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AECL-ANSALDO CONSORTIUM
CERNAVODA NPP UNIT 1

RD-01364-TR1
REV. 0

CERNAVODA N.P.P. OPERATIONS TRAINING PROGRAMS

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1.0 Purpose

The purpose of this document is to describe the philosophy, content and minimum requirements for the Cernavoda Training Programs for all Station staff and to identify the training department organization and respective responsibilities necessary to provide the required training. The hierarchical documentation and requirements related to these programs is shown in figure RD-TR1-1.

2.0 Scope

This document covers all the formal training requirements for all station staff except Construction and Project Management personnel.

3.0 Definitions

3.1 Job Related Training Requirements

The Job Related Training Requirements is an identification of the Training and Development programs (ie. formal courses and on-the-job skills knowledge) required by the various classifications within the station work groups.

3.2 Nuclear Technology Program

Training courses in Science Fundamentals (e.g. Nuclear Theory) and Equipment/System Principles (e.g. Turbine, Generator and Auxiliaries) that provide a base of knowledge to further enable understanding of Station Systems and Equipment/System operation.

3.3 Licensing and Authorization Program

Training programs in support of the Romanian Regulatory Agency (CNCAN) examinations for Senior Power Plant Operators and Shift Supervisors prior to being authorized.

4.0 Reference Documents

4.1 AAC Quality Assurance Manual, Code AAC-QAM-001.00

4.2 Commissioning/Operations Quality Assurance Manual, code AAC-C/O QAM-001-02

4.3 The following Point Lepreau Reference Documents were also used:

- Nuclear Operations Training : RD-1364-TR1
- Nuclear Power Plant Technology Program : RD-1364-TR2
- Maintenance Skills Training Program : RD-1364-TR3
- Station Systems Training Program : RD-1364-TR4
- Nuclear Operations Training and Development Programs : RD-1364-TR5

5.0⁶ Responsibilities

5.1 The Station Manager is responsible for identifying the training and qualification requirements for all staff positions at the Cernavoda Generating Station and for ensuring that station personnel are given the requisite training, including preparations for authorization examinations.

5.2 The Training Manager and the Station Manager shall be jointly responsible for the identification of overall training objectives for the station and for outlining the training programs necessary to meet these objectives.

In addition, the Training Manager is responsible for :

- in conjunction with the various work group supervisors, identify specific Training needs, document the requirements and objectives and implement the necessary training programs,
- maintaining training records,
- co-ordination of training activities given for the benefit of station personnel by the other station work units (e.g. Health Physics Department) and any outside organizations.
- administration and operation of the Nuclear Training Department.
- implementation of formal authorization training programs in order to qualify Senior Power Plant Operator and Shift Supervisor candidates in accordance with Station and CNCAN requirements.

5.3 The Manager of Health Physics is responsible for :

- the training and qualification of Health Physics Department personnel.
- Radiation Protection Training (RPT) of all station staff and other personnel assigned to perform technical work at the Station.

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- special RPT training of all candidates selected for CNCAN Authorization to operate the station.

5.4 The Production Manager is responsible for the development and revision of training manuals for Fuel Handling, Station Chemistry, E.I. & C. and the Mechanical Maintenance Departments.

5.5 The Technical Manager is responsible for the development and revision of Training Manuals relating to the Operation, Testing, and Maintenance of station systems, structures and equipment as well as other operations activities not otherwise assigned to the Production Manager.

5.6 Each Department/Area superintendent is responsible for ensuring that personnel under their supervision are given the requisite training and related work experience in order to meet the qualification requirements of the staff position being occupied.

5.7 Each work Group Supervisor is responsible for the execution of practical on-the-job skills training activities in their areas and to identify further needs and/or corrective actions to be taken to upgrade personnel skills.

6.0 PROCEDURE / INSTRUCTION

6.1 Training Program Elements

Training and training assessment for all station staff shall be implemented by one or more of the following :

- Work experience and supervisory assessment .
- On the Job training and skill assessment
- Formal training and testing

6.1.1. Work Experience and Supervisory Assessment

Work experience and supervisory assessment will :

- determine the general areas in which further development is required (ie. candidate exposure and depth of knowledge),
- provide a means of assessing the general effectiveness of the training programs.

6.1.2 On the Job Training and Skill Assessment

On the Job training and skill assessment will:

- determine specific areas for further development, and
- provide an assessment of the employees' practical application of the required knowledge to do the Job.

