

Subject: Worker Qualification Matrices			
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*Approval signatures on file with master copy.

[Revision Log](#)

I. PURPOSE

This procedure establishes the process for determining activities requiring a formal plan for qualifying workers. Activities that have significant ESH risk¹ to personnel or pose significant programmatic risk will be listed in the worker qualification matrix and the steps for determining worker qualification defined. Personnel who are qualified through this process are deemed capable of independent unsupervised work and are authorized to carry out the activity without additional formal work planning.

II. SCOPE

Individuals who work with hazardous equipment or conduct activities with significant risk as defined in step 3, in section 5 of the procedure below will be included on a qualification matrix. Activities with low risk are not subject to this process of formal worker qualification and are not included on the worker qualification matrix. However, such activities may have training needs to ensure understanding of requirements and will be included in each worker's job training assessment.

This procedure shall be used in conjunction with the [NSLS Work Planning & Control Procedure](#).

III. DEFINITIONS

Designated System Engineer/Scientist – The engineer or scientist designated as responsible for a NSLS system on the NSLS Equipment Responsibilities Lists.

General Work Planning Definitions may be found in the [Work Planning and Control for Experiments and Operations](#) subject area.

IV. TRAINING REQUIREMENTS

Supervisors, Designated System Engineer/Scientist (DSE/S), and Departmental Trainers: The BNL training course entitled, "[On-The-Job Training](#)"- Course Designation (TQ-OJT1) is required for guidance in implementation of this procedure.

Workers: Supervisor and/or DSE/S will identify additional training requirements through the Job Training Assessment (JTA) and On-The-Job Training (OJT) processes.

V. WORKER QUALIFICATION MATRIX DEVELOPMENT

Each supervisor is responsible for developing a qualification matrix for individuals in their group with the exception of individuals that exclusively perform office/desk work. Qualification Matrices are needed for all Groups/Divisions listed below:

<p><u>Accelerator Division</u></p> <ul style="list-style-type: none"> • SDL Techs • Magnet Group • Electrical Engineers • Scientific Staff <p><u>Administrative:</u></p> <ul style="list-style-type: none"> • Building Management • Stockroom Clerks 	<p><u>Operations and Engineering Division</u></p> <p><i>Mechanical Engineering:</i></p> <ul style="list-style-type: none"> • Mechanical Group • Vacuum Group • Utilities Group • Operations Group • Mechanical Engineering • Mechanical Designers
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¹ Evaluation of risk for work activities shall be accomplished through the job risk assessment utilized in the OHSAS 18001 program.

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<ul style="list-style-type: none">• Beamline Techs• Networking Engineering <p><u>ESH Division</u></p> <ul style="list-style-type: none">• ESH/Q Group <p><u>User Science Division</u></p> <ul style="list-style-type: none">• User Science Mechanical Techs• User Science Electrical Techs• Scientific & Engineering Staff	<p><i>Electrical Systems:</i></p> <ul style="list-style-type: none">• RF• Power Systems• Controls & Diagnostics• Interlocks Group• Design Room• Electrical Engineering• Accelerator Computer Control <p><i>Operations:</i></p> <ul style="list-style-type: none">• Operations Coordinators• Accelerator Operators• Operations Engineering
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The following steps shall be used in developing the Worker Qualification Matrix:

1. **List Personnel on Matrix**

List all applicable personnel on the [NSLS Worker Qualification Matrix template](#).

2. **Identify Worker Activities**

The supervisor, Designated System Engineer/Scientist (DSE/S), and worker determine the worker activities. The [NSLS OHSAS listing of activities](#) with hazards shall be used during this review to ensure a comprehensive screening of potential work activities. The workers' Job-Training-Assessment (JTA) shall be based on the activities identified in this review.

3. **Identify Risk of Work Activity**

The risk of individual work activities shall be evaluated using the results of an OHSAS Job-Risk-Analysis (JRA) to determine which work activities will be listed on the matrix.

- Work activities with an initial JRA rating >40 should be strongly considered for the formal qualification process described in this procedure. In some cases for routine activities, the supervisor and his/her manager may determine that formal qualification is not required.
- Work activities with an initial JRA rating of ≤ 40 do not need to be included on a Worker Qualification Matrix. The supervisor may also include work activities on the qualification matrix with a JRA rating of ≤ 40 due to safety or programmatic impact.

The NSLS OHSAS listing of activities with hazards is general. The Supervisor and manager may choose to categorize the activities in any of the following methods to more clearly identify specific work activities performed within their group.

