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New techniques for improving $Z \to \mu\mu$ acceptance for the SM Higgs search in the $ZH \to \ell^+\ell^- b\bar{b}$ final state at CDF JUSTIN PILOT, Ohio State University, CDF COLLABORATION — We present a method for significantly increasing potential signal acceptance for the standard model (SM) Higgs search in the $ZH \to \ell\ell b\bar{b}$ final state. Currently, this channel provides comparable Higgs production limits with respect to other low mass search channels at CDF despite suffering from a minimal production cross section times branching ratio. Muons from the decay of a Z boson are currently found by requiring a track matched with associated hits in the muon chambers. Using a loosened muon selection algorithm in combination with a missing transverse energy trigger leads to additional signal acceptance without significantly increasing the ratio of signal to background events in the sample. The potential improvement in Higgs search sensitivity from this new lepton selection algorithm is shown.

Eric James
Fermi National Accelerator Lab

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