



QAM 12070: GRADED APPROACH PROCEDURE

Revision History

Author	Description of Change	Revision No. & Date
Kathy Zappia	Initial QAM release of the QA Graded Approach Procedure. This replaces OQBP Graded Approach Procedure 1002.1000 rev. 000.1 B10.	December 2013



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1.0 INTRODUCTION

The purpose of the graded approach is to guide the selection of the level of controls to be applied to activities which pose the greatest risk for significant negative impact on operations and/or reputation. This focuses management attention on activities which require the most control and oversight and reduces costs by minimizing the application of controls in areas of low risk.

The graded approach process is part of Fermilab's Integrated Quality Assurance Program (IQA). IQA is based on the principle that the people best suited to understand risks are the ones who plan and perform the work. This graded approach procedure is an evaluation of activities and it describes an incremental process which guides the user in determining the level of controls suitable for managing the risks posed by an activity.

The application of this process depends on the mission of the organization performing the evaluation. It is intended to be implemented at all levels throughout the laboratory. While each division, section, center, and project has the freedom to tailor a grading scale that will fit their specific needs, factors such as cost, schedule, environment, health & safety, mission, public perception, and security shall be considered when grading quality requirements.

The graded approach process goals are to:

- Identify activities which present significant operational risks
- Determine the risk levels
- Determine the necessary controls and requirements to be applied
- Determine the depth, extent, and degree of rigor in the application of requirements
- Document and approve the determination

2.0 DEFINITIONS

N/A

3.0 RESPONSIBILITIES

3.1 Division/Section/Center/Project Managers (D/S/C/P)

D/S/C/P's are responsible for applying the graded approach to activities under their control. They provide the necessary resources to implement and maintain the graded approach process.

3.2 Process Owners

Managers, supervisors and engineers are responsible for ensuring that the graded approach procedure is applied to their activities.



3.3 Quality Assurance Manager

Ensures that assessments are conducted to review compliance with this procedure and the effectiveness of implementation.

4.0 PROCEDURES

When using a graded approach it should be noted that some activities identified are unique to D/S/C/P's and shall be evaluated by the responsible D/S/C/P, while other programmatic activities will cut across D/S/C/P's organizational lines. It is the responsibility of the process owner in this case to include the head (or designated representative) of each affected D/S/C/P in the review and selection of controls applied in cross-functional cases.

4.1 Identify Activity & Risk

Identify activities that present a significant risk if the proper controls are not in place. Examples include:

- Processes identified as critical
- Control failures that result in program downtime or a delay to the laboratory schedule
- Single point failures of equipment that may jeopardize project budgets or schedules
- Control failures that may compromise data quality or result in a complete or partial loss of data
- Activities that can cause injuries, environmental hazards, liabilities, or risks greater than those generally accepted in a research environment
- Occurrences that could cause a significant reduction in the public trust or scientific reputation

NOTE: Whenever an item or service is deliverable to an outside organization the evaluation shall be performed from the customer's point of view.

4.2 Define Steps of Activity

Understand the activities identified that present a significant risk and all the steps involved in those activities that have been chosen. Ensure these activities are documented appropriately in accordance with Fermilab's Document Management & Control Policy. When understanding the chosen activities:

- Consider goals of the activities, inputs, outputs, operating constraints, and interactions
- Consider utilizing subject matter experts
- Consult with individuals from other organizations if an activity involves that organization.

4.3 Evaluate Current Risk

Evaluate the current state of the identified activity and controls that are already in place (including ES&H). Determine the known risks associated with each activity, their adequacy and effectiveness for the specific risk being evaluated, and identify any remaining risk. Factors such as cost, schedule, environment, health & safety, mission, public perception, and security shall be considered when evaluating risks.



4.4 Assign Graded Risk Level

Assign a graded risk level to each activity based on the potential impact for the risks identified in Section 4.3. Activities rated as higher risk/high impact will require a higher degree of control and risk management as opposed to activities rated as low risk/low impact. As stated above, factors such as cost, schedule, environment, health & safety, mission, public perception, and security shall be considered when grading risk levels.

Each D/S/C/P shall determine their own quality grade levels that best fit their needs. For example, the Software Quality Assurance Program has identified 3 quality grade levels to grade software applications. The software is graded high, moderate, or low depending on the worst consequence that could occur if controls fail.

- High Risk – Consequences such as injury or death, environmental hazards, release of DOE sensitive information could occur.
- Moderate Risk – Consequences such as program downtime, or minor disruptions in laboratory operations could occur.
- Low Risk – Consequences such as reduction in data quality could occur.

Projects also identify risks associated with their Work Breakdown Structure and develop appropriate risk charts to apply to their tasks. In both cases, applications or operations graded as high risk would require more controls than those graded as low risk.

4.5 Choose Risk Management Strategies & Identify Additional Controls

Choose the risk management strategy that best fits the activity being evaluated and the grade level assigned to the activity.

Fermilab has numerous established methods to assist in determining appropriate controls and risk management strategies to implement. They include (but are not limited to the following):

- Project risk plans for scientific research project teams – tools used include Welcome Risk, Primavera Risk Analysis, and Risk Registers
- Risk plans used for ITIL (Information Technology Infrastructure Library) implementation and other computing sector projects
- Fermilab Engineering Manual – tools used include Risk Assessment Spreadsheet
- FESHM Chapter 12030 used for risk management for ES&H – tools used include iTrack
- FESHM Chapter 2060 - Work planning and hazard analysis
- Operational Readiness Clearances and Accelerator Readiness Reviews
- Beam Permits, Run Conditions and Startup (ADAP-11-0001) and ES&H Reviews of Experiments, Tests and R&D Projects (ADAP-11-0002) in the Accelerator Division.

Determine where controls are missing. Identify the controls that are necessary to close the gaps, and mitigate risk based on the quality level and risk management strategy selected. For example, the Software Quality Assurance Program ensures proper controls are put in place depending on the



quality grade level assigned to software applications. The output of this step shall be that adequate controls are chosen and risk management strategies identified to mitigate the risk of impact on quality regardless of the method or tools employed.

4.6 Document Results

Document the results from each step of the process to communicate that risks were considered and addressed, and to share lessons learned with the laboratory (QAM 12010, Contractor Assurance/Lessons Learned Program and Procedures).

4.7 Approve Results

Obtain approval of the results from the process. The final choice of risk management strategies and controls must be reviewed and approved by line management prior to implementation of the new/additional/changed controls.

5.0 REFERENCES

Integrated Quality Assurance Program: <http://esh-docdb.fnal.gov/cgi-bin/RetrieveFile?docid=2469>

QAM 12010: Contractor Assurance/Lessons Learned Program and Procedures