



## MAINTENANCE AND RELIABILITY BODY OF KNOWLEDGE

### WORK MANAGEMENT GUIDELINE

# 1.0 Determining Replacement Asset Value (RAV)

The Society for Maintenance and Reliability Professionals (SMRP) has developed standard definitions for metrics used in the industry. These metrics were created by SMRP's Best Practices Committee using a rigorous development process that included an initial draft, project manager review and edit, subcommittee review and edit, Web review (public review and comment), harmonization (with other global metrics), validation (pilot implementation and verification), full committee review and edit, and final edit and format prior to publication.

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## 1.0 Determining Replacement Asset Value (RAV)

Guidelines provide additional information or further clarification on component terms used in SMRP Best Practice Metrics. This guideline is for Replacement Asset Value (RAV).

### A. DEFINITION

Replacement Asset Value (RAV) is defined as the cost that would be incurred to replace the facility and equipment in its current configuration based on current replacement prices. It is intended to represent the realistic value to replace the existing assets at new value.

### B. PURPOSE

RAV is used as the denominator in a number of calculations to normalize cost performance of facilities of various sizes within a given industry. These calculations are used to determine the performance of the maintenance and reliability function relative to other facilities in the same or similar industry.

### C. INCLUSIONS

- Building envelope
- All physical assets (equipment) that must be maintained on an ongoing basis
- The value of improvements to grounds (provided these must be maintained on an ongoing basis)
- Capitalized engineering costs

### D. EXCLUSIONS

- Value of land on which the facility is situated
- The value of working capital:
  - Raw material inventory
  - Work-in-process inventory
  - Finished goods inventory
  - Spare parts inventory
- Capitalized interest
- Pre-operational expense
- Investments included in construction of the facility that are not part of the facility assets
- Mine development



### E. CALCULATION METHODS

There are four methods generally used to determine the RAV of a facility. These methods, described below, are ranked in order of decreasing accuracy.

1. Determine the original capital cost for the facility and equipment. Adjust for inflation since the date of commissioning. Different indices are available, such as inflation data from the US Bureau of Labor Statistics at [www.bls.gov](http://www.bls.gov), Chemical Engineering's Plant Cost Index (CECPI) at <http://www.che.com>, etc.). Add the value of any significant capital expansions (not replacements) that have occurred since commissioning, also adjusted for inflation. Subtract the value of any decommissioned or abandoned assets, also adjusted for inflation.
2. Use the insured asset value (IAV) provided by the insurance company. If using this method, it should be recognized that the IAV may be less accurate than the RAV (as determined above); depending on the level of risk the organization is willing to accept. However, this inaccuracy normally does not significantly impact the calculations in which RAV is used.
3. If the facility was recently part of a corporate acquisition, the purchasing company may have contracted an independent professional appraiser to determine the replacement value. The appraised value normally includes items such as working capital and land values, so adjustments should be made as appropriate.
4. If the organization has facilities of similar size, age, and capacity, RAV calculations made at one facility can be extended to other facilities and adjusted appropriately. It should be recognized that this is usually the least accurate method for determining RAV.

### E. APPLICABLE METRICS

- 1.1 RAV per Craft/Wage Headcount
- 1.4 Stores Inventory Value per RAV
- 1.5 Annual Maintenance Cost per RAV

### F. REFERENCES

None