6.1.3 Formal Training and Testing

Formal training and testing will provide :

- a controlled environment for learning, and
- a more rigid and standardized assessment of knowledge and skill than supervisory or on the Job assessment.

Training programs will be developed for each work group to satisfy station and personnel needs. Work group participation in defining the scope and depth of these programs will be a station requirement.

Examples of some of the major areas to be addressed are as follows:

- Management Principles
- Nuclear Technology - Science fundamentals and Equipment/System principles
- Maintenance Skills
- Station systems
- Safety and Protection training
- Quality Assurance
- Critical Safety Parameter principles
- Nuclear Safety Concepts and Principles

Section 6.3 of this document provides detail on the minimum requirements for the programs to be developed.

6.2 Program Implementation and Organization

6.2.1 Program Implementation

In order to meet the overall training needs of the station, the following specific requirements must be met:

- define responsibilities for the initiation and implementation of training programs.
- document the Job Related Training Requirements for the various work groups within the station (i.e. plant operations, maintenance trades and technical support groups).
- develop course objectives and subject material in accordance

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with the Job Related Training Requirements and other identified needs.

- establish methods of testing and evaluation of trainee performance.
- document trainee performance and provide performance assessment to the trainee and his or her supervisor.
- assess the effectiveness of the training programs in order to ensure their ongoing relevance to the Job Related Training Requirements.
- provide formal training programs in other to qualify Shift Supervisors and Senior power Plant Operators in accordance with CNCAN and station requirements.
- provide training courses to the station operations work group on a priority basis in order to satisfy the Job Related Training Requirements.
- provide training courses to the station maintenance and technical support groups on an as-required basis in order to satisfy the Job Related Training Requirements.
- ensure authorized station staff continue to maintain the competence and qualifications for the positions being occupied (i.e. provide refresher training).

6.2.2 Organization

To meet the above requirements the Training Department will consist of four (4) major groups providing training and administrative support in the following areas:

6.2.2.1 Nuclear Technology

Provides training in Science Fundamentals and Equipment/System Principles at various levels in order to support the Job Related Training Requirements for the various station work groups including any Regulatory authorization programs that may be necessary.

6.2.2.2 SKILLS

Provides Maintenance Skills Training (i.e. hands-on maintenance and troubleshooting) to the various work groups

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6.2.2.3 Station Systems and Licensing

Provides training programs on station systems (System and Operational level courses).

Provides Authorization Training programs in Nuclear and Conventional Systems related topics.

✓ Co-ordinates the training programs associated with Conventional Safety and Emergency Response Team Training.

6.2.2.4 ADMINISTRATION

Provides administrative and clerical support to each of the training groups.

Co-ordinates candidate scheduling and maintains training records for all Work Groups.

6.3 SPECIFIC PROGRAM REQUIREMENTS

Figure RD-TR1-2 presents a brief pictorial view of the Cernavoda Training program categorization and material content. Formal training programs will be developed to cover the following major subject areas :

6.3.1 Nuclear Technology

The nuclear program shall consist of various Science Fundamental and Equipment System Principle courses intended to provide employees with the knowledge requirements to enable further understanding of station systems and systems operation.

The program must provide :

- study and reference material pertaining to Nuclear and Conventional Technology to a level determined by the Job Related Training Requirements.

- a level of technical knowledge that ideally will be considered as pre-requisite for the commencement of station system study at an equivalent level.

- a curriculum of subject matter appropriate for preparing both Shift Supervisor and Senior Power Plant Operator candidates for safe and efficient operation of the plant.

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- examinations designed to measure the success of studies in attaining the training objectives.

Details of the program will be developed and maintained by the Training Manager.

6.3.2 Maintenance Skills

A Maintenance Skills training program will be developed and implemented such that the needs and requirements of the stations maintenance work groups as defined by the work group supervisors and the Nuclear Training Department will be addressed.

The Maintenance Skills Training Program will apply to all maintenance groups i.e., Mechanical Maintenance, Electrical Instrumentation and Control, Fuel Handling, Service Maintenance and Chemical Operators. It also applies to courses prepared for Operator Skills Training.

The program must provide :

- study material appropriate for the skill level required.
- instruction and/or guidance from a competent resource person.
- performance evaluation either during the formal program or by Supervisor assessment.
- follow up, where required, to assess skill performance either by refresher courses or Supervisor recommendation.

