

“Topical Aspects on Monitoring Airborne Radioactive Effluents from NPPs”

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Discussion concerning the present situation and the future ideal situation of the monitoring of airborne radioactive substances. Issues and matters to be considered in relation to the monitoring of airborne radioactive substances are as follows.

- The ratio of outflow/sampling flow rate is so large at 1000 to 100000, that it affects the sample quantity and the detection sensitivity.
- There are inconsistencies among the outflow/sampling flow rate, the collected particle count, and the detection limit.
- Discharge paths provided longer than necessary with too many branches affecting the sampling of particles.
- Information about sampling places, nozzles, and discharge paths are lacking for old facilities.
- No procedures for controlling the entire sampling system have been established.
- No methods have been developed for inspection of sampling places inside the plant.

In conclusion, ANSI N13.1-1999 needs to be applied to the newly established nuclear power station that is under construction at present in Korea. In addition, additional inspections need to be implemented for existing nuclear facilities as well in accordance with ANSI N13.1-1999 for comparison with the other facilities.

II. Guidelines of Monitoring

The flowchart illustrates the development of monitoring standards. It starts with 1977 CAAA and 1983 EPA proposals, leading to 1989 EPA promulgation and 1990 EPA publications. A central node is '1993, propose ANSI N13.1-199X'. This leads to 'ANSI N13.1-1969' and 'ANSI N13.1-1999'. Various regulatory updates from NRC, DOE, and EPA are shown in boxes around the central flow.

III. Status of Monitoring

Category	PHWR	PWR-WH	PWR-CE	PRMATOM	OPR-1000	OPR-1400
Under Operation	2	2	11	1	10	7
Under Construction	0	0	0	0	0	0

- 20 units under operation
- 6 units under construction
- All NPPs under operation use stacks (and ducts) sampling system with isokinetic multiple small-diameter nozzles
- Besides, the APR - 1000 and APR - 1400 have much more number of stacks and ducts