

RETS/REMP Position Paper RRPP 03-01

Title: Special Gas Sampling Due to Power Plant Transients

References:

1. NUREG-1301
2. NUREG-1302

Disclaimer:

This position was developed with input from industry experts and representatives of the Nuclear Regulatory Commission. The purpose of this position is to provide a frame of reference for licensees with regard to the subject matter. While the approach presented herein has been reviewed with members of NRC, this position does not constitute formal endorsement by the NRC. Licensees must review their individual regulatory commitments in determining applicability of this position paper to their plant operation.

Position:

NUREGs 1301 and 1302 Table 4.11-2 require special sampling to be performed following startup, shutdown, and thermal power changes exceeding 15% in one hour. These requirements include grab samples for radiogases and daily sampling for iodine and particulate activity at the various gaseous effluent release points.

These requirements document NRC expectations for special gaseous sampling following the aforementioned power transients. Licensees must review these requirements to determine how to meet the regulatory expectation for their gaseous effluents. The implementation of these sampling requirements should be described in the site Offsite Dose Calculation Manual (ODCM). Where the licensee no longer specifies these sampling requirements in their Technical Specifications, the licensee may implement specific sampling requirements other than those listed in NUREGs 1301 and 1302 without prior NRC approval, provided sufficient technical justification is documented. The specific sampling requirements in the licensee's effluent monitoring program are subject to NRC review following implementation by the licensee.

Footnote 3 of Table 4.11-2 invokes the requirements for grab sampling for radiogases. This special sampling requires analysis for noble gas activity, and not for tritium activity.

Footnote 7 of Table 4.11-2 invokes requirements for daily sampling for iodine and particulate following these power transients. There is provision within this footnote as to when this special sampling need not be performed. The verbatim interpretation of the exemption clause requires that both conditions be met in order to not perform the required daily sampling for iodine and particulate activity. That is, the licensee is required to show that both the iodine dose equivalent activity and the noble gas monitor readings did not increase by more than a factor of three due to the power transient. If

either the iodine dose equivalent or the noble gas monitor increase by more than a factor of three, the daily sampling is required. Nevertheless, it is noted that, as stated above, where sampling requirements are not embodied in the Technical Specifications, the licensee may implement a variation of this requirement without prior NRC approval, provided there is sufficient technical justification documented.

Once daily sampling for iodine and particulate activity has commenced per the requirements of footnote 7 of Table 4.11-2, the daily sampling may be ceased, after it has been demonstrated that both the iodine dose equivalent activity and the noble gas monitor readings are below the factor of three criteria required to meet the exemption clause referenced above. If either the iodine dose equivalent activity or the noble gas monitor reading is more than a factor of three greater than prior to the power transient, daily sampling must continue. As stated above, where sampling requirements are not embodied in the Technical Specifications, the licensee may implement a variation of this requirement without prior NRC approval, provided there is sufficient technical justification documented.

The special sampling requirements of Table 4.11-2 apply to only those effluent release points through which a gaseous release may occur as a result of the power transient. If it can be shown that the power transient would not result in a gaseous release through a given release point, then that release point need not be subjected to the special sampling requirements due to the power transient.