1011-13-215 **Christel Rotthaus*** (rotthaus@math.msu.edu), Department of Mathematics, Wells Hall, Michigan State University, East Lansing, MI 48824, and **Liana M. Sega** (segal@umkc.edu). *A Class of coherent regular rings.* Preliminary report.

Let K be a field, $x, y_1, \ldots, y_n$ variables over K, and let $\tau_1, \ldots, \tau_m \in xK[[x]]$ be power series in x which are algebraically independent over $K(x)$. Let $f \in K[x, y_1, \ldots, y_n, \tau_1, \ldots, \tau_m]$ be algebraically independent over $K(x, y_1, \ldots, y_n)$. Then $f \in K[y_1, \ldots, y_n][[x]]$ can be approximated by polynomials $r_t \in K[x, y_1, \ldots, y_n]$ so that $f - r_t \in x^t K[y_1, \ldots, y_n][[x]]$. Set for all $t \in \mathbb{N}$:

$$f_t = x^{-t}(f - r_t) \in K[y_1, \ldots, y_n][[x]]$$

and

$$B = K[x, y_1, \ldots, y_n, f_t \,|\, t \in \mathbb{N}]_{\mathfrak{n}}$$

where $\mathfrak{n}$ is the contraction of the maximal ideal ideal of $K[[x, y_1, \ldots, y_n]]$. Depending on a flatness condition on algebras essentially of finite type over K, the ring B is Noetherian or not. We show that in all cases B is a coherent and regular ring in the sense that every finitely generated submodule of a free B-module has a finite free resolution. (Received August 28, 2005)