

CHAPTER IV

CAPITAL ASSET MANAGEMENT PROCESS PRIORITIZATION

1. **INTRODUCTION.** Consistency throughout the Department in the prioritization, preparation, and submission of capital asset management resource requirements is a key element of CAMP. This consistency will contribute to the validity of the overall DOE budget plan and help justify funding requests to OMB and the Congress. To achieve the desired consistency, all sites shall adopt the CAMP prioritization process discussed in this Chapter. The prioritization process is designed to rate and rank each project in the 5-year planning period. The priority lists shall be updated annually. This process shall be used as a tool to help prioritize projects on a sitewide, Field Office, and HQ program basis.
2. **BACKGROUND.** The CAMP prioritization process is a systematic, structured, and consistent method for determining the preferred order for allocating limited resources to solve problems. This process prioritizes the problems (events, conditions, situations, requirements, etc.) that projects are intended to address. There are other methods and techniques used to assess the appropriateness or readiness of a project; for example, value engineering, justification reviews, and project validations. For the purposes of this Chapter, problems and projects can be thought of as interchangeable in the prioritization process.
 - a. **Development Basis.** The CAMP prioritization process was developed on the basis of risk management and reflects the values and culture of the Department. The prioritization rating criteria are comprised of the two elements of risk-consequence and probability. They are combined in the criteria statements and couched in the terminology and expressions commonly used by the people who work with the various prioritization categories. The positioning of rating criteria along a scoring scale reflects the Department's values and culture and represents an interpretation of them according to problem severity and risk. The criteria were developed and positioned based on Departmental intentions and public expectations, rather than standard industrial practices, to better represent the desired level of operational conduct.
 - b. **Universality.** The CAMP prioritization process is a universal one encompassing four areas of major emphasis: (1) Health and Safety; (2) Environmental/Waste Management; (3) Safeguards and Security; and (4) Programmatic. It provides for expansion, change, and improvements. Further, it can easily accommodate ratings initially derived from other prioritization systems, as long as these reflect the same values and culture. The rating criteria and scoring process are contained in the Attachments and shall be maintained by AD-14. Annually, a call will be made for proposed changes or additions to the prioritization process,

and those adopted changes will be transmitted along with the annual CAMP call.

3. **APPROACH.** The problem-rating criteria within each of the four major categories and their subcategories are aligned along the scoring scale so that they represent the same severity or priority. Therefore, any rating score in one category or subcategory represents the same problem severity as the same numerical rating score in any other category. This alignment of criteria is crucial to achieve an integrated ranking between dissimilar problems or projects.
 - a. **Steps.** The CAMP prioritization process consists of four steps: (1) rating; (2) scoring; (3) initial ranking; and (4) final ranking. It is vital that bias be minimized. To this end, ratings are normalized in each step of the consolidation review process (i.e., from facility to site to Field Office to HQ Program Office). This ensures consistency, equitable application of ratings, and fair and accurate comparisons and rankings. The process for developing a total score for each problem/project gives greatest emphasis to the most severe rating, but also recognizes some problems have multiple dimensions and should duly reflect their contributions.
 - b. **Severity Rating Scale.** The problem severity ratings span a scale from 20 to 80. In reality, the scale could have been infinite, but the two ends were collapsed for ease of use. For example, problems involving a life-threatening situation could continue to be defined in increasing enormity, but any such condition is considered unacceptable as all scenarios were considered an 80 rating.
 - c. **Benchmark Criteria.** To assist in assigning major category ratings, benchmark criteria are given for a number of subcategories under each major category. Subcategory benchmark criteria are shown in Attachment IV-1. The subcategories enable project sponsors to rate problems with reference to specific technical and managerial benchmarks, as a guide to accurate rating. The probability and frequency languages used in the benchmark rating criteria for all four major categories and their respective subcategories are outlined in Attachment IV-2. These terms are specific to CAMP and do not necessarily apply to other uses.
4. **PROCEDURE.** The highest single category rating score is first identified. For each of the remaining three major categories, up to 3 points may be added. How many points are added depends on the nearness of the category rating to the highest category rating. Category ratings at or below 20 on the rating scale, or categories not rated, do not contribute to increasing the overall problem score. Category ratings higher than 20 add more points the closer they are to the highest category rating. The default level of 20 represents a satisfactory or adequate condition.

a. Rating.

