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This procedure is current at the time of submittal. Changes may be made during the effective licensing period. Changes which involve significant safety aspects of the activities authorized by the license will be formally submitted. All changes to procedures are approved by the Chem-Nuclear Safety Review Board before implementation.

CNCS SAFETY REVIEW  
BOARD APPROVAL

BY

*W.T. one*

DATE

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PREPARED	DATE	<b>CHEM – NUCLEAR SYSTEMS, INC.</b>  TRAINING PROGRAM FOR TRANSPORTATION PERSONNEL ENGAGED IN SHIPMENT OF RADIOACTIVE MATERIAL		
J. NICHOLAS	12-17-81			
CHECKED	TITLE			
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## 1.0 SCOPE

### 1.1 Purpose

This document describes the training and orientation programs in support of Chem-Nuclear Systems, Inc., (CNSI) Transportation Division operations involving radioactive material.

### 1.2 Applicability

The transportation Division training program described in this instruction applies to employees of CNSI assigned to duties in support of or actually involved in transportation of radioactive materials and to employees of firms under contract to CNSI who perform such duties on a regular basis. Indoctrination and orientation procedures apply to all permanent, temporary, and part-time employees assigned to the Transportation Division and will be completed prior to employee reporting to work assignment area. All permanent employees will complete entire training program before reporting to work area.

## 2.0 REFERENCES

None.

## 3.0 DETAILED PROCEDURE

### 3.1 Definitions

3.1.1 Basic Training for Transportation engaged in radioactive materials shipping is that training listed in Table 1 (see Appendix A).

3.1.2 Skills training required to transport radioactive material is in some ways similar to that required for highway shipment of ordinary cargo. However, additional subject matter and attention to detail are required. Skills in which training is provided include:

3.1.2.1 Dispatcher

3.1.2.2 Driver Technician

3.1.2.3 Preventive Maintenance

3.1.2.4 Mobile Equipment Inspection

3.1.2.5 Engine Overhaul and Warranty Service

3.1.2.6 Welding, Brazing, Cutting

3.1.2.7 Shop Equipment Operation

3.1.2.8 Painting of Vehicles

3.1.3 Refresher training will be scheduled on a continuing basis throughout the year. Refresher training will place heavy emphasis on subject matter listed in Table 1 (see Appendix A). Upon occurrence of an accident or incident where it is found that prevention may result from personnel retraining, it will be provided as necessary on a special refresher training schedule aimed at restoring minimum productivity as soon as possible. Recertification in a particular skill may be required (See paragraph 3.3.3).

3.1.4 Organizational Development, Support and Company/-Industry Training covers a wide variety of subjects. These include but are not limited to the following:

3.1.4.1 Supervision and Leadership

3.1.4.2 Nuclear Industry Issues

3.1.4.3 Occupational Safety and Health Issues

3.1.4.4 Presentations on new or revised company policies, plans and programs.

3.1.5 Orientation and indoctrination are provided for new employees and for unescorted visitors as required by the nature and extent of duties or function and areas of access required on site. Orientation and indoctrination will be provided in one or more of the following:

3.1.5.1 Health Physics/Radiation Protection

3.1.5.2 Operations

3.1.5.3 Safety

3.1.5.4 Security

3.1.5.5 Training.

3.1.6 Practical factors are those job related tasks or evolutions which can best be taught and learned on the job. Employees will be required during their training to demonstrate proficiency in these tasks and evolutions to supervisory personnel and/or co-workers who are designated to assist in on-the-job training. Practical factors may include but not be limited to the following:



- 3.1.6.1 A one-time demonstration of proficiency in performance of a task or evolution with or without written procedures.
- 3.1.6.2 Repeated performance of a critical task or evolution a certain number of times.
- 3.1.6.3 Operating equipment under instruction without incident for a certain number of hours, days or weeks.
- 3.1.6.4 Demonstrating the ability to verbally describe or discuss the details of a particular equipment or subject.
- 3.1.6.5 Demonstrating the ability to recall from memory, without use of written references, certain important facts, limits, or procedures.
- 3.1.6.6 Demonstrating the ability to use proper terms to describe something.

