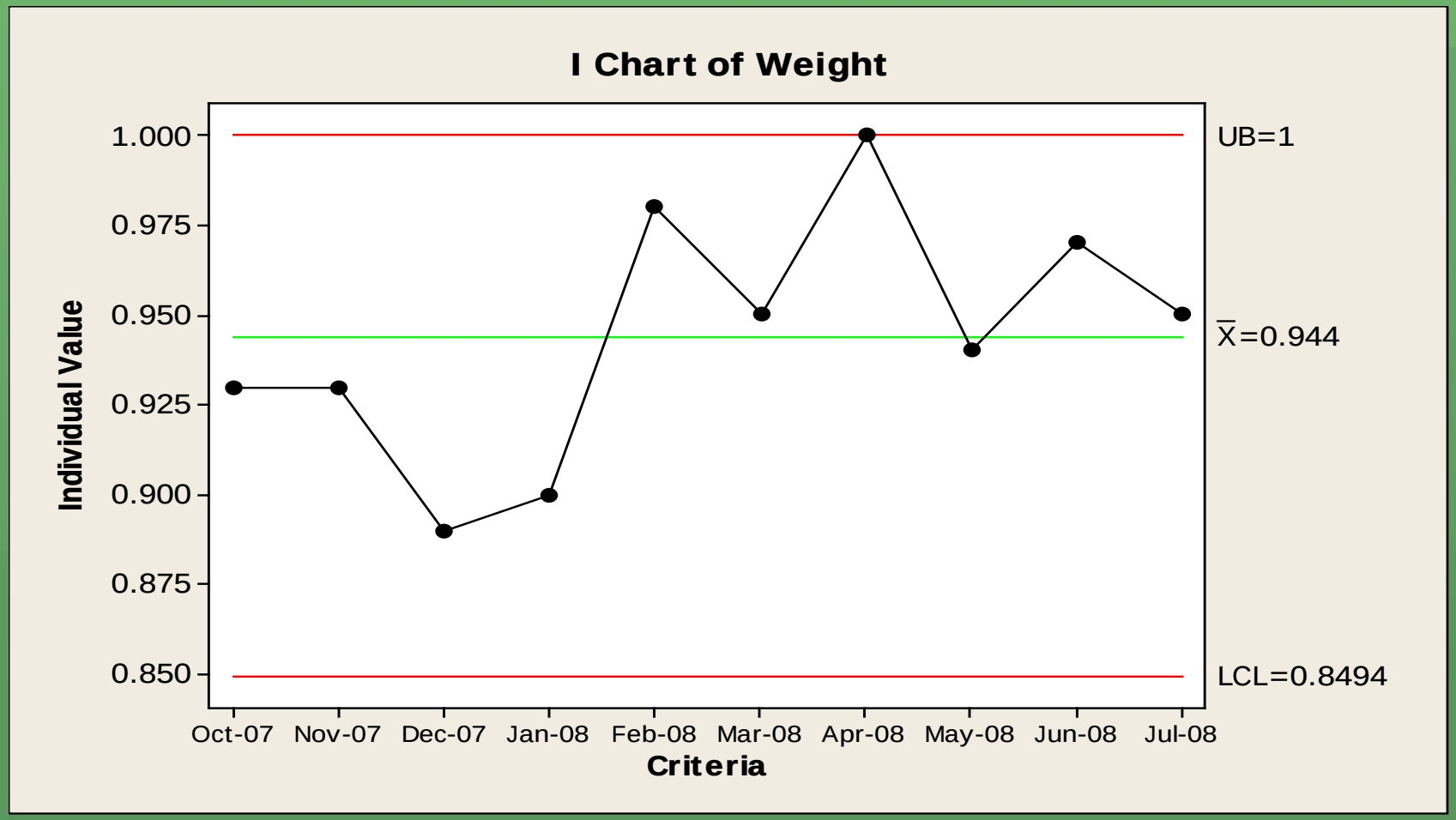
Development Of A Minimum Performance Standard

- When determining a minimum performance standard for eMWaste and FAT-CAT, there are two principle variables; radiological constituents and container location
- The accuracy of these two variables is paramount
- An earlier study of the two systems (eMWaste and FAT-CAT) showed an inherent conservatism of 25%, and another 10% in administrative controls, for a total of 35%
- Negating the 10% admin control, the minimum performance standard was set at 25%

