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### Southeastern Section - 63rd Annual Meeting (10-11 April 2014)

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Presentation Time: 8:00 AM-12:00 PM

## ASSESSMENT OF SOIL POLLUTION TO ARSENIC AND ANTIMONY THROUGH WEATHERING OF AS AND SB BEARING MINERALS IN CHELPU AREA (NE IRAN)

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Twenty six soil samples from Chelpu area in north of Kashmar city (NE Iran) were studied to assess arsenic and antimony pollution. Fourteen soil samples were collected from surface (10-30cm depth) and twelve samples from deeper horizons of 30-60cm and 60-90cm in the soil profile. Soils texture varies from light to very heavy. Variation of organic matter (% OM) and calcium carbonate equivalent (CCE) of soil was observed in different horizon of soil profile due to process of soil creation. Concentrations of As and Sb in soil ranged from 7.1 to 1448.8 mg/kg and 7.7 to 74.4 mg/kg respectively. Based on provided values by the USEPA, soils in the study area were therefore polluted to arsenic and antimony. Assessment of soil pollution were examined by index of geoaccumulation ( $I_{geo}$ ) and enrichment factor (EF), which represent different degrees of pollution to the As and Sb in the region. Meaningful correlation between As and Sb contents and OM% in the soil was observed. Our study shows that the source of toxic As and Sb in the soil of Chelpu area is originated from alteration of As and Sb bearing sulfide minerals like realgar, orpiment, stibnite and pyrite.

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