

Evidence of Hot Fluid Flows in the Sandstone-type Uranium Deposit in the Kailu Basin, Northeast China

FEI XIA^{1*}, FENGJUN NIE¹, JINHUI LIU¹, ZHAOBING YAN¹,
BAI GAO¹, XUEGANG WANG¹, ZHIBING FENG¹

¹State key laboratory of nuclear resources and environment
, East China University of Technology , China
(*e-mail: fxia@ecit.cn, fjnie@ecit.cn, liujh1961@163.com,
zhbyan@ecit.cn, gaobai@ecit.cn,
xgwang@ecit.cn, zhbffeng@ecit.cn)

Introduction: The discovery of the Qianjiadian-Baolongshan uranium deposit (QBUD) in the Kailu basin extremely encourages explorers to look for in-situ leaching uranium deposits (ISLUD) in the post-Jurassic extensional basins in Northeast China. The thermal fluid flows characteristics of the deposit are obvious, it is estimated that 70%~80% of the exploration drilling holes meet the diabase beds. The core observation, microscope, electronic microprobe and inclusion temperature and salinity provide four kinds of evidence.

Results: Detailed petrographic analysis was conducted to diabase from the Qianjiadian-Baolongshan uranium deposit. The fine sandstone and mudstone conglomerate blackened by heat (Fig.1-A), the shaly thin layers of mudstone and sandstone are baked to a dark purple (Fig.1-B), and the large number of carbonate veins interspersed in mudstone (Fig.1-D), besides, the main temperature range of fluid inclusion temperature is 110-120°C.



Fig.1 Rock alterations caused by the diabase intrusion

This research was jointly supported by the National natural Science Foundation of China (Grant No. 41862010).

[1] NIE Fengjun, YAN Zhaobin, XIA Fei, LI Mangen, LU Yayun, CAI Jianfang, GUO Funeng, NING Jun (2017) GEOLOGICAL BULLETIN OF CHINA, 36(10), 1850-1866.