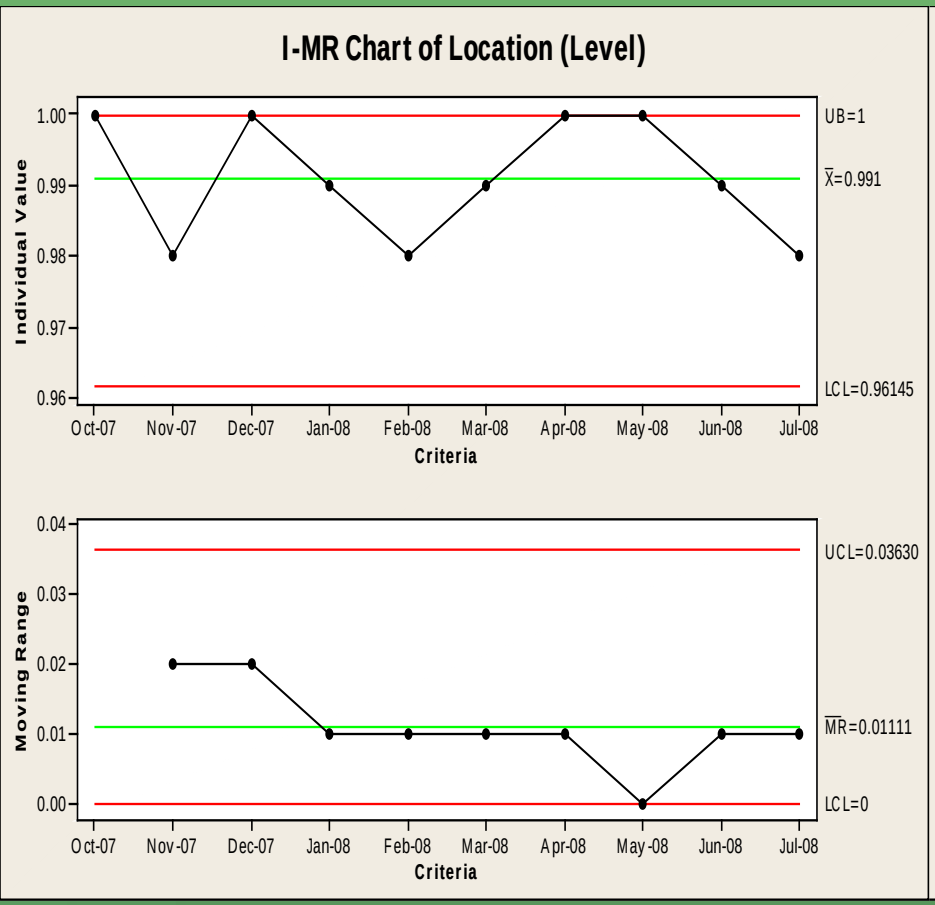
Rad Data Error Control Chart

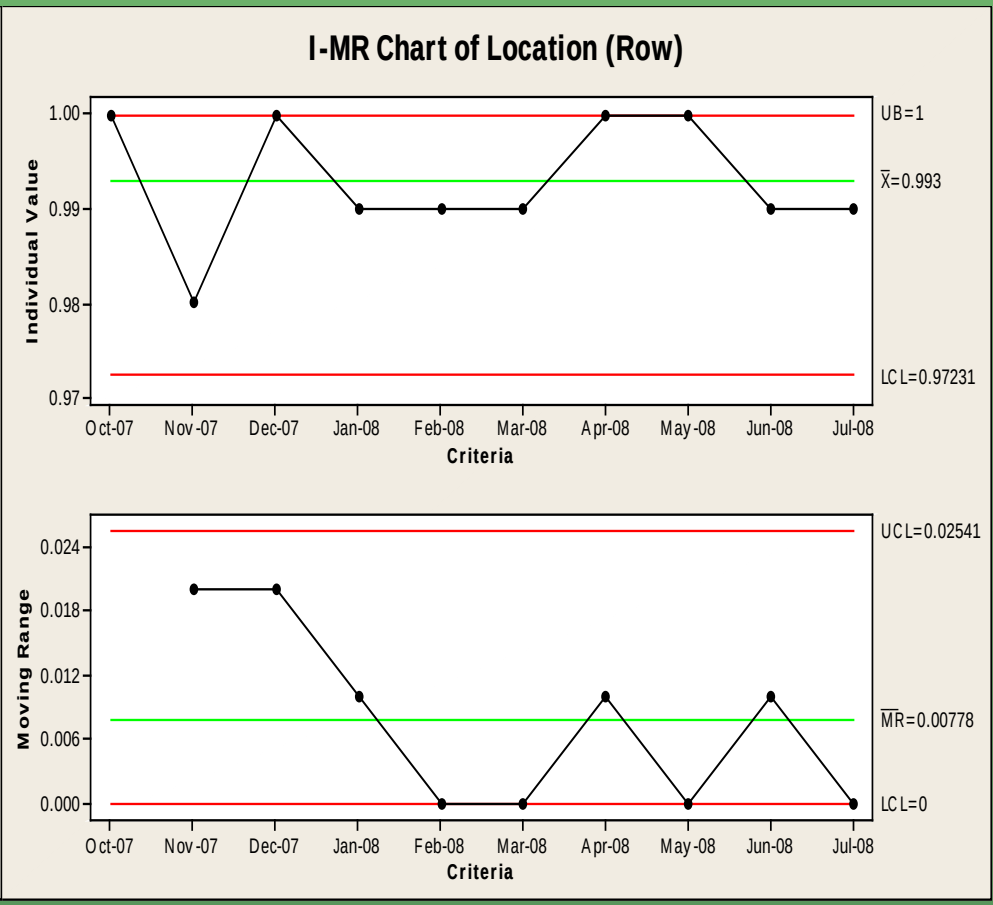


Weight Data Error Control Chart



Container Location





Results of Monthly Performance Monitoring

- This process has been in place for almost two years
- The monthly performance metric graphs are easily understood
- This information is incorporated into management performance metrics
- While all systems have performed in their calculated ranges, field errors are quickly detected and corrected, improving overall system quality

Conclusion

- Maintaining the system at a minimum performance level of 75% aids in ensuring data quality for operations
- Per our data error analysis, the lowest calculated control limit was 83%
- This validates that our system is performing adequately
- “Provide Feedback and Continuous Improvement” is ISMS core value #5
- Use of this simple system provides data quality feedback to operations, and identifies areas for possible improvement