Nuclear
Program

TITLE
TRAINING

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PURPOSE AND SCOPE

This document describes the Training Program for regular staff, contractors, temporary personnel and other staff assigned work at Ontario Power Generation, Nuclear (hereafter referred to as Nuclear). The Training Program provides the structure, processes, and tools for defining, developing, implementing, documenting, assessing, and improving the training required to ensure Nuclear staff have the appropriate knowledge, skill, and attitudes for safe and efficient plant operation.

(a) This Program applies to the Training Programs as identified in N-LIST-08920-10001, Nuclear Training Programs.

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(b) For issues that impact pressure boundary (PB), N-MAN-01913.11-10000, Pressure Boundary Program Manual, shall be applicable.

(c) For issues that impact Nuclear Security, N-PROG-RA-0011, Nuclear Security, shall be applicable.

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1.0 DIRECTION

Nuclear Training is a program that corporate and site organizations use to achieve, maintain, and improve worker performance. It is key to improving Nuclear station safety, reliability, and cost effectiveness and ensures that workers are trained and qualified to perform the duties of their position and applies to workers engaged in licensed activities.

This document applies only to training programs listed in N-LIST-08920-10001, Nuclear Training Programs.

Training shall be used to develop and maintain competent personnel to safely operate, maintain, and improve plant performance, to minimize the risk of plant operation on health and public safety, environment, and to drive human performance improvements in a cost-effective manner. **[B-7]**.

N-PROG-TR-0005 program review is performed in accordance with N-PROC-RA-0023, Fleetview Program Health and Performance Reporting

Note: In addition to requirements of this Program, staff involved in Pressure Boundary (PB) program activities are required to comply with indoctrination, training, and qualification requirements of N-MAN-01913.11-10000. **[B-4][B-5]**

This Program document describes the structure and content of Nuclear Training Governance.

Nuclear Training governing documents under this program define the following:

(a) Formal training standards and conduct

(b) Training systems

(c) Training administration

(d) Simulator maintenance and validation

Figure 1, Nuclear Training Program Governing Documents provides a general overview of Training Governance. Second-tier supporting Training Governance may exist in addition to documents outlined in this figure.

