RADIATION ENVIRONMENTAL MONITORING PLAN

By

NORTHERN STATES POWER COMPANY
414 NICOLLET MALL
MINNEAPOLIS, MN
55401

SEPTEMBER 1976
REVISED NOVEMBER 1978
REVISED JANUARY 1983
REVISED FEBRUARY 1984

Prepared By:

B W Clark

B W CLARK, ADMINISTRATOR
RADIATION ENVIRONMENTAL MONITORING

Approved By:

Fred L Fey

F L Fey, Gen. Superintendent
RADIATION PROTECTION & CHEMISTRY

RADIATION ENVIRONMENTAL

MONITORING PLAN

TABLE OF CONTENTS

DEFINITIONS AND ABBREVIATIONS

NSP	Northern States Power Company
NG	Nuclear Generation Department
ERAD	Environmental/and Regulatory Activities Department
NRC	Nuclear Regulatory Commission
Field Technician	The person actually collecting the samples (may possess a different company title)
REMP	Radiation Environmental Monitoring Program
Field Media	All environmental samples collected in the area of the plant and elsewhere as stated in the Technical Specification requirements
Environmental Monitor	A device used to collect any kind of radioactivity either in/on a medium or within its structure
Tech Specs	The NRC license Technical Specifications

PURPOSE AND SCOPE

A plan for monitoring radioactivity in the environs of nuclear power plants will provide suitable information from which levels of radiation and radioactivity in the environs of each plant can be estimated. This information will provide supporting evidence in evaluating the performance of systems and equipment installed in the plant to control releases of radioactive material to the environment. Basic principles have been established by the Nuclear Regulatory Commission in providing guidance for establishing radiation environmental monitoring programs using the indicator control concept.

The Corporate Emergency Plan interfaces with the REMP to the extent that plant Radiation Monitoring Teams may use nearby air monitoring stations to determine levels of radioactivity if an accident has occurred with significant airborne release.

This plan also describes responsibility assignments for conduct of the programs by NG and ERAD personnel and a contract laboratory.

APPLICABILITY

This plan applies to the required radiation environmental monitoring program for the two operating nuclear plants. (Monticello and Prairie Island).

ORGANIZATION

The NG Department has the responsibility to develop and maintain the radiation environmental monitoring programs with general direction assigned to the General Superintendent, Radiation Protection and Chemistry. The Administrator Radiation Environmental Monitoring (Administrator-REM) has the administrative responsibility for conduct of the programs for the two operating nuclear plants. He coordinates the collection and shipment of field samples by ERAD field personnel, the analysis of the samples by a contract radiological laboratory, and the development of procedures and reports.

The ERAD Department, under the Manager, ERAD Department, has the responsibility for collection of the field media, for preparation and shipment of the media to the contract analytical laboratory and for operation and maintenance of all environmental monitors. This work is carried out by field technicians under the Supervisor Ecological Studies.

The Monticello and Prairie Island Technical Specificiations require a yearly census of animals producing milk, nearest residence, and nearest garden greater than 500 ft^2 producing fresh leafy vegetables. The census is conducted by ERAD field technicians.

The contract radiological analytical laboratory has the responsibility for receiving, preparing, and analyzing all field media and environmental monitors. The laboratory produces, for NG, a monthly progress report of analysis data. From this data, under the direction of NG, the laboratory develops the required annual report which is submitted to NRC by NG.

Contract consultants, who have expertise in the field of environmental radioactivity, may at times perform various tasks for NMP, such as data evaluation, program evaluation and review and audits of laboratory procedures.

According to the Monticello Emergency Plan, the Emergency Director, under accident conditions, may require plant Radiation Monitoring Teams to remove and replace filters and cartridges at close-in REMP air monitors, or collect environmental samples to be shipped to the contract laboratory for analysis.

GENERAL DESCRIPTION OF PROGRAM

Radiation environmental monitoring programs have been formulated and are being maintained that meet the requirements of the technical specifications applicable to the Monticello and Prairie Island Nuclear Generating Plants. The programs are designed to use the indicator-control concept suggested by NRC guidelines.

Airborne particulates and radioiodine are sampled and gamma radiation monitoring locations are established to detect any increase in radioactivity due to facility operation.

Terrestrial samples in the form of well water and cultivated crops are sampled and analyzed to establish radioactive isotopic levels.

River samples consisting of water, bottom sludge, fish, and invertebrates are sampled and radiological analyses are performed on them.

Raw milk from several dairy farms in the area is sampled and analyzed for radioisotopes that can be concentrated in the milk.

The results of the radioanalysis of the above samples, and the data collected from the environmental monitors are reported to the NRC according to the requirements stated in the Technical Specifications for each nuclear facility.

PROCEDURES

Written field sampling procedures are contained in the Sampling Procedures Manual dated December 2, 1975 (with subsequent revisions) developed by the contract radiological laboratory for both nuclear generating plants.

