SLAC MEMORANDUM 19 August 1999

TO: Ted Lavine

FROM: W. R. Nelson, J. C. Liu

TOPIC: Radiation measurements around the NLCTA

A radiation survey was conducted at the NLCTA between the hours of 1 and 4 PM on August 17, 1999, during which time the beam power was maintained at 29 Watts (270 MeV, 90 mA, 120 nsec, 10 Hz). In addition to the normal beam operation into the dump, two steering conditions were studied. The Protection Ion Chamber (PIC) readings were also recorded during these measurements.

The levels during normal beam operation were found to be less than 0.2 mrem/h (gamma) everywhere around the facility, with the exception of a small corner (designated as F34U on the map) where 0.9 mrem/h (gamma) was seen (i.e., the shield thickness is only 4-ft, instead of 6-ft, in this corner as a result of how the blocks are stacked).

During mis-steering, the highest levels observed were on the (4-ft thick) roof immediately above the source—i.e., 1.7 mrem/h (gamma) and 0.3 mrem/h (neutron)—during which time the dose rates on the (6-ft thick) sides of the NLCTA remained less than 0.2 mrem/h (gamma), as in the normal-beam case.

Based on these results, and after reviewing the PIC history buffers for the last 3-4 years, we recommend that the trip levels for all eight PICs be set at 50 nA. For a worst-case steering scenario, this trip level will correspond to a total dose rate on the roof of about 6 mrem/h, and a level around the sides of $\leq$ 0.6 mrem/h.

cc: Marc Ross
Bill Baumgartner
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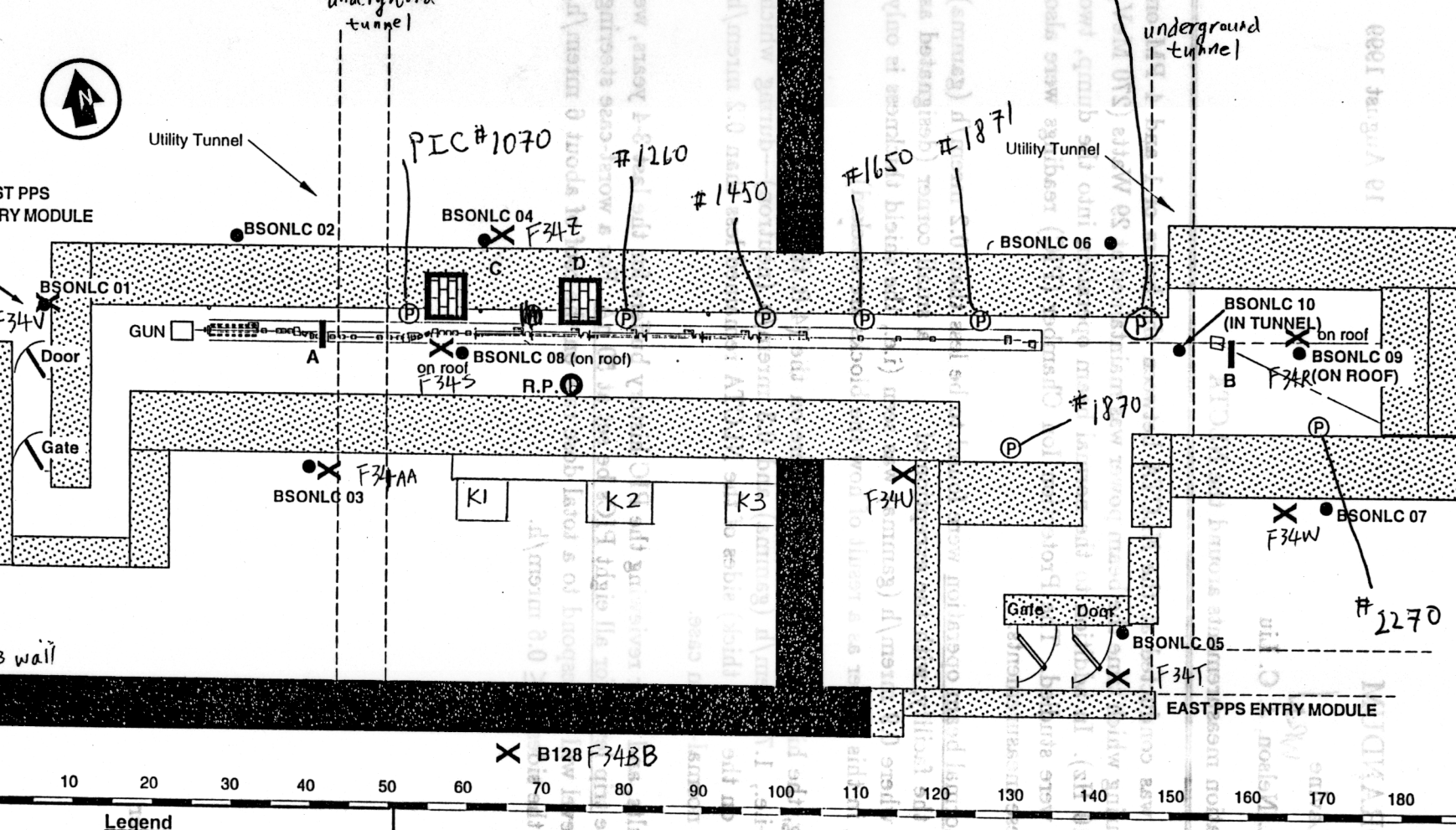

Legend

-Protection Collimator

-Cable penetration shielding

TLD moderator

-Protection Ion Chamber

XX - Beam Shutoff Ion Chamnber

- Door or Gate

PIC ID#'s shown

Drawn by: E.M.Saleski, 4/28/95
Modified: T. L. Lavine, 4/24/96
Modified: W. Baumgartner 4/15/99