

## Report of the User Safety Training Committee 4 January 2005

A committee of 11 members was convened to advise the BaBar Spokesman on how the users can be brought into a safety environment much like that of SLAC staff. Steve Williams hoped to be able to generalize the final BaBar decisions to the general user community at the laboratory. The specific charge ([link](#)) was given by David MacFarlane. The membership consisted of Henry Band, Francesco Forti, Walt Innes, David Leith, Harvey Lynch (chair), David MacFarlane, Giancarlo Piredda, Steve Playfer, Steve Williams, Bill Wisniewski, and Charlie Young.

The most urgent task is to develop a plan for BaBar users who will come to SLAC to take shifts; they need to be brought under a comparable safety umbrella as the lab staff. This is more or less in hand, but the details need to be written down, and the chains of accountability and authority defined and communicated. This could be part of the process of being able to turn on the accelerator. Documentation of some the specialized training that is not part of the standard SLAC courses may be done on an ad-hoc basis to get moving (see below). In the long run such documentation should become part of the standard SLAC tracking.

A second, less urgent, task is to develop longer term goals on important, but less pressing time scales. We shall keep these two different time scales separate in this discussion.

### I. Identify and Classify the Risk Groups

We began with and endorse the 5 groups of people (a)-(e) from our Charge:

- a. Short term visitors (e.g. come only to collaboration meeting)
- b. Only office work (e.g. software only)
- c. Shifts taking at IR-2
- d. Repair and maintenance of existing hardware
- e. Development through commissioning of new hardware

We did not see the need for any further classes, although there may be special cases for (a).

### II. Types and Training for Risk Groups Above

We recommend that the Employee Training Assessment (ETA) document be renamed to Training Assessment Document (TAD) and be applied to users in the same way that it is applied to staff.

The required training formed a hierarchy in this form:

- a. Group (a) consists of people who only come to the Lab for an occasional meeting, e.g. collaboration meetings, spend less than 30 days at the Lab during a year, and do not go to the IR. Under the ES&H Bulletin 49 U, such people are exempt from any special training, as are other short term visitors to the Lab. However, there may be many BaBarians who come to SLAC several times per year but would be

below the 30 day limit set by Bulletin 49 U. We recommend that BaBarians *not* be exempted in this fashion. Instead, with a few exceptions, all BaBarians should be treated as in group (b) and also have GERT training. Examining the existing training records indicates that most BaBarians are already GERT trained, so this requirement does not represent a substantial new burden. There may be special cases for people whose visits are really incidental to BaBar operation, and the Spokesman may grant an exception to this BaBar rule for those people on a case-by-case basis.

- b. Group (b) must have a TAD, read the appropriate AHAs, and take course 239 as do similar SLAC staff doing only office work. In addition BaBar users must have GERT and complete a BABAR Office JHAM.
- c. Group (c) must have Group (b) training and Shift Taker training and its associated BABAR Shifter JHAM.
- d. Group (d) must have Group (c) training and BaBar Orientation. No Shift Taker training is required if no shift taking is involved, for example for engineers who come to work on equipment during a shutdown, but for reasons of general familiarity with the detector and IR-2 hazards a BABAR Shifter JHAM is required. In addition, job specific training could be necessary, depending on the work to be done. For example, this could include course 251, Lock and Tag, PRCS, or RWT.
- e. The only difference between Groups (d) and (e) is that (e) people may work in non-standard areas and have non-standard AHAs. Users must have Group (b) training and prepare a job specific JHAM.

Some time in the future a different mix of training may be appropriate for physicists with more technical background than the general layman audience for which the courses are defined. In particular, an integrated course covering the material of EOESH, GERT, and 239 in a more compact form than the present serial form would be very desirable. Similarly, a more compact course 251 is essential. These are long range goals, but we strongly endorse a more integrated approach to training that is also tailored to the specialized background of BABAR participants and the hazards associated with work in IR-2. For at least the short term, taking course 251 is discretionary.

**Recommendation:** *An integrated safety course that incorporates EOESH, GERT, and ES&H 239 should be developed for BABAR users, which addresses more directly and compactly the safety hazards, procedures and mitigations in a format appropriate for physicists, engineers, and technicians.*

### III. Sign-off of Training Performed

A process for staff and users to know what training is required and to whom they must communicate for sign-off of that training is documented at:

[http://www.slac.stanford.edu/BFROOT/www/Organization/Spokesperson/safety/safety\\_checklist.htm](http://www.slac.stanford.edu/BFROOT/www/Organization/Spokesperson/safety/safety_checklist.htm).

This lists the various training with pointers to the appropriate materials and to whom the user should go to have the forms signed off.