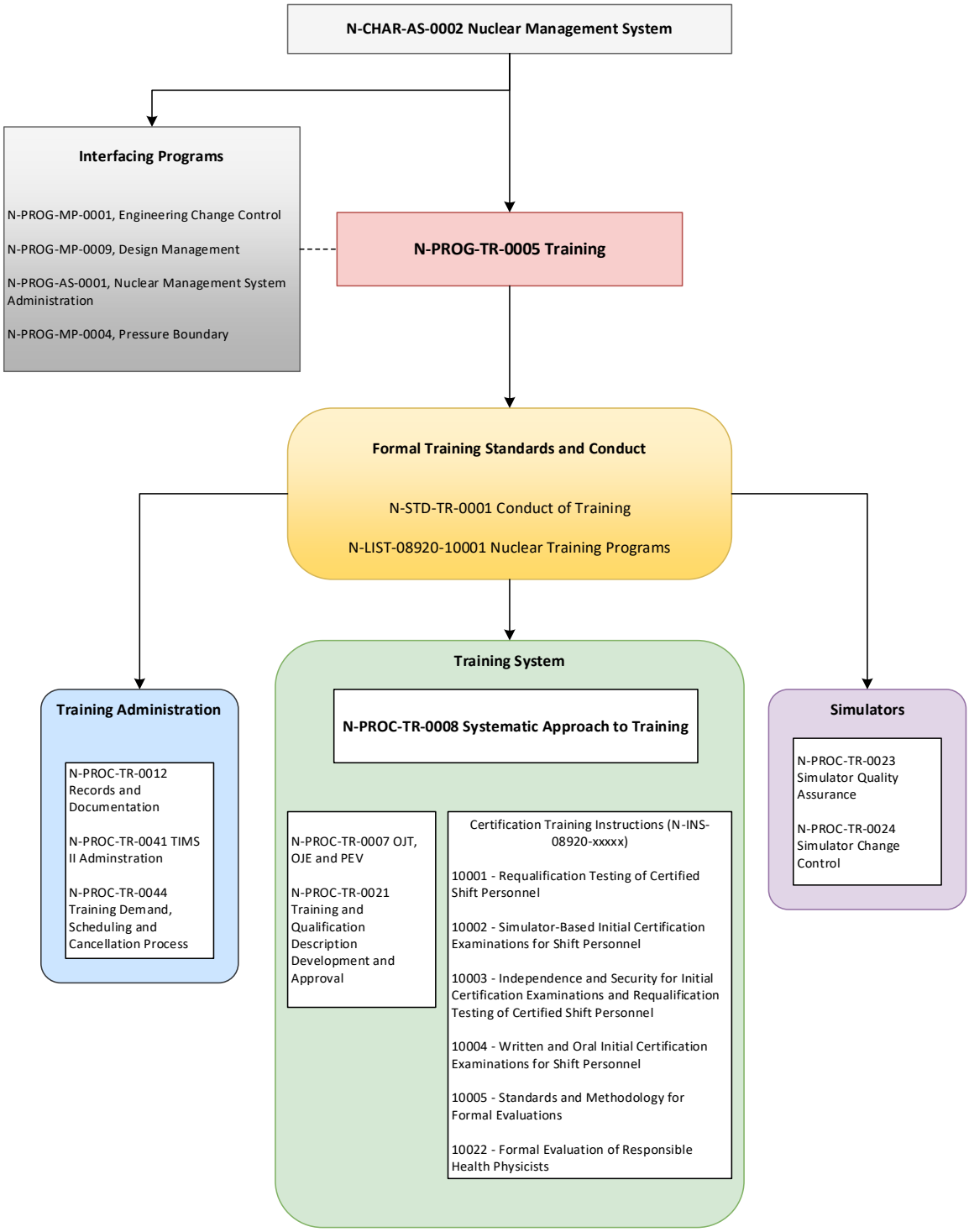

Figure 1 - Nuclear Training Program Governing Documents

1.1 General Requirements of the Training Program

- The training organization shall develop and maintain Nuclear Training Program Governance.
- Training shall be developed and implemented such that it is performance-oriented and systematically developed. **[B-3][B-7][B-8]**.
- Corporate and site organizations shall provide input to the training organization to assist with development and implementation of Nuclear training and qualification programs.
- Station and organizational standards, work practices and management expectations shall be reinforced in training. **[B-4][B-5]**
- Qualification requirements for licensed activities shall be established by Line Managers. **[B-1][B-5]**
- Qualified staff shall be skilled and knowledgeable to perform the tasks assigned to them. **[B-2][B-7]**
- Only qualified staff shall be assigned to work independently. **[B-2][B-8]**
- Records shall be developed and managed for all phases of training and for the training and qualification of all workers. **[B-9]**
- Qualifications should be common across Nuclear to extent permitted by plant design.

2.0 FORMAL TRAINING STANDARDS AND CONDUCT

The following documents form the training standards and conduct of training:

(a) N-STD-TR-0001, Conduct of Training, describes requirements and accountabilities for implementing Nuclear training and provides conduct expectations for instructors, trainees, and observers related to the execution of training events. **[B-4][B-5]**

(b) N-LIST-08920-10001, Nuclear Training Programs, identifies the Nuclear Training Programs and includes:

- Identification of the Major Nuclear Training Programs
- Listing of Training and Qualification Description (TQD) documents associated with Nuclear Training Programs
- Organization responsible for supporting the associated training.

Vice President, Training or Delegate should approve N-LIST-08920-10001, Nuclear Training Programs.

3.0 TRAINING SYSTEM

A Systematic Approach to Training shall be used and the extent of application based on the importance of the task to health, safety, environment, security, significance and complexity of the task.