- (1) First, assign a problem rating for each subcategory determined to be applicable and defensible in any or all of the major categories. This should be based on the projected condition of the problem at the time of correction. For a single subcategory, do this by finding a benchmark on the scale that most nearly describes the problem, and then selecting its corresponding numerical rating score. Interpolations along the scoring scale between rating criteria benchmarks is appropriate.
- (2) Second, assign a rating for each major category that is defined as the highest single subcategory rating under that major category. Use a default rating of 20 for each major category for which no subcategory rating was initially assigned.

b. Scoring. Compute the total overall rating score. The procedure is:

<u>MAJOR CATEGORY</u>	<u>CALCULATION</u>	<u>POINTS</u>
1st (Highest)	Use Actual Rating	=
2nd	$3 \times (\text{Actual}-20)/(\text{Highest}-20)$	=
3rd	$3 \times (\text{Actual}-20)/(\text{Highest}-20)$	=
4th	$3 \times (\text{Actual}-20)/(\text{Highest}-20)$	=
Total Rating Score (Sum of Points)		=

If the computation yields a total overall rating greater than 80, assign a value of 80.

- c. Initial Ranking. Rank initially in descending order according to total rating score. The highest rating score, therefore, is the highest ranked priority. (Note: As previously stated, the benchmarks are defined so that a numeric rating on any scale denotes problem severity equal to the severity of the same numeric rating on any other scale.) For instance, a problem rating of 52 in the Programmatic Category is as important as a problem rating of 52 on the Health & Safety Category, by design. However, where two or more problems have identical overall problem ratings, their initial rankings shall be determined through a tie breaker by giving priority to each major category in the following order: Health & Safety; Environment/Waste Management; Safeguards and Security; and Programmatic. Attachment IV-3 contains an example illustrating the above procedures.

d. Final Ranking.

- (1) Projects proposed to address the prioritized problems for out-years are seldom thoroughly defined at the time the 5-year plan is prepared and are best ranked according to the severity ratings of

the problems they are to address. Once CDRs are completed, project cost, scope, and results are better defined. Nevertheless, projects should continue to be ranked primarily according to problem severity throughout the planning period. Management review of the initial rankings is important to ensure all considerations are reflected in the final ranking. Techniques such as pair-wise comparisons are useful. Supplemental information to adjust rankings may include cost, problem improvement or severity reduction (rating reduction effected by the project), scope, readiness of a project, etc. Whether and how supplemental information modifies an installation's initial ranking is left to local discretion.

- (2) Rankings may be done for all the problems/projects in the 5-year planning period and then organized into individual fiscal year rankings or ranked initially by year. Because of budget formulation considerations (e.g., funding limitations, project readiness, consolidation of like projects, etc.) actual project budget submission could result in modifying the order of the yearly rankings.

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA

MAJOR CATEGORY RATING CRITERIA				
Score	I. Health & Safety	II. Environment	III. Safeguards & Security	IV. Programmatic
10	Acceptable risk; minor incidents unlikely	In compliance; working towards ALARA	Minor problems unlikely	Minor problems unlikely
20	Minor incidents slightly likely	Consistently in compliance; violations extremely unlikely	Routinely secure with acceptable risk	Adequate with acceptable risk
30	Minor incidents moderately likely; serious incidents unlikely	Routinely in compliance; low-impact violations are the exception; no off-site concern	Routinely secure with some minor problems	Adequate with some minor problems
40	Minor incidents moderately likely; serious incidents slightly likely	Occasional violations of moderate consequence	Modest threat to classified information, technology, and parts (moderately likely)	Adequacy in question with many minor problems
50	Minor incidents likely; serious incidents moderately likely	Frequent problems of moderate consequence; occasional serious problems; moderate off-site concern	Serious threat to classified information, technology, property, and parts (moderately likely)	Mission accomplishment at moderate risk
60	Serious incidents likely; fatalities unlikely	Consistently have problems of moderate consequence; frequent serious problems	Serious threat to SNM/tritium or personnel (moderately likely)	Mission accomplishment at high risk
70	Serious incidents highly likely; fatalities moderately likely	Highly likely large and uncontrolled contamination/release to off-site areas with lasting serious environmental impact	Extreme threat to SNM or personnel (moderately likely); extreme threat to classified information, technology, property, and parts (highly likely)	Critical/strategic mission accomplishment severely impacted or shut down
80	Highly likely life-threatening situation		Extreme threat to SNM or personnel (highly likely)	

