

Decision Support Tool for Prioritization of Surveillance and Maintenance Investment Across DOE Excess Facilities

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Problem Statement

Experience often shows that once buildings have been declared excess maintenance budgets are drastically reduced being justified by not spending money repairing a building that will be demolished.

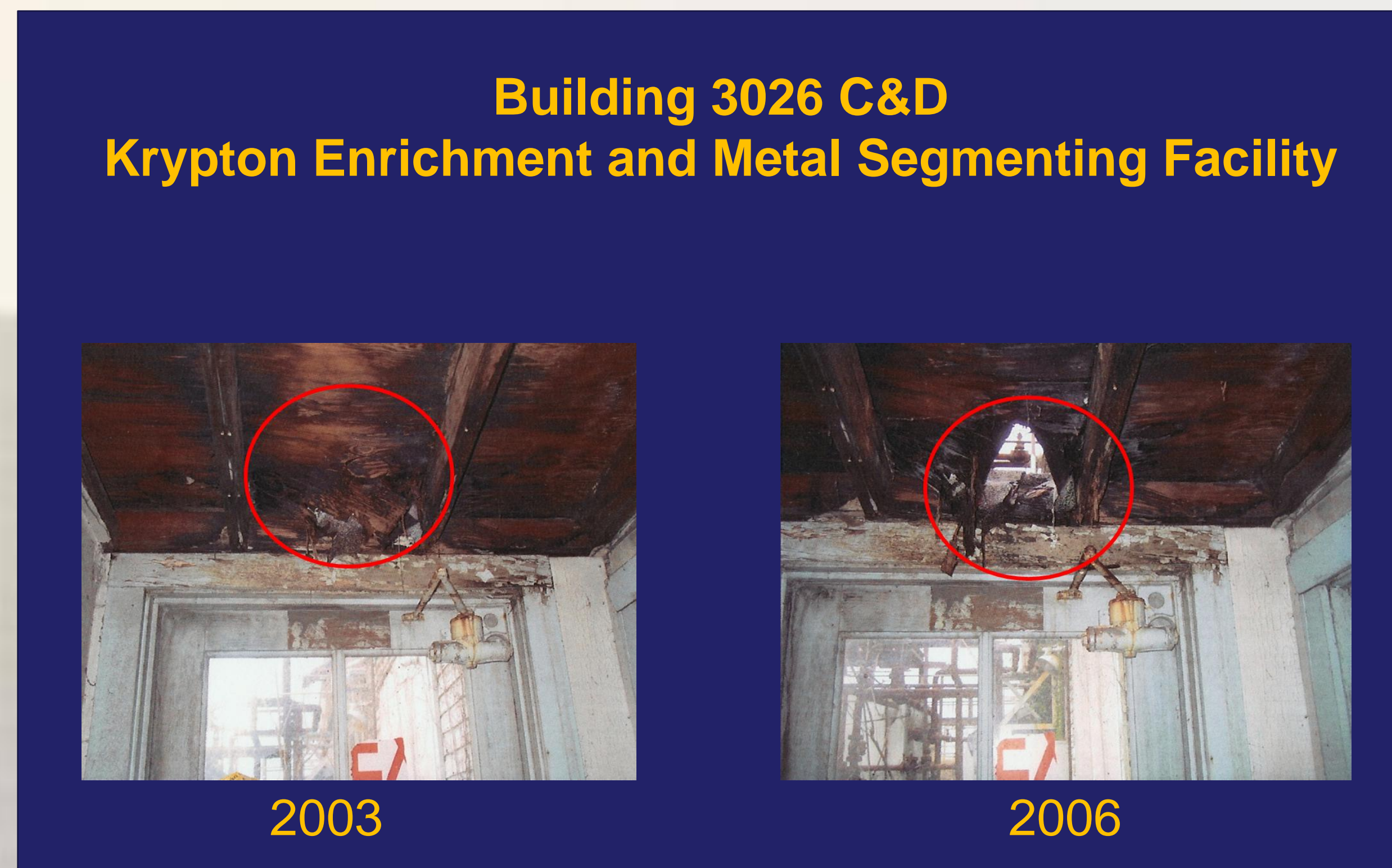
Inadequate investment in S&M can cause excess facilities to deteriorate to the point they are unsafe for human entry. Too often this can mean tremendous increases to cost during D&D.