Details of this program will be documented and maintained by the Training Manager.

6.3.3 Station System

A Station Systems training program will be developed and implemented for the various operating, maintenance and technical support groups. The details and scope of this program will differ for the operations groups as opposed to all other groups.

The Operations Group training will consist of the following 5 major divisions:

- a) System Phase Training
This training is based on a design

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perspective (ie. purpose, major components, location and functional operation) for each system.

b) Operational Phase Training

This training is based on specific operation and control of each system. The major resource material is the respective Operating Manuals.

c) Field checkouts

All operators are expected to complete all plants systems field check-outs. These check-outs will be developed jointly by the Operations and Training departments. The Training Department will track and maintain all required records.

d) Overall Plant Control

This phase of training is a more advanced level of training and deals with how the plant is operated and controlled. Most operators will receive this training.

f) Supplementary Training.

This training will deal with specific plant knowledge deemed to be necessary or to be a definite asset to senior operations personnel.

Examples of some of these courses include:

- Fuel Cooling
- Critical Safety Parameter Philosophy.
- Regional Overpower Design
- Nuclear Safety for Senior Operators.
- Turbine Governor operation.

All other plant groups will receive the above training on an as-needed basis. The major emphasis for these groups is to ensure they have :

- a) a good overview of plant operation
- b) knowledge of location of Major equipment
- c) good knowledge of Safety Culture and how it applies to them.
- d) the appropriate skills for their Job.

These programs will be developed as per the responsibilities set out in this document. The maintenance and documentation of these programs will be the responsibility of the Training Manager.

6.3.4 Safety and Protection Training

Safety and Protection Training programs shall be implemented in order to allow station staff to gain the requisite protection awareness appropriate to their Job Related Training Requirements. Training programs will be offered for the following topics:

- Radiation Protection
- Nuclear Safety Concepts / Protection
- Conventional Safety Protection
- Emergency Response Team Training.

6.3.4.1 Radiation Protection

Training for qualification of station personnel in Radiation Protection as called for in RD-01364-L2 shall be undertaken by the Health Physics Department, with the Nuclear Training Department providing necessary administrative support.

6.3.4.2 Nuclear Safety Concepts / Protection

Two levels of courses will be offered. The introductory course will be given to all personnel and it will cover Nuclear Safety Concepts and the individuals role with respect to both Nuclear and Conventional Safety.

The advanced Nuclear Safety Course will be given to senior operations personnel and selected work group Managers, Supervisors and some technical engineers. The objective is to ensure that all supervisory personnel are aware of their roles and responsibilities with respect to plant safety and operation.

6.3.4.3 Conventional Safety Protection

Protection course will be implemented for delivery to station staff at an introductory level in topics related to conventional safety and protection. This program will include the following courses :

- Chemical Protection
- Thermal Protection
- Electrical Protection
- Mechanical Protection
- Fire Protection
- First Aid
- Work Protection Codes.
- Body Mechanics

6.3.4.4 Emergency Response Team Training

The Emergency Response Team consists of a trained team of operators and maintainers who take initial action in a contingency in accordance with the On-site Contingency Plan, RD-01364-L17. Emergency Response Team Training will be initiated by the Station Licensing/Compliance Group in order to satisfy the various Operational Response Team training requirements. The Training Department will support and administer this program.

6.3.5 Management Principles

Training requirements for the professional development of supervisory, managerial and administrative staff shall be identified for each of the requisite positions in the station. Implementation will be conducted on an "as required" basis as determined by supervisory assessment and formalized through involvement with the Nuclear Training Department.

6.3.6 Quality Assurance Training

Quality Assurance Training will be provided in order to assure that, 1) all station staff are familiar with the Station Quality Assurance Program and 2) that requisite station staff are given the necessary qualification and certification programs relevant to the various quality inspection, verification, surveillance and audit activities.

The Quality Assurance Training Programs shall be conducted in accordance with RD-01364-06.1 and RD-01364-06.2 pertaining to Orientation and Training, and Qualification and Certification of Personnel.

6.3.7 Licensing and Authorization Program

A Licensing and Authorization program will be developed and implemented in order to qualify Shift Supervisors and Senior Power Plant Operators in accordance with CNCAN and Station requirements. This program will be documented and maintained by the Training Manager. This program will be approved by the Station Manager.

