Exhibit 5Sa (Table 2 in paper). Essential questions and related course units

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| **Essential Questions** | **Related Course Units** |
|  | 1. Setting the stage – Introduction: case studies of contaminated sites, introduction of essential questions, legislation, sources and characteristics of contaminants) |
| What is the danger (from pollutants)? | 2. Risk Assessment |
| Where will the pollutant go, how will it behave? | 3. Mechanisms of pollution spreading (qualitative description)  4. Subsurface flow  5. Modeling of physical systems  6. Soil-contaminant interaction  7. Contaminant transport in groundwater (quantitative-mathematical description) |
| What can we do to reduce the danger? | 8. Remediation technologies for contaminated sites  9. Landfill liner design and materials |
| When do things† are relatively easy or difficult and why? | 10. Wrapping up: answering‡ essential questions (Synthesis from prior units) |

† By “things” we mean “contaminated sites”

‡ Answers are given in Exhibit 12S.