### 3.2 Training Program Responsibilities

- 3.2.1 General Manager - Transportation retains overall responsibility for ensuring that training for Transportation Division personnel is provided which meets the needs of CNSI and the regulatory authorities to which CNSI is accountable.
- 3.2.2 The Safety/Training Manager is responsible to the General Manager - Transportation Services for the following:
  - 3.2.2.1 Ensuring that transportation work schedules provide adequate time for all categories of training.
  - 3.2.2.2 Recommending changes in or additions to the training program as deficiencies or inadequacies become apparent.
  - 3.2.2.3 Assigning responsibility for on-the-job training and practical factor check-offs to personnel considered well qualified by training, experience and demonstrated performance to be capable of passing on the best work habits.

- 3.2.2.4 Preparing and maintaining records of all types of training conducted. Recording, in individual training records, the results of examinations on basic training subjects and achievements on all job qualifications. Recording, in general records or in individual training records as appropriate, the accomplishments of training in all other categories.
- 3.2.2.5 Arranging for the preparation, administration, and grading of written examinations and assuring that personnel are quickly advised of the results.
- 3.2.2.6 Maintaining up-to-date training status boards to reflect the accomplishments of all Transportation employees required to take basic training and skills training.
- 3.2.2.7 Preparing schedules for initial and/or refresher training for employee and obtaining concurrence for cognizant supervisors and managers.
- 3.2.2.8 Arranging for lease or loan and return of materials used in Transportation and Site Organizational Development, Support and Company/Industrial Training. Where appropriate, purchase of materials having continuing utility should be recommended and obtained as approved.

3.2.4 Department Managers and Supervisors for positions listed in Table I (see Appendix A) are responsible for the following:

- 3.2.4.1 Ensuring that work schedules provide adequate time for all categories of training required for themselves and personnel for whom they are responsible.
- 3.2.4.2 Ensuring that personnel for whom they are responsible are thoroughly trained to perform their duties in accordance with established procedures and good work practices.
- 3.2.4.3 Recommending changes in or additions to the training program as deficiencies or inadequacies become apparent.

3.2.4.4 Assigning responsibility for on-the-job training and practical factor checkoff to personnel considered best qualified by training, experience and demonstrated performance to be capable of passing on the best work habits and most accurate knowledge of trainees.

3.2.5 All Personnel receiving training are responsible for:

3.2.5.1 Making every effort to obtain the maximum knowledge possible from all elements of the training opportunities provided.

3.2.5.2 Applying knowledge acquired in the training program on the job.

3.2.5.3 Identifying deficiencies and making recommendations which will improve the value and effectiveness of the program.

3.3 Reviews, Refresher Examinations and Recertification of Skills

3.3.1 Reviews will be conducted annually on the work performance of each person holding certification in a skill related to radioactive material transportation listed in Step 3.1.2. Reviews will be conducted by managers or supervisors in their areas of responsibility.

3.3.2 Refresher Examinations will be conducted on an annual basis for all personnel subject to the requirements of Table 1 (see Appendix A). Personnel may be examined in any area for which responsible as indicated in Table 1 (see Appendix A), but special emphasis will be given in these exams to materials on radiation protection and health physics, emergency preparedness, occupational safety and health, first aid, and fire fighting. First aid refresher training will be in accordance with requirements of the American Red Cross.

3.3.3 Recertification of Skills will be required for any person once certified who has not performed such skills for a period of three months or longer. The degree of recertification required will be determined on a case basis by the supervisor responsible for personnel holding respective skills.

