BRIEF HISTORY OF THE RETS
[RADIOLOGICAL EFFLUENT TECHNICAL SPECIFICATIONS]

13th Annual RETS-REMP Meeting

Dr. Jason C. Jang
US Nuclear Regulatory Commission

June 23-25, 2003
Pittsburgh, Pennsylvania

Capturing 12th Annual RETS-REMP PRESENTATIONS
BRIEF HISTORY OF THE REMP

1946-1962 The Formative Years of Nuclear Regulation
1946  The Atomic Energy Act. The 1946 law did not allow for private, commercial application of atomic energy. To manage the nation’s atomic energy programs, the act established the five-member Atomic Energy Commission (AEC).

1954  The 1954 Atomic Energy Act redefined the atomic energy program (allowed private commercial nuclear industry)

      Shippingport nuclear power, PA, Peach Bottom Unit 1

1958  Yankee Nuclear, construction started

1960  Yankee Nuclear, Rowe, Initial Critical 485 Thermal MWt, (Westinghouse)

1961  Yankee Rowe, Commercial Operation

1963  Upgraded to 600 Thermal MWt

1992  Permanent Shutdown

1963-1975 The Nuclear Power Debate

1963: “Turnkey” by GE for Oyster Creek, 515 electric MegaWatt, $66 million

1969: Commercial Operation

Dec. 1969: Congress passed the National Environmental Policy Act (NEPA).

Jan. 1970: President Nixon signed NEPA (now required federal agencies to consider the environmental impact of their activities)
July 1971: AEC decision for the Calvert Cliffs nuclear power plant was defeated by the NEPA.

Jan 1974: Licensee
May 1975: Commercial Operations Unit 1
Apr. 1977: Commercial Operations Units 2

1974 Established a New Agency, called Nuclear Regulatory Commission (NRC)

Jan. 1975 NRC began its operations as a separation agency

1971-1980 REMP, The Best Era

Effect of Low-Level Radiation
Environmental Statement/Study for constructions

National Wildlife Magazine (Dead Birds at Beaver Valley Unit-1/2 Cooling Tower)
Tidal Wave Study (dispersion study)
Atmospheric Dispersion Study
Aerial Measurement (EG&G)

Non-Radiological Environmental Monitoring

- Thermal Pollution (fish kill issues at Big Rock Point and Oyster Creek sites)
- Chemical Pollution: Yellow Creek Decision, Non-radiological
monitoring requirements were removed from the Technical Specification (NRC) and moved to the EPA (NPDES, Annual Non-Radiological Environmental Report).

Radiological Environmental Monitoring (including benthos, pine needles, etc.)

Analytical Measurements for REMP Samples:
Gamma (NaI and GeLi); Gross α/β; H-3 analysis in water and in fish flesh (water and organic bounding tritium analyses); Sr-89/90; P-32; Fe-55; Ni-63; C-14; Ca-45; I-131 in charcoal cartridge (homogenous/face loaded geometry); and Ambient Radiation (Film, TLD, ion chamber)

BRIEF HISTORY OF THE RETS

1974 Established a New Agency, called Nuclear Regulatory Commission (NRC)

June 1974: RG 1.21, Measuring, Evaluating, and Reporting Radioactivity in Solid Wastes and Releases of Radioactive Materials in Liquid and Gaseous Effluents from Light-Water-Cooled Nuclear Power Plants
Jan. 1975  NRC began its operations as a separation agency


April 1976:  RG 1.112, Calculation of Releases of Radioactive Materials in Gaseous and Liquid Effluents from Light-Water-Cooled Power Reactors

April 1977:  NUREG-0016, Calculation of Releases of Radioactive materials in Gaseous and Liquid Effluents from BWR (BWR-Gale Code)

April 1977:  NUREG-0017, Calculation of Releases of Radioactive materials in Gaseous and Liquid Effluents from PWR (PWR-Gale Code)

April 1977:  RG 1.113, Estimating Aquatic Dispersion of Effluents from Accidental and Routine Reactor Releases for the Purpose of Implementing Appen. I

July 1977:  RG 1.111, Methods of Estimating Atmospheric Transport and
Dispersion of Gaseous Effluents in Routine Releases from Light-Water-Cooled Reactors

**Sept. 1977:** NUREG-0324, XOQDOQ, Programs for the Meteorological Evaluation of Routine Effluent Releases at Nuclear Power Stations

**October 1977:** RG 1.109, Calculation of Annual Doses to man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I


**Oct. 1978:** NUREG-0472, Draft Radiological Effluent Technical Specifications for PWR’s

**Oct. 1978:** NUREG-0473, Draft Radiological Effluent Technical Specifications for BWR’s

Users of Standard Technical Specifications


Jan. 31, 1989: Generic Letter 89-01, Implementation of Programmatic Controls for
Radiological Effluent Technical Specifications in the Administrative Controls Section of the Technical Specifications and the Relocation of Procedural Details of RETS to the Offsite Dose Calculation Manual or to the Process Control Program.

June 1990: BRC (Below Regulatory Concern) issued by NRC but rested.


April 1991: NUREG-1301, ODCM Guidance: Standard Radiological Effluent Controls for PWR (GL 89-01 Supplement No. 1)

April 1991: NUREG-1302, ODCM Guidance: Standard Radiological Effluent Controls for BWR (GL 89-01 Supplement No. 1)


1999-2000: Reactor Oversight Process (ROP)

Mar. 2000 ROP Complete the Pilot Program
April 2000 ROP-1 Implementation of the ROP-1
2001-? Biennial RETS Inspection