The training process for a user begins by the user choosing a supervisor from a list of potentially appropriate people [Spokesman, Technical Coordinator, Physics Analysis Coordinator, Deputy Physics Analysis Coordinator, Computing Coordinator, Deputy Computing Coordinator, System Managers, SLAC Letter Group Leader, Specific R&D Leader]. The Spokesman will provide on the web page a matrix of these names and a mechanism by which a logical choice can be made by the user. The user and the supervisor agree on the appropriate entries to the Training Assessment document and JHAMs etc. The JHAMs should have the requisite class numbers required for that JHAM. An initial version of a matrix of training requirements, recommended supervisors, and documentation requirements is provided in Table 1.

Category	Training Requirement	Recommended Supervisor	Documentation Requirements
a. Short-term visitor	None. Category (b) or higher recommended for BABAR users	Exemptions by Spokesperson	None
b. Office worker	EOESH, GERT, ES&H 239	Member of BABAR Management team or SLAC Group Leader	Office JHAM, Office Building AHA, TAD
c. Shift-taker	(b) above plus Shift Training	Run Coordinator	(b) above plus Shifter JHAM, IR-2 AHA
d. System worker	(b) above plus BABAR Orientation, job specific training	System Manager	(b),(c) above plus System JHAM(s)
e. R&D worker	(b) above plus job specific training	R&D Manager	(b) above plus job specific JHAM, job site AHA

**Table 1.** *Training, supervisor, and documentation matrix for BABAR users.*

Once training is completed and sign-offs have been made, the completed forms should be delivered to the BaBar Office Staff, as indicated in the above safety\_checklist web site. Copies will be sent to the PI of the user.

The standard SLAC classes have a defined period of validity for that training, e.g. two years for GERT. Any special training BaBar provides should be assigned a number in the fashion of SLAC courses and have a defined period of validity, e.g. shift training is valid for six months, so that it can be tracked in SID like standard classes. The Spokesman will define the periods of validity of the BaBar courses and note them on the web page.

We recommend that some guidelines be made to help supervisors know what is expected of them. Recognizing that the supervision process is a burden, some form of "reward" may be offered. For example, some shift credits may be given.

It is recommended that the capability be developed to matrix multiple "supervisors" for a given user, so that different areas of work can be connected more closely to a specific supervisor. For example, a user should be supervised for system specific work by the relevant system manager, but the run coordinator would act as the supervisor for the purposes of shift work on the experiment. In order to make such a matrix of supervisors into a workable solution will require that SID be modified to provide for multiple supervisors and a mechanism developed for reporting the status of individuals to a given appropriate supervisor; see section on Documentation of Training Status.

Once all record keeping and status notification can be made by computer linked methods, it is possible that supervisors not necessarily be SLAC resident. Until that is in place, however, supervisors should be SLAC resident.

**Recommendation:** *SID should be modified to provide the capability for multiple supervisors, with notification to the appropriate supervisor concerning training status.*

#### IV. Documentation of Training Status

Having a clear line of documentation of the training status of both staff and users is essential. SLAC presently has a database called SID that, among other things, contains the training taken and the status of that training for the standard SLAC courses. Users' information is already captured. Presently for staff, Employee Training Assessments Documents (ETAs) are also captured, but it has no such information on users. We recommend that both staff and users be captured in SID with Training Assessment Documents (TADs) in a symmetrical fashion. JHAMs are in line to be incorporated for everyone. SID does not now have any information on non-standard training, such as the BaBar Orientation training that we require of everyone working at the IR. It is a long range goal to integrate the new, needed information into SID. In the mean time, we will continue to use the ad-hoc system presently in place.

Since the number of BaBar users is very large, we recommend that a method be found to ease the burden of data entry into SID, but this committee is not in a position to attempt to define specific means. For example, a spreadsheet in a defined format that can be semi-automatically imported may be adequate, but that is a decision only people closer to the system can make.

Presently, the SID database for users has a very large number of names that include people who no longer have any association with SLAC. It will be necessary to purge the database of irrelevant names in order to make tracking of the safety status tractable. This is a long range goal.

A corollary to cleaning up the database of obsolete entries from the past is to keep it clean for the future. To do this we recommend that use be made of the fact that all training will have an expiration date. Therefore, after a reasonable grace period, any user for whom all the training has expired may be assumed to no longer be associated with SLAC and the record be transferred to an archive so that tracking of current users is not hindered by dead wood.

Data entry needs to be well controlled, and only a small number of people should have the permission to do so.

**Recommendation:** *SID should be modified to capture Training Assessment Documents for users. Methods should be developed to streamline data entry and identification of expired records. Data entry should be well controllable.*

#### V. Responsibility for Safety Training Status

In the case that a user changes the work, so that a different supervisor would be appropriate, the process for a new user in the section Sign-off should be followed. The new supervisor will initiate the changes needed for data entry.

