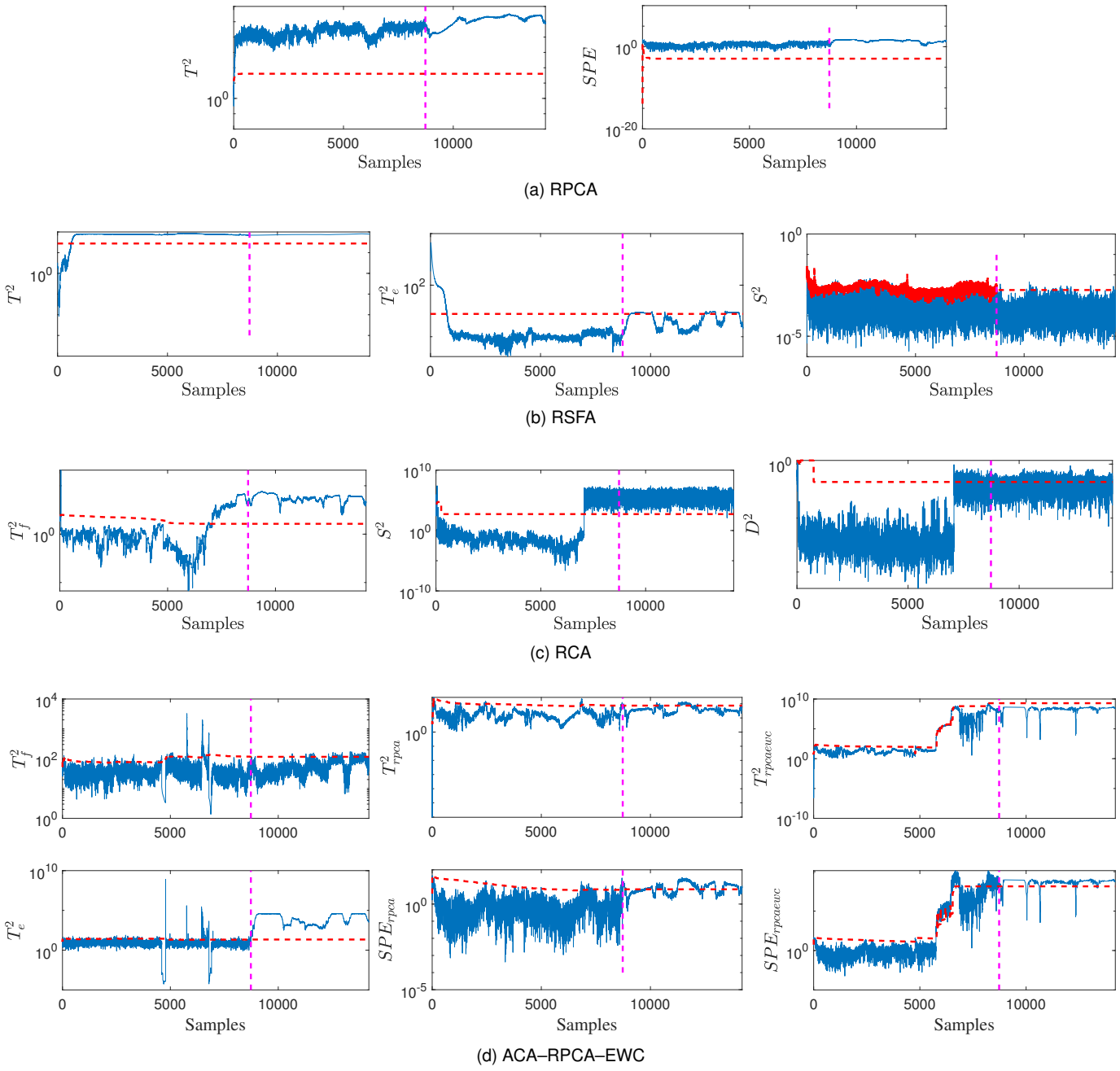

Fig. S6. Monitoring charts of Case 5: (a) RPCA cannot detect the fault and the FAR of SPE is 100%; (b) RSFA fails to distinguish normal changes from the real fault, and the FAR of T^2 is 92.84%; (c) Although the FDR of RCA is 100%, the FARs of T^2 and S^2 approximate 20%. According to the data record, the change of coal type is mistaken for the fault; (d) For the proposed ACA–RPCA–EWC method, T_e^2 can detect the fault accurately and the FDR is 99.98%. T_e^2 and T_f^2 change sharply twice. According to the coal record and original data analysis, the first sudden change of two statistics originates from the switch of coal type, while the second abrupt change is attributed to the critical parameters adjusted artificially. $SPE_{rpcaewc}$ statistic enables to detect the fault precisely and the FDR is 93.86%. The short-term dynamic of two types of coal has a certain degree of similarity. The significant information of previous coal is preserved and beneficial for monitoring other coal. When the mode starts to switch from one to another, the FARs of SPE_{rpca} and $SPE_{rpcaewc}$ are relatively high because RPCA and RPCA–EWC are difficult to track the rapid normal changes in the initial stage. The system is judged as normal because all statistics return to normal quickly. Regardless of the false alarms caused by this situation, the FARs of SPE_{rpca} and $SPE_{rpcaewc}$ are 5.20% and 7.62%, respectively.