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TWO SUGGESTIONS TO "IMPROVE THE UTILIZATION OF ISABELLE"

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One of the topics assigned to the Scenario Group was: "Are there any features of the experimental area design which improve the utilization of ISABELLE, but which have been overlooked at present?" There was little discussion of this topic during the week of the insertion workshop. In this note, two suggestions are outlined which are aimed at improving the efficiency of work in experimental areas by improving the information available to experimenters.

I. COMMUNICATIONS BETWEEN EXPERIMENTAL HALL AND DATA ACQUISITION ROOM

Each experiment will have detectors in the experimental halls and data acquisition electronics in an outside room about 100 feet away. Tests and adjustments frequently require one experimenter at each of these locations with a good way to communicate between them. Lost time and confusion are common in this situation, and it would really pay to have a very good communication system to make work during times when beam is off as efficient as possible. Here are some ideas: 1) It should be a dedicated system that is always on or can be turned on from either position. It should be impossible for the two ends to be on different channels. 2) TV is desirable so each individual can watch what the other is doing to avoid confusion. 3) Slave CRT units would be desirable so both can watch a given waveform or other test signal. 4) It should also be possible to monitor key voltages from either location.

Such needs would seem to be common to most experiments. Standard equipment should be available to meet them.

II. BEAM INFORMATION VIA COMPUTER

Each experiment needs to know about the beam conditions at its crossing region. It is probable, however, that each crossing will be affected to some degree by conditions in the others. The machine operators, of course, need to know about all of them.

Experimenters probably will spend a lot of time worrying about background, so they will need to know conditions that determine background as well as simple beam parameters like energy, current and

position. The values of these quantities should be available to each experimenter, but that probably will not be enough. If, for example, there is a set of background monitors in the ring, experimenters may need access to readings from all of them to evaluate conditions for their experiments. Perhaps measurements of vacuum will be important. Perhaps magnet currents at other insertions or their fluctuations will be required.

It seems reasonable to imagine that this information would be stored in one or more files on a disc in the on-line computer system. Each experimenter's computer could then get whatever information was desired. Handling the information by computer is straightforward, and more or less standard systems for data-base management should be applicable. Having satisfactory sensors to monitor the information that is needed seems like more of a problem, but they are required in any case.

It is very likely that information from experiments should also be made available to the ISA control room. This could include settings of any magnets or other equipment which might affect beam behavior, trigger rates, measures of background or beam quality from experimental detectors, and other information on the status of the experiment. This would give the machine operator a better idea whether conditions were good or bad for each experiment. (In a few cases experimental information has been relayed to the AGS control room at present. Means for doing so should be built in at ISABELLE.)

This suggestion does not mean that data from which high-energy physics results are extracted would be included in these operational data files. Such data would be stored, or analyzed on-line, as each experiment desired. The operational data files would only include information on the status of the experiment, conditions that might affect the circulating beams, and measures of beam qualities and background that are of general operational interest.

Such information would need to be updated several times an hour, and it might be useful to log some of this operational information from time to time on magnetic tape or other permanent storage medium. This record would be useful to the scheduling physicist and might well eliminate some manual record keeping that is done for administrative purposes. This would be a by-product, however, and the main purpose should be to aid in decisions during normal high-energy physics data-taking and test runs.