1064-20-292 **Jeffrey M Riedl*** (riedl@uakron.edu), Department of Mathematics, 302 Buchtel Common, University of Akron, Akron, OH 44325-4002. *Duality for normal subgroups of wreath product p-groups.* Preliminary report.

Let B denote the direct product of n copies of the cyclic group of order m. For each subgroup N of B there is a natural way (related to the character theory of B) to define a particular subgroup of B that we denote as $N^{\perp}$. This map $N \mapsto N^{\perp}$ is inclusion-reversing and satisfies $|N| \cdot |N^{\perp}| = |B|$ and $(N^{\perp})^{\perp} = N$. Because of this last condition, we call $N^{\perp}$ the "dual" of N in B. For each group H that acts via automorphisms on B, the dual of every H-invariant subgroup of B is easily seen to be H-invariant.

Now fix a prime p and an integer $d \geq 2$. Taking $n = p^d$ and $m = p^2$, we may regard B as the base group for the regular wreath product group W of the cyclic group of order p^2 by the cyclic group of order p^d. Let $\mathcal{N}$ denote the set of all normal subgroups of W that are contained in B, and note that for each $N \in \mathcal{N}$ we have $N^{\perp} \in \mathcal{N}$. We have previously obtained a detailed description of all the members of the set $\mathcal{N}$. In this talk we present a result that describes in some detail how the dual map $N \mapsto N^{\perp}$ behaves on the set $\mathcal{N}$. (Received September 13, 2010)