The following documents form the training system used:

N-PROC-TR-0008, Systematic Approach to Training is the base document of the training system and describes the following processes: **[B-3][B-4][B-8]**

- Training change-management process that systematically analyzes procedural and equipment changes, changes in job descriptions, operating experience and perceived training needs.
- Identification of performance requirements and definition of worker training through analysis.
- Design, development, implementation, and evaluation of training to support desired job performance and individual development.
- Training Exemption and Equivalency processes including the requirements, processes, and accountabilities for exempting staff from completing training and process for documenting and approving training equivalencies, hard credits and temporary training extensions.
- Control and use of Vendors for training delivery including requirements, processes, and accountabilities for control of training developed by Vendors and training delivered by Vendors within Nuclear premises and externally.
- Training remediation process in order to establish requirements, processes, and accountabilities for providing remedial training for Trainees **not** meeting established pass- failure criteria.
- Examination security, development, approval, and implementation processes, including documentation of written, oral and e-learning examinations.
- Assessment of training effectiveness and quality.

N-PROC-TR-0007, On-the-Job Training, On-the-Job Evaluation and Practical Evaluation establishes requirements, processes, and accountabilities for implementing On-the-Job Training (OJT), On-the-Job Evaluation (OJE) and Practical Evaluation (PEV) used in the training and qualification of staff. **[B-4] [B-5][B-6][B-8]**

N-PROC-TR-0021, Training Qualification Description Development and Approval Process provides requirements for developing, approving, revising, and implementing TQDs and Qualification Guides (QG). TQDs are identified in N-LIST-08920-10001 and supporting QGs

reside within the N-PROC-TR-0021 framework. TQDs and QGs document entry-level, initial, and continuing training requirements for workers engaged in licensed activities. **[B-8]**

In addition to these procedures, the following instructions document initial and requalification testing and examinations for Certified staff:

- N-INS-08920-10001, Requalification Testing of Certified Shift Personnel, provides the requirements for requalification testing for certification renewal of Nuclear Certified Shift Personnel in accordance with paragraph 9 (3) (c) of Class I Nuclear Facilities Regulations. **[B-4][B-10][B-8]**

- N-INS-08920-10002, Simulator-Based Initial Certification Examinations for Shift Personnel, provides specific instructions on the application of CNSC-EG2 for initial CNSC certification. **[B-4][B-11][B-8]**

- N-INS-08920-10003, Independence and Security for Initial Certification Examinations and Requalification Testing of Certified Shift Personnel, provides instructions to align Nuclear administration of initial certification examinations and requalification tests with CNSC requirements. **[B-10] [B-11][B-12][B-8]**

- N-INS-08920-10004, Written and Oral Initial Certification Examinations for Shift Personnel, provides specific instructions on the application of CNSC-EG1 for initial CNSC certification. **[B-4][B-12][B-8]**

- N-INS-08920-10005, Standards & Methodology for Formal Evaluations, outlines standards and methodology for development, implementation, grading, and re-test requirements for formal evaluations (written and simulator-based) within Nuclear Initial Certification Training. **[B-4][B-10][B-11][B-12][B-8]**

- N-INS-08920-10022, Formal Evaluation of Responsible Health Physicists, describes the process for the formal evaluation of Responsible Health Physicists, including the preparation, delivery, and security of evaluations and oral interviews, in accordance with the requirements of CNSC Regulatory Document REGDOC-2.2.3, Personnel Certification, Volume III: Certification of Persons Working at Nuclear Power Plants. **[B-4][B-8]**

4.0 TRAINING ADMINISTRATION

Management systems are employed to assist with the administration of training support functions. The procedures described below specify administrative requirements of the training program.

N-PROC-TR-0012, Records and Documentation provides direction for completing, processing, and maintaining documents and records generated by Nuclear training activities by addressing the following: **[B-8][B-9]**

- Generation, organization, and control of Quality Assurance (QA) Records and Essential Records

- Record protection, security, and quality
- Completion and transmission of records
- Removal of records from storage
- Replacement of lost or damaged records.

N-PROC-TR-0041, TIMS II Administration establishes accountabilities, requirements, and functions associated with operation and maintenance of Training Information Management System, Version II (TIMS II). **[B-8][B-9]**

TIMS II is a tool for:

- Line Management to document staff training and qualification requirements for work assignment.
- Employee review of qualifications and training requirements prior to independently performing work.
- Storing employee training and qualification information used to administer training support elements (i.e., training requirements, quarterly training demand, training schedules, rosters, announcements, training completions and credits).