3.3.4 Certification Review, Refresher Training Exam Results and Recertification will be recorded in training records.



- 3.3.4.1 Certification Review grades of satisfactory or unsatisfactory (in certain areas) will be assigned. If in the opinion of the reviewer the person reviewed is unsatisfactory in any area, another review in that area will be conducted within one month. If three areas are consider unsatisfactory, the person may not work in that skill until recertified. Records will reflect this.
- 3.3.4.2 Annual Refresher examination minimum passing grades will be 60% in all subject areas and 70% overall. Personnel obtaining a grade in any area of less than 60% will be re-examined in that area within one month.
- 3.3.4.3 The supervisor's signature and any supporting documentation (new practical factor checkoff sheets or examination) will be entered in personnel training records on occasion of recertification.

#### 3.4 Training Records

- 3.4.1 Individuals records shall be prepared for each employee participating in the CNSI Transportation Training Program. The file shall contain as a minimum the following:
  - 3.4.1.1 Record of training progress, qualification, review of certifications and annual refresher examinations.
  - 3.4.1.2 Completed Practical Factor Check-off sheets.
  - 3.4.1.3 Miscellaneous certificates or reports of completion of training or education which are pertinent to CNSI employee development and advancement.
- 3.4.2 Retention of records shall be for as long as the individual is employed by CNSI and for two years thereafter. One copy of all training tests and annual refresher exams will be forwarded to the Barnwell Site Training Coordinator. One copy will be filed in Transportation Division personnel training files.
- 3.4.3 Forms for entry of basic training results, skills certification, annual review, refresher examination results, and miscellaneous job-related training and educational achievements are illustrated in Appendix B.



APPENDIX A

TABLE 1

BASIC TRAINING FOR TRANSPORTATION PERSONNEL  
ENGAGED IN RADIOACTIVE MATERIALS SHIPMENT

(1 PAGE)

APPENDIX B  
CHEM-NUCLEAR SYSTEMS, INC.  
PERSONNEL TRAINING RECORD  
(3 PAGES)

TABLE 1

BASIC TRAINING FOR  
TRANSPORTATION PERSONNEL  
ENGAGED IN RADIOACTIVE MATERIALS SHIPMENT

CATEGORY				SUBJECT
A	B	C	D	
X	X	X	X	Indoctrination and Orientation Series
X	X	X	X	The Story of Radiation
X	X	X	X	Health Physics Practical Factors
X	X	X	X	1. Nature of Matter
X	X	X	X	2. Radioactivity and Units of Radiation Dose
X	X	X	X	3. Biological Effects
X	X	X	X	4. Levels of Radiation
X	X	X	X	5. Unborn Child Protection
X	X	X	X	6. Control of Radiation Dose
X	X	X	X	7. Contamination and Decontamination
X				8. Safety Calculations
X			X	9. Transportation of Radioactive Material
X			X	10. Radioactive Material Accountability
X	X	X	X	A. Background on RAM Disposal by Land Burial
X	X	X	X	B. Role of Quality Assurance Personnel
X	X	X	X	C. Role of Health Physics Personnel
X	X	X	X	D. Barnwell Site Emergency Preparedness Planning
X	X	X	X	E. Occupational Safety and Health
X	X	X	X	F. First Aid
X	X	X	X	G. Fires and Fire Fighting
X	X	X		H. Natural Hazards of South Carolina
X	X		X	I. Transportation Emergency Response
X			X	J. Highway Route Controlled Quantity (Large Quantities Certification)

Category A      General/Assistant General Manager - Transportation Services, Transportation Managers/Supervisors, Operations

Category B      Maintenance Supervisors, Equipment Inspectors

Category C      Liner Operations, PM Oilers, Welders, Mechanics Painters, Parts Clerks, Secretaries, Clerks Operations Analyst

Category D      Driver Technicians/Dispatch

X      Indicates required training.