Multi-criteria Decision Making Tool

The Analytical Hierarchy Process (AHP) was used to calculate the weight of importance of a defined list of risk criteria and general S&M activities by means of a pair-wise comparison technique. A total of 10 facilities from ORNL varying in perceived hazards and conditions were used to test the tool. These facilities were evaluated against each risk criterion, and the results were combined with the weight of importance of the S&M actions they require.

Results Obtained From The Tool

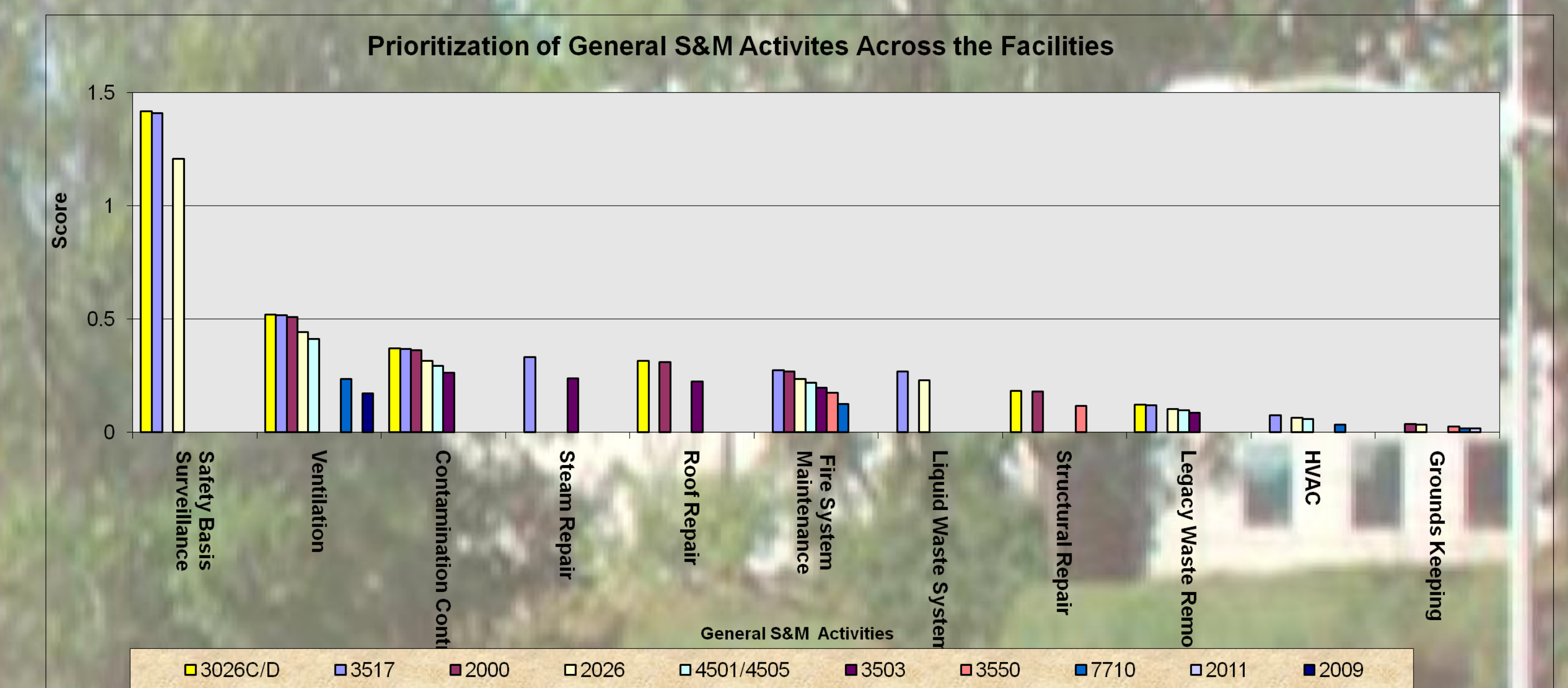
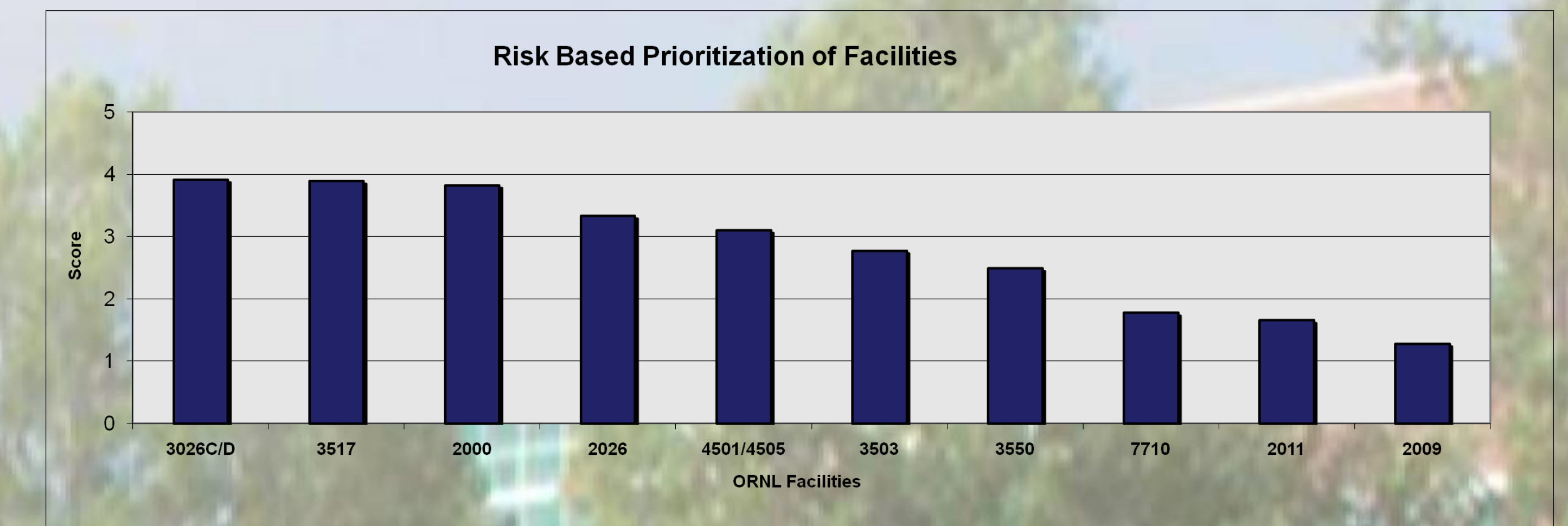
