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's subsurface signatures, detected by active seismic surveys at the Semipalatinsk Test site

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One of the problems in OSI subsurface techniques development is uncertainty of potential target objects. In general approach (which includes OSI modelling) the zones of explosive disintegration are presented in simplified form – as a vacuous cavity with area of active crush around it. Real situation is described by more complicated model with presence of other disrupted areas, including spall zones and common fracturing areas, which could be detected using near-surface seismic survey. At the Semipalatinsk Test Site, where borehole UNEs conducted, an active seismic survey using diving waves method carried out. In the UNEs epicenters the spall zones detected to the average depth of 85 m. Their thickness depends from the yield of nuclear charge. P-wave velocity here less than in surrounding rocks on 1.0-1.5 km/s, S-wave – on 0.5 km/s. Under the spall zones to the average depth of 150 m the common fracturing layer revealed. Parameter of cracks density here changes from 0.15 to 0.45. Upper section disintegrated zones favour as indicators of conducted UNEs. Herewith the spall zones allow to define UNE's hypocenter position and its yield. In presentation we give methodical recommendations on active seismic technique applying during the OSI continuation period.

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