N-PROC-TR-0044, Training Demand, Scheduling and Cancellation provides direction for identifying training demand and creating training schedules by:

- Describing how Line organizations request training to support employee qualification needs.
- Defining how the training organization builds training schedules, rosters Trainees into courses, issues training notices, and records training completion.
- Identifying requirements for cancelling Trainees from courses, assigning alternates or substitute students in place of scheduled Trainees who cannot attend training, and adding and cancelling courses once schedule is established.

5.0 SIMULATOR MAINTENANCE AND VALIDATION

High fidelity, full-scope training simulators are used to provide effective training and performance evaluation of authorized staff. The following procedures describe their use:

N-PROC-TR-0023, Simulator Quality Assurance, establishes the QA process for full-scope CANDU Nuclear power plant control room training simulators. This process is used to confirm that full-scope simulators are capable of providing correct, observable simulated control room responses during training exercises. **[B-12]**

N-PROC-TR-0024, Simulator Change Control, establishes the change control process for full scope CANDU Nuclear power plant control room training simulators. This procedure details the process to modify training simulator to address identified work in a timely manner to minimize negative impact on training being delivered on simulators.

6.0 INTERFACING PROGRAMS

The Training Program relies upon the following interfacing programs to support it.

6.1 Engineering

N-PROG-MP-0001, Engineering Change Control, ensures that all modifications to Nuclear plant structures, systems, and components including software and station-engineered tooling are designed, installed, commissioned and placed into service within the safe operating envelope, design basis, and plant licensing conditions.

N-PROG-MP-0009, Design Management, specifies requirements for the following:

(a) Management of prescribed activities appropriate for execution and control of required design, design support, and documentation for nuclear facilities and organizations owned by Ontario Power Generation Nuclear (OPGN).

(b) Processes for creating or modifying documentation required for controlling design bases and design outputs.

(c) Minimum set of documentation that identifies and describes design bases, design output, and design process.

(d) Procurement Engineering (PE) processes ensuring implementation and maintenance of the physical nuclear facilities meet the design basis requirements.

6.2 Nuclear Management System

N-PROG-AS-0001, Nuclear Management System Administration program describes the integration of programs and processes used by OPG Nuclear facilities to satisfy CSA N286-12 management system requirements and to carry out licensed activities in a safe manner.

6.3 Pressure Boundary

N-PROG-MP-0004, Pressure Boundary, defines the managed process to control the quality of PB activities at Ontario Power Generation - Nuclear. The PB Program provides the requirements and defines the responsibilities across Nuclear for compliance with and maintenance of the PB QA program and provides the governance framework for the execution of PB field work activities. This is to ensure Nuclear retains the PB Certificates of Authorization necessary to perform PB activities and remains compliant with the Nuclear Station Power Reactor Operating Licences (PROL) and applicable Canadian Standards Association (CSA) Standards.

7.0 ROLES AND ACCOUNTABILITIES

7.1 Vice-President, Training or Delegate

- Ensures organization structure, staffing, and resources are in place to support the Training Program.
- Ensures instructional facilities such as classrooms, laboratories, workshops, and simulators, effectively support training requirements.
- Establishes and ensures maintenance of Nuclear Training Program defined in this document, and its supporting governing documents.
- Assumes Authorization Authority roles and accountabilities in accordance with N-PROG-AS-0001.
- Provides strategic direction to Nuclear training staff.
- Ensures Training Program requirements, standards, and procedures support Nuclear business goals and align with nuclear industry standards and CNSC regulations.
- Manages business risks associated with Training Program.
- Effectively manages changes to Training Program.
- Approves Nuclear Training Programs for inclusion into N-LIST-08920-10001.