6.3.8 Refresher Training

Refresher training courses shall be organized by the Nuclear Training Department to ensure that the station's Authorized staff and other station staff continue to maintain

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the training qualification required for the positions being occupied. Such courses shall be given based on the needs identified by the Nuclear Operations Group and the other individual work groups. This program will be documented and maintained by the Training Manager.

7.0 Records / Forms

- None used

8.0 Appendix

Figure RD 1364-TR1-01 Hierarchical Documentation and Requirements for Cernavoda Training Programs .

Figure RD 1364-TR1-02 Overview of Cernavoda Training Programs.

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CERNAVODA TRAINING DEPARTMENT
HIERARACHIAL DOCUMENTATION / REQUIREMENTS
FOR CERNAVODA TRAINING PROGRAMS

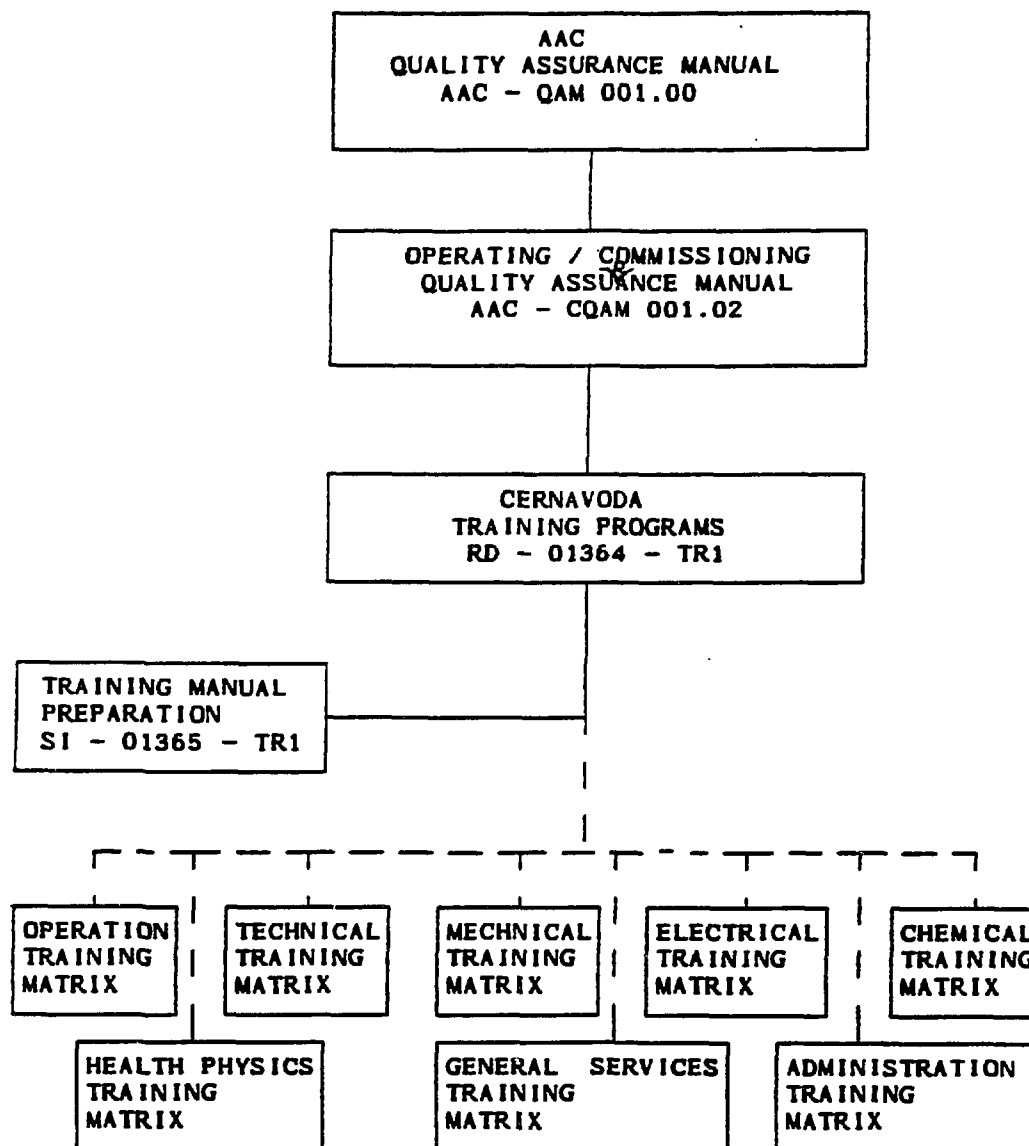


FIGURE RD-TR1-1

OVERVIEW OF CERNAVODA TRAINING PROGRAMS

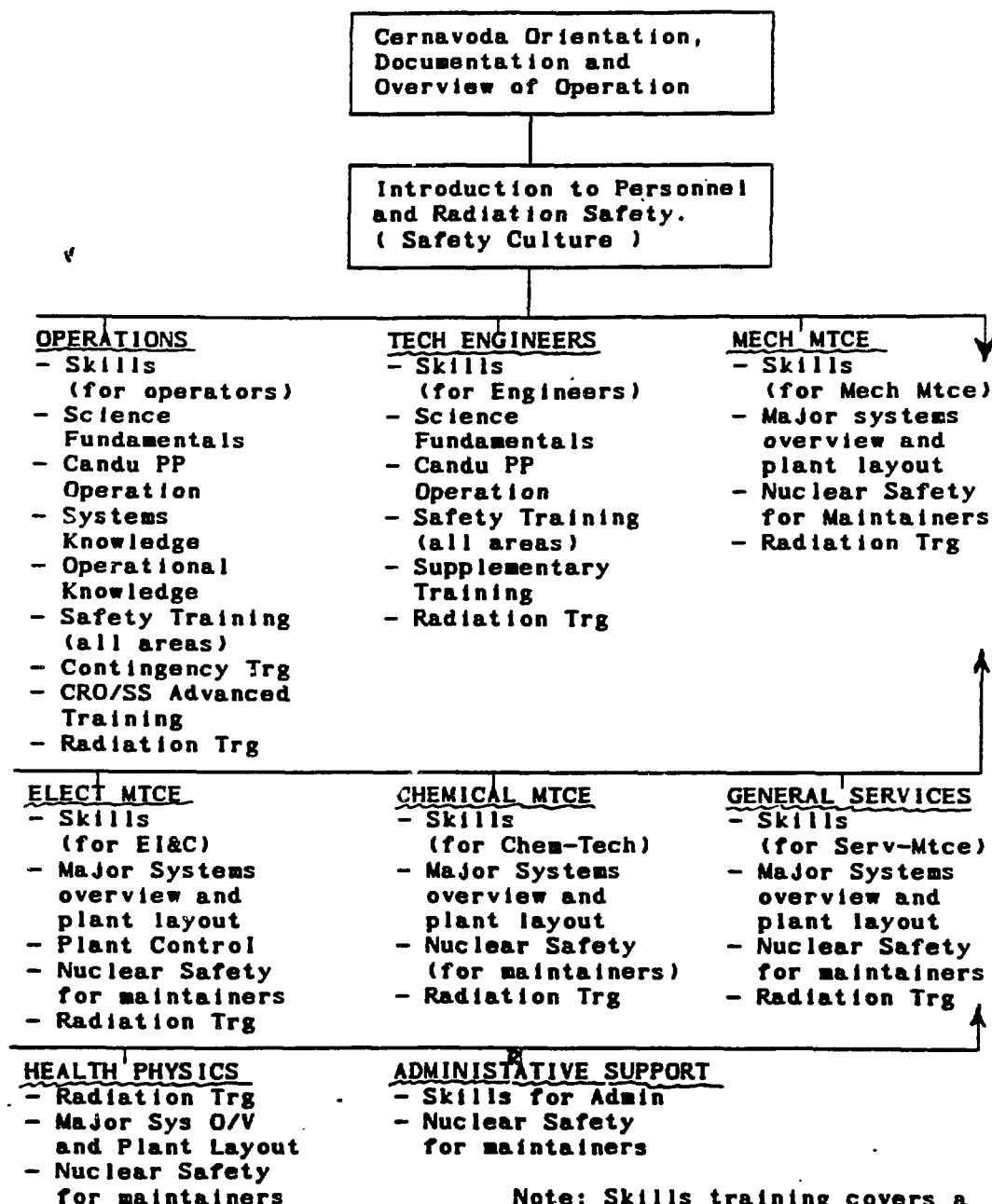


FIGURE RD-TR1-2