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Scott R Nollet* (s.nollet@tcu.edu), 3521 Stadium Drive, Fort Worth, TX 76109. *Picard groups of normal surfaces*. Preliminary report.

In recent work, we proved that if $Z \subset \mathbb{P}^3$ is of dimension one and generic embedding dimension at most two with ideal sheaf generated by global sections in degree d , then the general surface S of degree greater than $\max(d, 4)$ containing Z is normal with class group freely generated by $\mathcal{O}_S(1)$ and the supports of the curve components of Z (when Z is empty, this recovers the Noether-Lefschetz theorem). Since Picard groups are of more interest, we have computed them for these surfaces in various typical circumstances. The answer depends on the singularities of S and their local Picard groups. I expect to give a few examples that illustrate our method. (Received September 10, 2010)