7.2 Director, Training Programs

- Assumes Program Owner roles and accountabilities in accordance with N-PROG-AS-0001.
- Manages assessments of training to verify compliance with Nuclear training principles, standards, and processes.
- Oversees the application of SAT.
- Develops and maintains technical infrastructure to support e-learning (Computer Based Training [CBT] and Computer Assisted Learning [CAL]).
- Ensures Training Records and use of TIMS II is adequately managed.
- Ensures this program has been reviewed against N-STD-MP-0027, Configuration Management, and ensures that the requirements of N-STD-MP-0027 are met by the program and appropriate implementing documents.

7.3 Training Manager

- Ensures approved governing documents associated with the Training Program are implemented.
- Manages and coordinates provision of information systems, document processing, document control, training scheduling, audio and visual support, facilities, training records, and related functions used to provide training.
- Provides support to Subject Matter Expert (SME) to assist with development and review of training materials.
- Provides training curricula to support TQDs and QGs.

7.4 Site Training Manager

- Acts as a single point of contact for the station on behalf of Site Director of Operations & Maintenance (DOM), Darlington, DOM-Operations & Maintenance, Pickering, and Vice President, Training to address training needs.
- Ensures station performance gaps are reviewed and assessed for training improvement opportunities by the respective Station Management team.
- Identifies training needs and training improvement opportunities to improve station performance.
- Participates in key station management meetings to represent Training and key Training Management meetings to represent the station.
- Participates in key Training Oversight Committee Meetings.
- Acts as the Training liaison for external nuclear audit and benchmarking organizations.

7.5 Senior Manager, Simulator Services

- Provides simulator operations engineering and simulation software management expertise to maintain full-scope simulators.

7.6 Line Manager

- Approves training and qualification requirements for staff.
- Determines staff training needs.

- Provides SMEs to support training analysis and training development.
- Informs Training when changes that may impact training occur.
- Assesses training adequacy and provides recommendations for training improvement.
- Ensures staff are qualified for assigned tasks.

8.0 DEFINITIONS AND ACRONYMS

8.1 Definitions

Refer to N-LIST-08920-10000, Training Definitions for complete list of definitions used in this document.

8.2 Abbreviations and Acronyms

CAL	Computer Assisted Learning
CBT	Computer-Based Training
CNSC	Canadian Nuclear Safety Commission
CSA	Canadian Standards Association
DOM	Director of Operations & Maintenance
INPO	Institute of Nuclear Power Operations
OJE	On-the-Job Evaluation
OJT	On-the-Job Training
OPEX	Operating Experience
PB	Pressure Boundary
PEV	Practical Evaluation
PROL	Power Reactor Operating Licence
QA	Quality Assurance
QG	Qualification Guide
SAT	Systematic Approach to Training
SME	Subject Matter Expert
TIMS II	Training Information Management System Version 2
TQD	Training and Qualification Description
VP	Vice President

9.0 BASES AND REFERENCES

9.1 Bases

[B-1] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(a)

[B-2] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(b)

[B-3] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(c)

[B-4] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(d)

[B-5] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(e)

[B-6] Management System Requirements for Nuclear Facilities, CSA N286-12, Section 4.5.2(f)

[B-7] CNSC REGDOC 2.2.2 Human Performance Management Personnel Training (December 2016) Clause 2.0

[B-8] CNSC REGDOC 2.2.2 Human Performance Management Personnel Training (December 2016) Clause 3.0

[B-9] CNSC REGDOC 2.2.2 Human Performance Management Personnel Training (December 2016) Clause 4.0

[B-10] CNSC REGDOC-2.2.3, "Personnel Certification, Volume Ill: Certification of Persons Working at Nuclear Power Plants"

[B-11] Examination Guide CNSC-EG2, Requirements and Guidelines for Simulator-based Certification Examinations for Shift Personnel at Nuclear Power Plants.

[B-12] Examination Guide CNSC-EG1, Requirements and Guidelines for Written and Oral Certification Examinations for Shift Personnel at Nuclear Power Plants.