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA (continued)

I. HEALTH & SAFETY RATING CRITERIA SUBCATEGORIES									
Score	Regulatory Compliance	Best Management Practice	Special Action/Team Findings	Technological Base (R&D)	Industrial Hygiene	Industrial Safety	Fire Protection	Health Physics	Criticality
10	Always in compliance with high margin	No concerns			Extremely effective program to limit exposure ALARA	No concerns, with rare minor incidents	Very low probability of worker injury	No exposure to public or employees	Event essentially impossible
20	In compliance, but upcoming problems slightly likely	No intervention at present, but upcoming action possible	TSA Priority 3; Tiger Team Priority 4	Develop new technology in support of mission and national objectives; long-term probability of success and/or high risk	Very effective program to limit exposure below standards	Few concerns, with occasional minor incidents	Property loss extremely unlikely or of trivial value		Deviation - minor change from approved conditions or procedures (Category 1)
30	Consistently in compliance with occasional minor deviation	Some minor concerns/recommendations		Develop new approaches, techniques, and methods to improve operations	Routine acceptable performance in maintaining exposure at/below standards	Meeting established internal objectives	Standard industrial protection, with acceptable risk; some property losses expected	Moderate exposure to the public slightly likely (1-5 REM/yr); exposure to workers up to 1 REM/yr; moderately likely	Infraction - significant change from approved conditions or procedures but no realistic way to cause a criticality (Category 2)
40	Frequent minor violations	Many minor concerns/recommendations	Tiger Team Priority 3	Develop new methods to improve/enhance health & safety capability and efficiency; intermediate probability of success and/or low risk	Prevent against frequent violation of exposure standards only through administrative controls	Minor injuries exceed goals	Events with minor injury likely		Event with probability approximately 10^{-8}
50	Frequently in compliance, but serious violations occasionally occur	Some significant concerns/recommendations; Violation of internal standards;	Tiger Team Priority 2	Develop new methods to improve/enhance health & safety capabilities and efficiency; short-term probability of success and/or low risk	Frequent violation of exposure standards - no controls available	Minor injuries frequent, or occasional serious injuries	Serious injury moderately likely; Standard industrial protection; occasional significant property loss	Continuous low-level exposure to the public likely (.01-1 REM/yr); high exposure to workers slightly likely (10-100 REM/yr)	
60	Serious violations frequent, or some continuing minor deviations, shutdown possible	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action	TSA Priority 2	Develop necessary methods, processes and techniques in support of critical health & safety objectives; short-term probability of success and/or low risk	Potential substantial danger to site personnel through exposure; near-term action required	Serious injuries frequent	Serious injury likely; significant property losses routine	Excessive exposure to the public slightly likely (5-100 REM/yr); worker exposure above regulatory limits likely (5-10 REM/yr)	Violation - continuation of activity would significantly increase probability of criticality (Category 3)
70	Serious, life-threatening violations (on-site personnel); shutdown assured		TSA Priority 1 Tiger Team Priority 1		Substantial danger to personnel, fatalities possible	Fatalities possible	Fatalities possible	Moderate exposure to the public likely (1-5 REM/yr); worker fatality slightly likely	Event credible with possibility 10^{-6}
80	Highly likely life-threatening situation				Highly likely life-threatening situation	Highly likely life-threatening situation	Highly likely life-threatening situation	Highly likely life-threatening situation	Criticality or near criticality (Categories 4 and 5)

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA (continued)

