

## **1.4-P1. Drilling to Obtain Radionuclide Samples - A discussion**

The Comprehensive Test Ban Treaty On-Site Inspection (OSI) regimes ultimate technique is drilling to obtain radionuclide samples. This is not a common industrial practice and with the global norm against nuclear testing the skill set and equipment will have atrophied within the former testing community. OSI will therefore need to acquire not only a skilled crew and drill rig used to drilling safely in dangerous environments worldwide ; possible hydrogen sulfide gas, hydrocarbon gases and liquids, over pressure zones in the subsurface but augment that drilling equipment with the ancillary equipment needed to augment any drill rig into one that can drill back into a suspected nuclear explosion safely. This equipment ranges from specialized blow preventer stacks, to radiation monitoring alarms, to sampling equipment for cuttings, gases, and cores. Driving these equipment decisions will be the type of sample evidence necessary to fulfill the OSI mandate. Given the complexity of drilling for a radionuclide sample, the complexity of directional drilling to an unknown target it may be prudent to sample for radionuclide gases from the borehole, and radionuclide particulates from the drill cuttings without trying to enter the postulated location of the nuclear explosion cavity.

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