1014-14-1431 **Mark E. Huibregtse*** (mhuibreg@skidmore.edu), Skidmore College, Saratoga Springs, NY 12866. *Smooth monomial-ideal points of the Hilbert scheme of points of an affine space.* Preliminary report.

We present some improvements to the results reported last year in *The cotangent space at a monomial ideal of the Hilbert scheme of points of an affine space*, talk # 1003-14-273. Let k be an algebraically closed field, and let $I \subseteq \mathsf{k}[x_1, \ldots, x_r] = \mathsf{k}[\mathbf{x}]$ be a monomial ideal of finite colength $n = \dim_{\mathsf{k}}(\mathsf{k}[\mathbf{x}]/I)$. We present conditions on I sufficient to ensure that the corresponding point of the Hilbert scheme $\mathrm{Hilb}^n_{\mathbb{A}^r_{\mathsf{k}}}$ is nonsingular. These conditions hold for every I when $r = 2$ (it is well-known that $\mathrm{Hilb}^n_{\mathbb{A}^2_{\mathsf{k}}}$ is irreducible and nonsingular), and characterize the I corresponding to nonsingular points when $r = 3$. (Received September 28, 2005)