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Warfield groups are direct summands of simply presented abelian groups or, alternatively, are abelian groups possessing a nice decomposition basis with simply presented cokernel. They have been classified up to isomorphism by their Ulm-Kaplansky and Warfield invariants. Let  $L_\delta$  denote the class of formulas in  $L_{\infty\omega}$  with quantifier rank  $\leq \delta$ . In this paper, we classify up to  $L_\delta$ -equivalence a large class of  $p$ -local abelian groups having a nice decomposition basis. This generalizes results by Barwise and Eklof. (Received September 10, 2009)