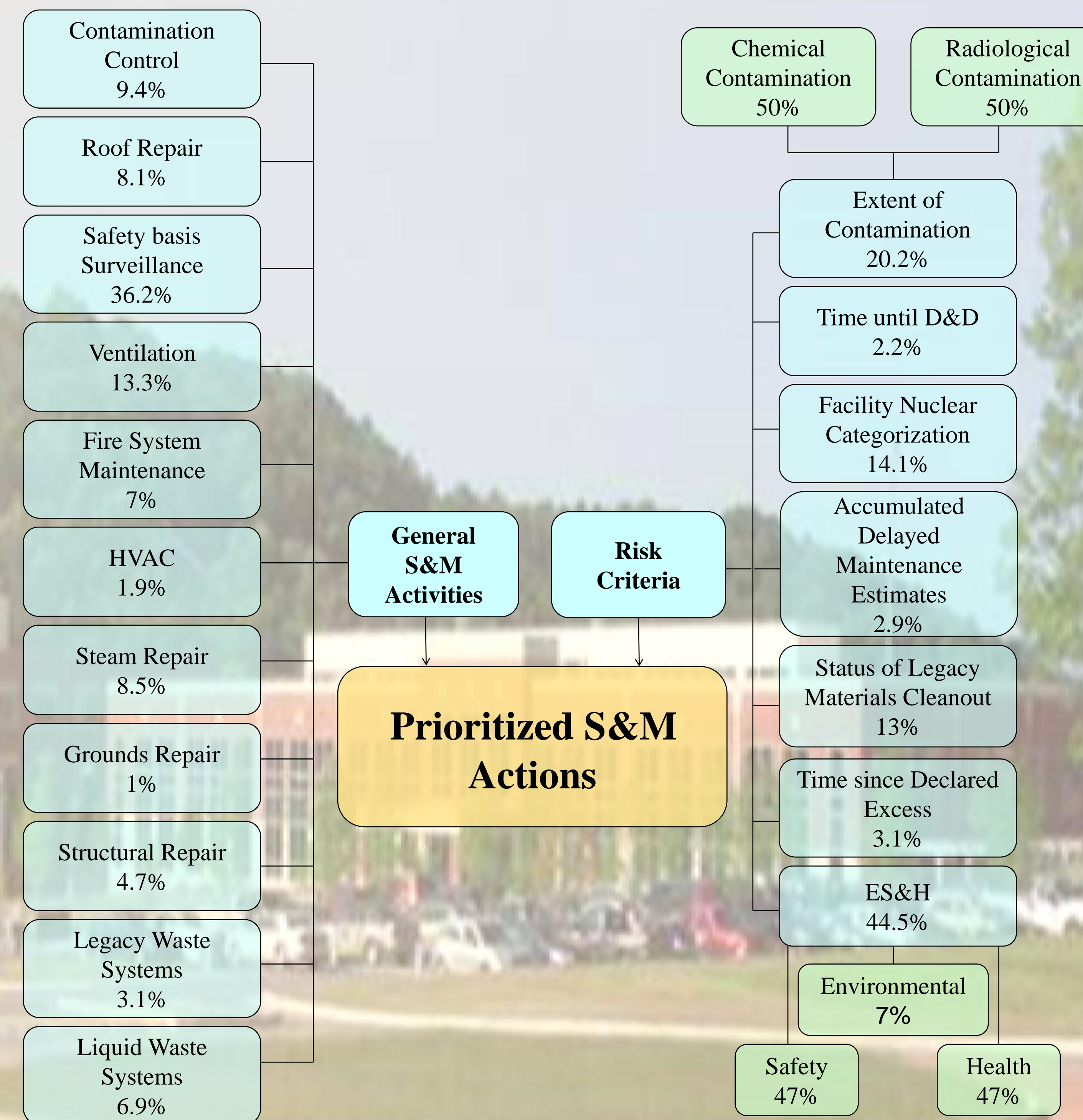
The final test result was a rank of S&M activities based on the importance of the activity and the risk posed by the facility. This method addressed the needs of all of the facilities without ignoring the S&M activities of the lower risk facilities and thus prevent them from becoming a higher risk in the future.



Structural deterioration of some inactive ORNL facilities such as 3026 C&D, 2000 complex and K25 building are proof of the long term consequences of inadequate S&M investment.

Objective

Provide Federal Project Directors and their Contractors with a decision support tool to aid in prioritizing S&M budgets across all facilities awaiting D&D so that the limited budget available can be used effectively.



Conclusion

The results obtained from the decision tool can be used as a starting point for Federal Project Directors and their Contractors to decide where to spend their S&M money. The tool is flexible enough to be modified and used in other DOE sites.

The result of this study showed consistency and reflected the overall judgment of subject matter experts, based on the facilities used in the test.

Further sensitivity analysis will be the next step to improve the tool.

