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^{6}Li and $d + \alpha$ scattering in a three-body momentum space Faddeev model (II)[1] LINDA HLOPHE, NSCL, Michigan State U, E Lansing, 48824, USA, L JIN, CH. ELSTER, INPP and Dept. of Physics and Astronomy, Ohio U, Athens, OH, 45710, USA, A NOGGA, IAS-4, IKP-3, JHCP, and JARA-HPC, Forschungszentrum Jülich, D-52428 Jülich, GER , F NUNES, NSCL, Michigan State U, E Lansing, 48824, USA — The (d, p) transfer reaction constitutes an important tool for extracting nuclear structure information. In order to treat the dynamics in all reaction channels on the same footing, it is advantageous to view the (d, p) reaction as a three-body problem $(n+p+A)$ within a Faddeev framework. Coulomb poses severe difficulties when studying these reactions on heavy nuclei with momentum space Faddeev equations. One way to address the challenges is to formulate the problem without screening and using separable interactions. An essential ingredient of this work involved the development of the separable interactions for the NA system. Those separable representations are obtained through the EST formulation; they are multi-rank representations of realistic interactions, namely CD-Bonn for np and of Woods-Saxon form for the $n(p) - \alpha$ potentials. Based on the results presented in (I), we discuss the extension of our implementation into the scattering regime. Preliminary results for angular distributions and cross sections for $d + \alpha$ scattering omitting the Coulomb interaction will be presented. Future prospects will be discussed.

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