Maps identifying each parameter location are included in the Offsite Dose Calculational Manual (ODCM) for each nuclear plant.

A copy of Table 4.16.1 (Monticello) Sample Collection and analysis and a copy of Table 4.10-1 (Prairie Island) Sample Collection & analysis from the plant Technical Specifications are a part of the REMP Procedures Manual.

A weekly Sampling Schedule Form, processed by the field technician and laboratory personnel, provides control to guard against samples being missed or lost. The procedure for the use of this form has been made a part of the weekly sampling form booklet.

PROCEDURES (Continued)

Laboratory analytical procedures have been developed and are maintained by the contract laboratory. These procedures derived primarily from the U S Department of Health, Education and Welfare Publication, "Radioassay Procedures for Environmental Samples", January 1967 and from "HASL Procedure Manual-300, 1972, with certain modifications in order to meet current guidance. The contract laboratory also maintains procedures for laboratory equipment calibration and procedures for determination of efficiencies of counting equipment and minimum sensitivities for specific radioanalyses.

Reporting procedures consistent with current regulatory guidance are maintained by NG to provide NRC with required reports.

Biennial review of NSP procedures, except laboratory analytical procedures, will be the responsibility of NG to assure that the procedures are currently applicable. The continuing adequacy of the contract laboratory analytical procedures is assured by the laboratory's quality control acitivities including periodic reviews performed at least annually.

RECORDS AND REPORTING

Processed Weekly Sampling Schedule Forms furnished to NG provide a control on sample collection, shipment, and receipt at the laboratory.

Monthly Progress Reports produced by the contract laboratory provide NG with current data on radioactivity in the plant environs. This frequent periodic reporting also serves to monitor the laboratory operation's schedule.

Trend Plots are developed by the Administrator-REM from laboratory reported levels of radioactivity found in several parameters most likely to assimilate elevated amounts of radioisotopes associated with nuclear plant releases. Data is periodically added and the trends reviewed. This action has a QA benefit.

Under guidance by NG, an annual report is developed by the contract laboratory to meet NRC requirements. NG reviews the report and submits it to NRC. All other communications with NRC are also the responsibility of NG.

With the level of radioactivity in an environmental sample medium exceeding the reporting levels in Table 4.10-3 (Prairie Island) and Table 4.16-3 (Monticello) averaged over any calendar quarter, a report within 30 days after the end of the quarter must be submitted to NRC. However this report is not required if the elevated level is not a result of plant effluent.

Radiation environmental monitoring data, is retained in accordance with Tech Specs requirements under a program administered by NG.

QUALITY ASSURANCE

A Corporate Nuclear Administrative Control Program to govern nuclear plant operational and associated support activities is carried out by NSP as required under provisions of the NRC operating license. As a part of this program, Administrative Control Directives and Administrative Work Instructions are developed and implemented. Based on this guidance, field and laboratory procedures are developed and implemented together with supporting review and audit requirements.

The radioanalysis laboratory has a contractural responsibility to institute and maintain a quality assurance program responsive to applicable NRC regulatory guidance. Descriptive documents, procedures, and instructions are a part of the program and periodic internal audits are performed by the contractor to assure compliance. In addition, NG periodically audits the contractor's activities and compliance with the QA program requirements.

Monthly Progress Reports furnished by the contract laboratory are required by the contract specifications and contain cumulative averages for each parameter analyzed since the beginning of the year for each parameter is provided for comparison. Review of this monthly data by NG provides a QA check.

QUALITY ASSURANCE (Continued)

Weekly Sampling Schedule Forms have been designed to control the field progress of sample collection, shipment and arrival at the laboratory. Written procedures provide guidance to ERAD field technicians and laboratory personnel for proper use of the form. As a QA function, the Administrator-REM reviews the processed forms returned from the laboratory.

REVIEW AND AUDIT

The REMP is reviewed periodically by NG to verify that the program is meeting the requirements of the Tech Specs and current regulatory guidance. The review will also consider program reductions in the number of media and sampling frequencies where doses and concentrations via a particular pathway lose significance.

A site visit log is used to record training and retraining of the ERAD field technicians. At least annually a visit is made to the field technician's headquarters. At each site, discussion regarding changes to the REMP procedures manual are conducted. The actual sampling procedures used by the field technicians are observed and compared to the manual procedures. The log contains comments regarding the observations of the Administrator-REM. The log is retained for audit purposes.

Currently the REMP is included in the Appendix A Tech Specs for both plants; therefore guidance for audit of the REMP is contained in 1ACD2.2 "Audits", which describes the program for audits conducted by the Nuclear Operations Quality Assurance section for the Safety Audit Committee. The REMP audit is required once each two years for each nuclear plant. The specific audit areas include verifying that the REMP complies with Tech Spec requirements.