Attachment 4

NORTHERN STATES POWER COMPANY
LICENSED OPERATOR REQUALIFICATION PROGRAM

1.0 INTRODUCTION

The purpose of the licensed operator requalification programs is to ensure proficient operating staffs at the Monticello and Prairie Island Nuclear Generating Plants. This program is established to comply with the requirements of 10CFR55 Appendix A, while providing as individualized a retraining program as possible. This program includes preplanned lectures, on the job training, and evaluations on a regular and continuing basis. These programs will be conducted by the licensee and/or other organizations in accordance with the following sections.

2.0 LECTURES

2.1 GENERAL

At least six (6) preplanned lectures SHALL be scheduled in any calendar year, appropriately scheduled throughout the year except during heavy vacation, forced outage and refueling periods. Lectures SHALL take into consideration the following areas:

(a) Reactor Theory
(b) Operating Characteristics
(c) Instrument and Control Systems
(d) Plant Protection and Safety Systems
(e) Normal, Abnormal, and Emergency Operating Procedures
(f) Radiation Control and Safety
(g) Heat Transfer, Fluid Flow, and Thermodynamics

Technical Specifications, Title 10 Code of Federal Regulations, Mitigation of Accidents involving a degraded core, and Operating Experience from similar plants SHALL be included in lectures as applicable.

Lectures may be deferred due to unanticipated shutdowns, however, makeup lectures SHALL be conducted at a later date.

2.2 ATTENDANCE

All licensed personnel shall attend lectures related to:

(a) Normal, Abnormal, and Emergency Procedures
(b) Radiation Control and Safety
(c) Subjects of the annual examination in which an area grade of less than 80% was obtained by the individual

2.3 TRAINING AIDS

Training aids such as videotapes and films may be used. However, an instructor SHALL participate in at least 50% of the preplanned lecture series.

3.0 ON THE JOB TRAINING

3.1 CONTROL MANIPULATIONS

The following control manipulations and plant evolutions where applicable to the plant design are acceptable for meeting the reactivity control manipulations required by Appendix A Paragraph 3a of 10CFR55. Normal control manipulations, such as plant or reactor startups must be performed on the plant or on a simulator. Control manipulations during abnormal or emergency operations must be walked through with, and evaluated by, a qualified individual assigned by the Plant Training Superintendent. The starred items shall be performed on an annual basis, all other items shall be performed on a two-year cycle. Each individual shall perform or participate in a combination of

reactivity control manipulatons based on the availability of plant equipment and systems. Those control manipulations which are not performed at the plant may be performed on a simulator. The use of the Technical Specifications should be maximized during the simulator control manipulations. Personnel with Senior licenses are credited with these activities if they direct or evaluate control manipulations as they are performed.

PWR/BWR (as appropriate)

*(1) Plant or reactor startups to include a range that reactivity feedback from nuclear heat addition is noticeable and heatup rate is established.

(2) Plant shutdown

*(3) Manual control of steam generators and/or feedwater during startup and shutdown

(4) Boration and or dilution during power operation (PWR)

*(5) Any significant (>10%) power changes in manual rod control or recirculation flow

(6) Any reactor power change of 10% or greater where load change is performed with load control in manual.

*(7) Loss of coolant
1. including significant PWR steam generator leaks
2. inside and outside primary containment
3. large and small, including leak-rate determination
4. saturated Reactor Coolant response (PWR)

(8) Loss of instrument air (if simulated plant specific)

(9) Loss of electrical power (and/or degraded power sources)

*(10) Loss of core coolant flow/natural circulation

(11) Loss of condenser vacuum

(12) Loss of service water if required for safety

(13) Loss of shutdown cooling

(14) Loss of component cooling system or cooling to an individual component

(15) Loss of normal feedwater or normal feedwater system failure

*(16) Loss of all feedwater (normal and emergency)

(17) Loss of protective system channel

(18) Mispositioned control rod or rods (or rod drops)

(19) Inability to drive control rods

(20) Conditions requiring use of emergency boration (PWR) or standby liquid control system (BWR)

(21) Fuel cladding failure or high activity in reactor coolant or offgas

(22) Turbine or generator trip

(23) Malfunction of automatic control system(s) which affect reactivity

(24) Malfunction of reactor coolant pressure/volume control system

(25) Reactor trip

(26) Main steam line break (inside or outside containment)

(27) Nuclear instrumentation failure(s)

3.2 KNOWLEDGE OF PLANT SYSTEMS

Frequent manipulation of the controls and use of plant operating procedures is expected to maintain the operator proficient during the normal conduct of his duties.

In addition, licensed personnel SHALL be given an annual oral examination administered by a licensed senior operator or equivalent, as determined by the Training Superintendent, (e.g. Shift Technical Advisor) in accordance with Section 4.3.1.

3.3 KNOWLEDGE OF SIGNIFICANT FACILITY DESIGN CHANGES, PROCEDURE CHANGES, FACILITY LICENSE CHANGES, AND REPORTABLE OCCURRENCES

This program SHALL ensure each licensed individual is cognizant of significant plant changes, modifications, and reportable occurrences by:

(a) Brief lectures conducted by the shift supervisor or other appropriate personnel.
(b) Staff meetings
(c) Written communications to each licensed individual from training management.
(d) Explanation of major changes as part of the pre-planned lecture series.
(e) Discussion of applicable operating experience.

3.4 REVIEW OF ABNORMAL, EMERGENCY, AND SECURITY PROCEDURES

Each licensed individual SHALL review

(a) Plant Abnormal and Emergency Procedures
(b) Plant Security Plan Administrative Control Directives

once per year.