To aid the monitoring of the status, we recommend that automated e-mails be sent to the supervisors when training will soon need to be renewed, as is presently done for standard training. Doing this will require the ability for the report to be sent to multiple supervisors, given our matrix requirement.

In cases for which a person is derelict in keeping training status up to date, the supervisor should notify that person of the need for remediation, the absence of which will have a series of escalating adverse consequences. Among these consequences will be that the PI of the user be notified who in turn may take action. For this purpose, the supervisor needs to have a convenient tool by which the supervisor can identify the PI for the person.

An overall quality control of the system should be implemented, in the fashion presently used for the lab. In particular, there should be a "drill down" on a sample basis to check that both users and supervisors are really doing what they should be doing. At a tabular level, there should be a periodic report of the status of all users.

**Recommendation:** *Training Assessment Documents should allow multiple supervisors, ease of identification of the PI for a given user, and the ability to validate and monitor the status of the database.*

#### VI. Offering Standard Training

Presently there are means to deal with EOESH and GERT training that have worked well. For the very short term, course 239 was offered at the BaBar Collaboration meeting with no competing sessions overlapping in time. This captured a large number of users. After that, we should be able to use a video made of one of the sessions to provide the information. The user would then sign a piece of paper affirming the viewing of the video. A specific implementation is discussed below in the context of shift taking.

#### VII. Non-SLAC-Standard Training

There are various kinds of special cases not included in the standard SLAC courses that users may need instruction for. Here are some examples:

1. Shift Taker: Presently, the run coordinator gives people who have not taken shifts for some time instructions on what to do while on shift. A new part of the shift training is a "BABAR Shifter JHAM". When the shifter has read and understood that JHAM, the

run coordinator must sign it too, and then forward it for data entry. Presently, this record keeping is done locally within BaBar by the office staff. Because course 239 is required for all shift people, it is recommended that if a user arrives without having taken 239 that the user view the video of the course and sign a paper to that effect. The run coordinator will then collect such papers and pass them to the data entry people for record keeping.

2. BaBar Orientation: Sandy Pierson gives this instruction to everyone who will work at the IR. Presently, he circulates a sign-up sheet to attendees of the session and sends that sheet for data entry into recording keeping. For now, that database is maintained by Harvey.
3. Collider Hall LST work: Standard documentation for working at the Collider Hall exists, and each person working there must sign a paper affirming that the material has been read. Those papers are presently forwarded to Harvey for entry into electronic records.

There is and will be other non-standard work done within the Lab. For such work, whether it is in the context of BaBar or not, a line of responsibility must be established. There must be someone who examines the hazards of the work, defines the training or orientation appropriate, and assures that the people working there receive such training or orientation.

A tricky case arises when one person has some work inside BaBar and some work outside. It is not reasonable for one person in BaBar to track and enforce training for something outside BaBar and vice versa. A clear tracking path must exist for such multiple branches through an identifier in the SID, so that each responsible person may track those persons for whom he is responsible.

Logically, the responsible person would be the leader of that work. For example, Charlie Young has done this job for the LST work in the Collider Hall. There may be a catch, however, in the case of work headed by people who are only part time at SLAC. The leader should still be responsible for hazard identification and the training required. Monitoring, however, may be more awkward if that leader is not usually at the Lab. Some resident person should be identified for the monitoring.

#### VIII. Short Term Goals (by early 2005 for shift taking)

1. Set up TAD (training assessment document) for users to parallel ETA for staff.
2. Bring users who arrive on site into same safety training requirements umbrella (i.e. the categories) as staff. This will mean using the training mechanisms currently existing.
3. Assign BaBar specific training SID numbers and terms of validity. (This is not really urgent, but it can be done quickly.)

#### IX. Long Range Goals (time scale variable)

1. Purge the SID database of dead wood within 6 months.

2. To maintain the database in a useful state, a strategy needs to be developed to track users' initial entry and final exit from the lab in the style that staff members are hired and eventually terminate employment.
3. Provide in SID a mechanism for storing non-standard training status and move away from ad-hoc record keeping for non-standard training.
4. Provide a mechanism for facilitating SID data entry for large numbers of users.
5. Provide in SID a mechanism for matrixing multiple supervisors onto one person. This must include the ability for a given supervisor to project out those people for whom s/he is responsible.
6. Provide in SID a mechanism for the PI of a user to be identified.
7. Provide from SID an automatic e-mail notification of the status of training of people to their supervisors and their PIs.
8. Consolidate EOESH, GERT, and course 239 into one compact package for physicists.
9. Compress course 251 into something with higher information density (translation: less time for the information offered) and build on a 239 prerequisite rather than starting from scratch.