9.2 References

9.2.1 Performance References

Class I Nuclear Facilities Regulations

CNSC REGDOC 2.2.2 Human Performance Management Personnel Training (December 2016)

CNSC REGDOC-2.2.3, Personnel Certification, Volume Ill: Certification of Persons Working at Nuclear Power Plants

N-INS-08920-10001, Requalification Testing of Certified Shift Personnel

N-INS-08920-10002, Simulator-Based Initial Certification Examinations for Shift Personnel

N-INS-08920-10003, Independence and Security for Initial Certification Examinations and Requalification Testing of Certified Shift Personnel

N-INS-08920-10004, Written and Oral Initial Certification Examinations for Shift Personnel

N-INS-08920-10005, Standards & Methodology for Formal Evaluations

N-INS-08920-10022, Formal Evaluation of Responsible Health Physicists

N-LIST-08920-10000, Training Definitions

N-LIST-08920-10001, Nuclear Training Programs

N-MAN-01913.11-10000, Pressure Boundary Program Manual

N-PROC-RA-0023, Fleetview Program Health and Performance Reporting

N-PROC-TR-0007, On-the-Job Training, On-the-Job Evaluation, and Practical Evaluation

N-PROC-TR-0008, Systematic Approach to Training

N-PROC-TR-0012, Records and Documentation

N-PROC-TR-0021, Training Qualification Description Development and Approval Process

N-PROC-TR-0023, Simulator Quality Assurance

N-PROC-TR-0024, Simulator Change Control

N-PROC-TR-0041, TIMS II Administration

N-PROC-TR-0044, Training Demand, Scheduling, and Cancellation Process

N-PROG-AS-0001, Nuclear Management System Administration

N-PROG-MP-0001, Engineering Change Control

N-PROG-MP-0004, Pressure Boundary

N-PROG-MP-0009, Design Management

N-PROG-RA-0011, Nuclear Security

N-STD-TR-0001, Conduct of Training

9.2.2 Developmental References

ACAD 02-001, The Objectives and Criteria for Accreditation of Training in the Nuclear Power Industry

ACAD 84-032, Training System Development Model Overview

ACAD 85-006 (Supplement), A Supplement to Principles of Training System Development

ACAD 85-006, Principles of Training System Development

ACAD 88-002 (Addendum I), The Principles of Training System Development Manual, Addendum I: Test Item Development

ACAD 88-002 (Addendum II), The Principles of Training System Development Manual, Addendum II: Examinations: Design, Development, and Implementation ACAD 88-002 (Addendum III), The Principles of Training System Development Manual, Addendum III: Evaluation Instrument Examples

ACAD 88-002 (Addendum IV), The Principles of Training System Development Manual, Addendum IV: Learning Objectives

ACAD 92-004, Guidelines for the Conduct of Training and Qualification Activities

ACAD 92-004, Guidelines for the Conduct of Training and Qualification Activities, Section 5, Administration of Training and Qualification Activities, National Academy for Nuclear Training (May, 1992)

American National Standard, Nuclear Power Plant Simulators for Use in Operator Training, ANSI/ANS-3.5

DOE-HDBK-1074-95, DOE Handbook: Alternative Systematic Approaches to Training

DOE-HDBK-1078-94, DOE Training Program Handbook: A Systematic Approach to Training

INPO 97-002, Principles, Objectives and Criteria for Operating Nuclear Electric Generating Stations

INPO AP-921, Systematic Training Process Description

N-CHAR-AS-0002, Nuclear Management System

N-LIST-08920-10002, CNSC REGDOC2.2.2 to OPGN Training Governance Cross Matrix

N-STD-MP-0027, Configuration Management

TG-17-1993, Standards for the Management of Nuclear Related Training Records, The Nuclear Information and Records Management Administration Inc.

10.0 REVISION SUMMARY

This is an **intent** revision. Revision bars were not used.

- This is a complete re-write of the document. Some revisions made were as follows:
  - Re-established Process Flow

- Identification of bases
- Added context to some sections
- Removed detail that is contained in Training Procedures

- Re-templated the document which now includes the exception box (DCR#151598)
- Replaced **all** RD-204, "Certification of Persons Working at Nuclear Power Plants" references within this document to REGDOC-2.2.3, "Personnel Certification, Volume Ill: Certification of Persons Working at Nuclear Power Plants".(DCR#153357)