4.0 EVALUATION

4.1 ANNUAL EXAMINATION

An annual written examination SHALL be administered to each licensed

operator and senior operator during each calendar year. This examination may be given in two parts. Separate reactor operator and senior reactor operator examinations SHALL be administered. This examination SHALL cover the following subjects with depth appropriate to the license.

(a) Reactor Theory
(b) Operating Characteristics
(c) Instrumentation and Control Systems
(d) Plant Protection and Safety Systems
(e) Normal, Abnormal, and Emergency Procedures
(f) Radiation Control and Safety
(g) Heat Transfer, Fluid Flow, Thermodynamics

Technical Specifications, Applicable 10CFR Sections, Mitigation of Accidents involving a degraded core and Operating Experiences SHALL be included in Sections (a) through (g) as applicable. The minimum satisfactory grade for the annual examination is 80% overall. If an individual receives a grade of less than 80% overall, or 70% in any category he SHALL not be allowed to perform unsupervised licensed duties until he has successfully completed an accelerated requalification program assigned by the Plant Training Superintendent.

The Plant Training Superintendent SHALL notify the Plant Operations Superintendent in writing when licensed individual fails the annual written or oral examination. The Plant Operations Superintendent shall ensure that from that date until the affected individual completes the accelerated requalification program that the individual does not perform unsupervised license duties.

4.2 ORAL EXAMINATIONS

Each licensed operator and senior operator SHALL receive an oral examination by a licensed senior operator or equivalent, as determined by the Training Superintendent, (e.g. shift technical advisor) annually (See Section 3.2). This examination SHALL evaluate knowledge of plant systems and procedures and actions to be taken during abnormal and emergency conditions. These oral examinations may be conducted on an individual or shift crew (or equivalent for nonshift personnel) basis.

4.3 ACCELERATED REQUALIFICATION PROGRAMS

Accelerated Requalification Programs SHALL be assigned by the Plant Training Superintendent based on -

(a) Unsatisfactory performance on the annual written or oral examination
(b) Unsatisfactory performance (<80%) on a periodic examination
(c) Review of on-the-job proficiency and performance
(d) Non performance of license duties for greater than four (4) months

These programs SHOULD be tailored to the needs of the individual.

Accelerated requalification programs assigned based on (b) or (c) above need not require removal from licensing duties since these are designed to upgrade the individual in specific rather than general areas.

4.4 PERIODIC EXAMINATION

Additional written examinations SHALL be administered during the course of the preplanned lecture series. These tests are to evaluate training effectiveness. An individual who receives a grade of less than 80% in a subject SHALL be assigned additional retraining in that subject. The extent of this retraining SHALL be determined by the Training Superintendent.

4.5 OBSERVATION

Annual performance evaluations of operating licensed reactor and senior reactor operators SHALL be conducted by the immediate supervisors. These evaluations SHOULD include the following areas :

(a) Watch Relief Procedures
(b) Procedure Compliance/Use
(c) Control During Emergencies
(d) Logkeeping Practices
(e) Plant Awareness/Control
(f) Technical Knowledge
(g) Administrative Controls/Technical Specifications

5.0 STAFF MEMBERS

Individuals who maintain operator or senior operator licenses for the purpose of providing backup capability to the operating staff SHALL participate in the requalification program except to the extent that their normal duties preclude the need for specific retraining in particular areas.

As a minimum these individuals shall:

a. Take the annual written examination and participate in the lecture series based on the results thereof. (Sections 2,4.1)

b. Manipulate the controls or supervise the manipulation of the controls (Section 3.1)

c. Systematically review design changes, procedure changes and facility license changes. (Section 3.3)

d. systematically review the content of all abnormal, emergency and security procedures on a regularly scheduled basis. (Section 3.4).

e. Receive an oral examination evaluating knowledge of plant systems and procedures and actions to be taken during abnormal and emergency conditons. (Section 4.3.1).

6.0 STAFF TRAINING PERSONNEL

Staff training personnel who are licensed are exempt from the provisions of Sections 2 through 5 for which they have primary responsibility for administering. Personnel (maximum of 3) who prepare, administer and grade a written examination need not take the examination.

7.0 RECORDS

Auditable records of the requalification program SHALL be maintained to document each licensed operator's and senior operator's participation in the requalification program.

These records SHALL include -

a. Copies of written examinations administered and answers by the individual

b. Annual oral examinations

c. Annual performance evaluations

d. Additional training administered in areas in which an operator or senior operators has exibited deficiencies.

e. Annual review of abnormal, emergency, and security procedures.

These records SHALL be kept for two years.

8.0 ALTERNATIVE TRAINING PROGRAMS

A simulator training program at a comparable facility may be used to meet the requirements of Sections 2.1b, 2.1c, 2.1d, 2.1e, 2.2a and 3.1. Appropriate NSP Plant procedures SHOULD be utilized for the simulator training program.

The purpose of this program is to:

(a) Refamilarize licensed personnel with infrequently performed operations and abnormal plant transients and conditions and corrective actions required.

(b) Ensure licensed personnel have an adequate number and mixture of reactivity manipulatons.

(c) Provide an independent audit of the licensed operating staff.

A typical three (3) to five (5) day program SHOULD include:

(a) Plant heatup and startup

(b) Plant shutdown and cooldown

(c) Major accident - loss of coolant, steam line break, or steam generator tube rupture

(d) Rod control system malfunctions

(e) Instrument malfunctions

(f) Primary or related auxiliary system malfunctions

(g) Secondary system malfunctions

(h) Reactivity manipulations

Multiple malfunctions SHOULD be included in the simulator training program. A program of this scope SHOULD be conducted once per two year term of the license.