II. ENVIRONMENT/WASTE MANAGEMENT RATING CRITERIA SUBCATEGORIES										
Score	Regulatory Compliance	Best Management Practice	Special Action/Team Findings	Technological Base (R&D)	Liquid Waste (Waste Management)	Solid Waste (Waste Management)	Airborne Pollutants (Waste Management)	Waste Minimization	Environmental Restoration	Corrective Activities
10	No violations	No concerns			No concerns	No concerns	No concerns	Process generates minimum waste using best engineering practice		
20	Consistently in compliance, but upcoming problems possible	No intervention at present, but upcoming action possible	Tiger Team Priority 4	Develop new technology in support of mission and national objectives; long-term probability of success and/or high risk	Effective transport/storage; treatment discharge meets requirements	Consistently meets requirements	Consistently meets requirements	Process generates relatively little waste	Decontamination and decommissioning (D&D) at sites with no present imperatives	
30	Consistently in compliance, with occasional minor deviations	Some minor concerns/recommendations		Develop new approaches, techniques, and methodologies to improve operations	Occasional discharge exceeding material goals		Emissions currently within permitted levels, but hard to maintain	Process generates more waste than an efficient process	Remedial actions/D&D needed to reduce risk, promote compliance, or maintain mission continuity	
40	Frequent minor violations	Many minor concerns/recommendations; some significant concerns/recommendations	Tiger Team Priority 3	Develop new methodologies to improve/enhance health & safety capabilities and efficiencies; intermediate probability of success and/or medium risk	Occasional violation of discharge permit	Occasional inadequacy of permitted storage/handling; transport/packaging/disposal capacity	Emissions occasionally exceed permitted levels by a small amount			
50	Frequently in compliance, but serious violations occasionally occur	Violation of contractor standards; contractor suspension of operations likely	Tiger Team Priority 2	Develop new methodologies to improve/enhance health & safety capabilities and efficiency; short-term probability of success and/or low risk	Many or immediate violations	System capacity frequently inadequate	Emissions frequently exceed permitted levels, by a large amount	Process generates excessive waste	Remedial actions/D&D required by in-force agreements	Out-of-compliance with requirements, but no signed agreement
60	Serious violations frequent	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action		Develop necessary methodologies, processes and techniques in support of critical environmental objectives; short-term probability of success and/or low risk	Lack of adequate storage/treatment handling/transport/packaging facilities			Process generates waste that exceeds regulatory limits	Actions required as part of a signed interagency agreement	Actions required as part of a signed interagency agreement
70	Violation of law with potential serious civil or criminal problems		Tiger Team Priority 1				Emissions extremely high on occasion (not life-threatening)	Process generates excessive waste such that severe environmental impact is inevitable	Remedial actions/D&D required to protect from near-term risks	Actions needed within 1 year to prevent significant risks
80							Emissions dangerously high (life-threatening)			

CATEGORY/SUBCATEGORY BENCHMARK CRITERIA (continued)

IV. PROGRAMMATIC RATING CRITERIA							
Score	Compliance with Orders, Initiatives, and Directives	Best Management Practice	Technological Base (R&D)	Capability	Capacity	Quality	Physical Condition
10	Exceeds requirements	No concerns		State of the art to meet known future requirements	Exceeds requirements to support mission	Able to meet requirements; minor improvements possible	Like-new condition
20	In compliance, but upcoming problems slightly likely	No intervention at present, but upcoming action possible; IROR \geq 20%	Develop new technology in support of mission and national objective; long-term probability of success and/or high risk	Process adequate to meet program mission requirements, but improvements warranted	Viable for mission	Able to meet requirements; minor improvements possible	Good - performs to original specs with routine preventive maintenance; downtime does not affect operation/mission
30	Consistently in compliance, with occasional minor deviations	Some minor concerns/recommendations; IROR \geq 50%	Develop new approaches, techniques, and methodologies to improve operations			Able to meet requirements; some significant improvements required	Adequate - meets mission, but cannot perform to all original specs, some corrective maintenance necessary
40		IROR \geq 75%; Some significant concerns/recommendations	Develop new methodologies to improve/enhance mission capability and efficiency; intermediate probability of success and/or medium risk	Can meet mission with problems likely	Viable for mission on schedule with overtime; problems moderately likely	Able to meet requirements; many significant improvements required	Fair - occasional substandard operation; repetitive corrective maintenance; can meet mission with minor problems
50	Frequently in compliance, but serious violations occasionally occur	Violation of internal standards; suspension of operations daily; IROR \geq 100%	Develop new methodologies to improve/enhance mission capability and efficiency; short-term probability of success and/or low risk	Can meet mission with difficulty	On schedule with significant overtime	Unable to meet some requirements	Poor - consistent substandard performance; operations/mission threatened
60	Serious violations frequent, or many continuing minor deviations; shutdown possible	Mandated fixes and schedules due to significant problems; likely suspension of operations pending action	Develop necessary methodologies, processes, and techniques in support of critical programmatic objectives; short-term probability of success and/or low risk	Cannot meet mission; or unique capability in jeopardy	Inadequate capacity to support minimum requirements of mission	Unable to meet most requirements	Severely deteriorated; mission assignment at high risk
70				Critical/strategic mission capability does not exist			Critical/strategic facilities inoperable
80							