CHEM-NUCLEAR SYSTEMS, INC.  
PERSONNEL TRAINING RECORD

NAME: \_\_\_\_\_ SOCIAL SECURITY NO.: \_\_\_\_\_

POSITION ASSIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

POSITION ASSIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

POSITION ASSIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

POSITION ASSIGNED: \_\_\_\_\_ DATE: \_\_\_\_\_

BASIC TRAINING [(X) INDICATES SUBJECTS REQUIRED]

<u>ORIENTATION SERIES:</u>	<u>QUIZ SCORE</u>	<u>DATE</u>	<u>INITIALS</u>
( ) INDOCTRINATION	_____	_____	_____
SE ( ) BARNWELL SITE SECURITY	_____	_____	_____
OP ( ) BARNWELL SITE OPERATIONS	_____	_____	_____
HP ( ) BARNWELL SITE HEALTH PHYSICS	_____	_____	_____
SF ( ) BARNWELL SITE SAFETY	_____	_____	_____
( ) THE STORY OF RADIATION (Film) (Definition; Human Effects; Interpretation of Dose)	_____	_____	_____
PF ( ) HEALTH PHYSICS PRACTICAL FACTORS	_____	_____	_____
PF ( ) DRIVER TECHNICIANS PRACTICAL FACTORS	_____	_____	_____

PAMPHLET/SUBJECT

1. ( ) NATURE OF MATTER	_____	_____	_____
2. ( ) RADIOACTIVITY	_____	_____	_____
3. ( ) BIOLOGICAL EFFECTS	_____	_____	_____
4. ( ) LEVELS OF RADIATION	_____	_____	_____
5. ( ) UNBORN CHILD PROTECTION	_____	_____	_____
6. ( ) CONTROL OF RADIATION DOSE	_____	_____	_____
7. ( ) CONTAMINATION & DECONTAMINATION	_____	_____	_____
8. ( ) SAFETY CALCULATIONS	_____	_____	_____
9. ( ) TRANSPORTATION OF RADIOACTIVE MATERIAL	_____	_____	_____
10. ( ) RADIOACTIVE MATERIAL ACCOUNTABILITY	_____	_____	_____

# TRAINING RECORD CONTINUATION SHEET

NAME: \_\_\_\_\_

## BASIC TRAINING

<u>PAMPHLET/SUBJECT:</u>	<u>QUIZ SCORE</u>	<u>DATE</u>	<u>INITIALS</u>
A. ( ) BACKGROUND ON RAM DISPOSAL BY LAND BURIAL	_____	_____	_____
B. ( ) ROLE OF QUALITY ASSURANCE PERSONNEL	_____	_____	_____
C. ( ) ROLE OF HEALTH PHYSICS PERSONNEL	_____	_____	_____
D. ( ) BARNWELL SITE EMERGENCY PREPAREDNESS PLANNING	_____	_____	_____
E. ( ) OCCUPATIONAL SAFETY AND HEALTH	_____	_____	_____
F. ( ) FIRST AID	_____	_____	_____
G. ( ) FIRES AND FIRE FIGHTING	_____	_____	_____
H. ( ) NATURAL HAZARDS OF SOUTH CAROLINA	_____	_____	_____
I. ( ) TRANSPORTATION EMERGENCY RESPONSE	_____	_____	_____
J. ( ) HIGHWAY ROUTE CONTROLLED QUANTITY (LARGE QUANTITIES CERTIFICATION)	_____	_____	_____
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## BASIC TRAINING RECORD OF COMPLETION:

NOTICE OF COMPLETION SENT TO: \_\_\_\_\_ DATE: \_\_\_\_\_

CERTIFICATE OF COMPLETION ISSUED \_\_\_\_\_ DATE: \_\_\_\_\_

\_\_\_\_\_  
SAFETY/TRAINING MANAGER

ANNUAL REFRESHER TRAINING EXAM:

[illegible]

OTHER EMPLOYMENT-RELATED TRAINING OR EDUCATION RECEIVED:

[illegible]