Combining (f) and (g), $P_k \subseteq P_j' \subseteq P_l$ and recalling that (a) is reduced $P_k = P_l = P_j'$. Hence m = n and the primary decomposition is unique.

And all that interests us at present may be stated as

Corollary 9. A Prüfer(Bezout) domain R is a Prüfer(Bezout) GKD iff every ideal of R has a primary decomposition.

Proof. If R is a Prüfer domain and every ideal of R has a primary decomposition then these decompositions being unique by the above theorem show that R is a W-domain and a W-domain which is Prüfer is a Prüfer GKD.

Conversely in a Prüfer GKD every non zero prime ideal is maximal and every ideal is contained in a finite number of maximal ideals, and this is a condition for a domain to be a W-domain.