PROBABILITY AND FREQUENCY LANGUAGE

The probability and frequency languages used in the benchmark rating criteria for all four major categories and their respective subcategories have many different terms. The definitions of these terms are subject to different interpretations among the various potential users. To minimize misinterpretation, the probability and frequency languages, along with the respective algorithms, have been standardized. Those standards and their corresponding ranges are shown in the figures below.

Standardized Terms	Range (Events/Year)
Essentially Impossible	(<10 ⁻⁸)
Extremely Unlikely	(10 ⁻⁸ -10 ⁻⁶)
Unlikely	(10 ⁻⁶ -10 ⁻³)
Slightly Likely	(0.001-0.01)
Possible	(0.01-0.1)
Moderately Likely	(0.1-0.4)
Likely	(0.4-0.7)
Highly Likely	(0.7-1.0)

Figure IV-1
Probability Language

Standardized Terms & Synonyms	Frequency Range (Context Dependent)
Consistent(ly), continuous, almost always	>98% of the time
Routine(ly), generally	>90% of the time
Frequent(ly), often, common	12 to 120 per year
Many, numerous	10 to 100 per year
Some, several	5 to 50 per year
Occasional(ly), few	1 to 10 per year

Figure IV-2
Frequency Language

EXAMPLE OF PROBLEM RATING, SCORING, AND RANKING

1. PROBLEM. A nitrate recovery system is badly deteriorated, unreliable, less efficient than new technology, and incapable of meeting expected new liquid waste discharge regulations.

2. RATING.

a. Assign a problem rating for each applicable subcategory.

<u>MAJOR CATEGORY</u>	<u>SUBCATEGORY</u>	<u>RATING</u>
Environmental/Waste Mgmt.	Regulatory Compliance	65
Environmental/Waste Mgmt.	Liquid Waste	62
Environmental/Waste Mgmt.	Waste Minimization	57
Programmatic	Physical Condition	53
Programmatic	Best Mgmt. Practice	35

b. Assign category ratings.

- (1) Health and Safety: 20 (default value for unrated categories);
- (2) Environmental/Waste Management: 65 (highest subcategory rating);
- (3) Safeguards and Security: 20 (default value for unrated categories);
- (4) Programmatic: 53 (highest subcategory rating).

3. SCORING. Compute the overall rating score.

<u>MAJOR CATEGORY RATING</u>	<u>CALCULATION</u>	<u>POINTS</u>
Environmental/Waste Mgmt. (65)	65	= 65
Programmatic (53)	$3 \times (53-20)/(65-20) =$	2.2
Health and Safety (20)	$3 \times (20-20)/(65-20) =$	0*
Safeguards & Security (20)	$3 \times (20-20)/(65-20) =$	0*
	TOTAL	= 67.2

*Shortcut Note: Unrated categories will always yield "0" points.

4. RANKING

- a. Rank initially according to problem rating. Suppose other proposed projects and their ratings are B (54), C (64), and D (68). The initial ranking is D (first priority), A (second priority), C (third priority), and B (last priority).
- b. Establish final ranking. The final ranking is derived from the initial ranking following management review that considers all possible factors, including problem improvement, problem scope, project cost, and project readiness.