- **Systems** - qualified to work on certain systems
- **Tools/Equipment** - use of machinery or certain tools
- **Materials** - work with various epoxies, cryogenes, lead, etc.
- **Tasks** - installing, removing, or fabricating

4. **Complete Activity Training Form**

The Supervisor and/or Designated System Engineer/Scientist complete an "[Activity Training Form](#)" for each activity listed on the matrix:

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- a. Complete the document header by including the activity description as the subject, obtain a controlled document number from the NSLS QCC, and indicate the revision letter, and effective date.
- b. List the individual tasks required for the designated activity. The supervisor and/or DSE/S determine the method needed to qualify a worker for each task to ensure task proficiency. Utilize the guidelines in the "[Criteria for Determining Additional Job Qualification Requirements](#)" to determine the appropriate method. Depending on the importance, consequences/associated risks, and level of skill needed to complete the activity, the qualifying method may be:
 - Review of procedures/required reading;
 - Supervisory briefing or toolbox discussion;
 - Documented supervisory briefing or toolbox discussion;
 - Technical walk-through or talk-through;
 - Supervision of task performance until mastery;
 - Performance evaluation;
 - On-the-Job Training using a performance checklist;
 - On-the-Job checklists and performance evaluation;
 - On-the-Job Training and retraining program;
 - Written or verbal exam;
- c. Upon completion of the form, the preparer, supervisor and section head must provide their signature approval on the printed form. Note: Additional signatures may be needed (e.g. Designated System Engineer/Scientist).
- d. Submit the original signed form to the [NSLS QCC](#) along with a completed Revision Log.

5. Determine which Workers are Qualified for Each Worker Activity

- a. **Qualify personnel using the method indicated on the Activity Training Forms.** Complete the required entries on the form(s) including signature by the instructor(s) and trainee.
- b. **Retraining Requirements**

Supervisors must establish a retraining interval for each activity/individual and record this interval on each Activity Training form. The retraining frequency should be based on the frequency and complexity of the work performed. Individuals in the same group performing the same task may have different retraining periods depending on how often they perform the activity.

For example: If a worker performs an important task on a monthly basis, the supervisor may determine a retraining frequency of three years. On the other hand, if another worker performs the same task only once every six months, the supervisor may determine a retraining frequency of one year.
- c. **Complete the required entries on the Worker Qualification Form.** Place a "Q" in each box to indicate the worker is qualified, a "T" if they are a Trainee, or NA if not applicable for the activities. (Refer to [figure 1](#))
 1. **Determine Limitations and Special Conditions on the Worker Activities** Limitations need to be established where boundaries are needed for an activity or individual. To show special conditions or a qualification is limited place the appropriate "Letter" in the appropriate

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cell then indicate/explain the limitation/special condition in the key at the top of the matrix. Special training requirements and procedures are to be noted with the activity. Include all applicable limitations on the matrix. (Refer to [figure 1](#))

Common limitations include:

- Written procedure required; designated on the form with a “P”;
- LOTO required; designated on the form with a “L”;
- Work planning review required; designated on the form with a “W”;
- Work permit required; designated on the form with a “WP”.

Examples of other limitations follow:

- Hoisting & Rigging weight limitation;
- System pressure limitation;
- Material handling (to some appropriate/reasonable weight);
- May only machine non-hazardous material;
- May only weld non-hazardous materials;
- Forklift training required (HP-Q-001 and HP-1-001A);
- Cryogen safety training required (HP-OSH-025).

Figure 1. Qualification Matrix Example

Key:

- “Q” = Qualified
- “T” = Trainee – must be accompanied by a qualified Worker.
- “NA” = Not Applicable

Limitations:

- “P” = Written Procedure Required
- “L” = LOTO Required
- “W” = Work Planning Review Required
- “WP” = Work Permit Required

Activity		Personnel					
		T. Bell	J. Doe	J. Smith			
1.	Magnet wiring	Q-L	T	Q-L			
2.	EPW Power Supply	NA	Q	NA			
3.	Magnet HiPot Test	Q-P	Q-P	T-P			
4.	PS Test Stand 480 VAC	T-L	Q-L	Q-L			
5.	LINAC Modulator Controls	Q	NA	Q			
6.	Trim Supplies	Q	Q	Q			
7.	Documentation & Design	Q	Q	Q			
8.	Operate Machine Tools	Q	Q	Q			
9.	Modify equipment interlocks	W	W	W			
10.	New Inter Group Projects	WP	WP	WP			

Supervisor _____
(Print)

(Sign)

Date _____

Section Head _____
(Print)

(Sign)

Date _____

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6. List Common Worker Activities Requiring Work Permits

List common activities for which work permits will be required or considered on the matrix.
(Refer to [figure 1](#))

7. Review and Approve Matrices

Each matrix must be dated and signed by the group Supervisor and Section Head. The matrices must be updated as the personnel roster changes, activities or limitations are changed, or individuals become qualified for additional activities. The matrices should be maintained by the Supervisor for convenient reference.

Worker qualification matrices, Activity Training forms, and JTAs shall be reviewed annually.

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