COMPREHENSIVE PLAN

for the

INDEPENDENT AUDIT OF THE RADIATION PROTECTION PROGRAM

ARMAMENT AND CHEMICAL ACQUISITION AND LOGISTICS ACTIVITY (ACALA)

Revision 1

February 22, 1997

Prepared by: ARMAMENT AND CHEMICAL ACQUISITION AND LOGISTICS ACTIVITY (ACALA)

Rock Island, IL

1.0 INTRODUCTION

The US Army Armament, and Chemical Acquisition and Logistics Activity (ACALA) holds several licenses for the use of items of supply that contain radioactive material. The ACALA Radiation Protection Staff acts as the Radiation Safety Officer (RSO) for licenses, and maintains interface with the NRC for license updates and compliance issues. To that end, the ACALA Radiation Protection Staff:

- establishes and maintains effective liaison with the NRC
- establishes requirements for end user compliance
- prepares and/or provides input to upper tier procedures on appropriate compliance requirements
- prescribes and approves training for Radiation Protection Officers (RPOs) at field facilities
- develops training for users of radioactive devices
- provides technical support to facilities as requested (or as need is perceived by the license holder)
- provides input to and monitors training on licenses and special radiation protection needs
- provides oversight of facilities' compliance to license to include audits, trend analyses, performance reviews, review of technical manuals and facility SOPs
- controls ACALA radiation protection activities to include establishing and measuring goals, providing technical support (health physics), supporting the Ionizing Radiation Control Committees, and training for ACALA staff
- ensures inventory control of sources is maintained
- provides control of items' maintenance
- reviews and provides concurrence with Technical Manuals associated with licensed commodities
- acquires sources and provides safety requirements input to production contracts
- maintains interface with the Army Radioactive Waste Disposal Program to ensure compliance with license requirements

As the license representative for the Army, ACALA provides support for individual licenses, supplements, and enclosures to ensure adequate control over licensed material to protect the health and safety of personnel and prevent the spread of radioactive contamination to the environment.

A thorough audit to evaluate program implementation and effectiveness will identify areas of noncompliance with regulatory requirements and will provide the basis for effective corrective action. Therefore, in accordance with your letter of the February 14, 1997, this *assessment (audit)* shall be performed by *...an independent individual or organization (consultant)...independent of the Army's organization...* In order to more fully comply, a series of site visits will be conducted to assess the operations that have physical control of radioactive commodities subject to the Army's radiation safety program conducted under License Nos. 12-00722-06, 12-00722-13, and 12-00722-14. The proposed list of site visits for this level of assessment is shown in Table 1, which has been updated to reflect the addition of site types that the NRC requested should be evaluated.

A complete review of the physical inventory program will be conducted by TACOM-ACALA

personnel simultaneous with this audit to provide a detailed listing of the devices and their locations throughout the world.

The site visits will be conducted at OCONUS locations in Europe and Korea as well as at CONUS locations to collect information regarding how to ensure appropriate support from the ACALA office. The mission of the site visit team is to determine if installation RPOs are aware of license details in reference to the ACALA chain of command. Specifically, they will assess awareness of reporting procedures, license commitments, and training requirements. The proposed schedule for site visits to OCONUS locations is shown on Table 2 and will be subject to receipt of theater clearance.

1.1 PURPOSE

Holders of NRC Licenses must demonstrate compliance with NRC Regulations, Federal Regulations, and industry standards that require licensees to develop, implement, and maintain an effective radiation protection program. An effective radiation protection program includes objective evidence that will enable an independent auditor to conclude that the licensee and responsible organizations are managing an effective program that provides sufficient control over licensed material to protect personnel, the general public, and the environment.

The results of several NRC inspections and independent audits have indicated to the NRC and the ACALA Radiation Protection Staff and Management personnel that deficiencies exist within the program that may demonstrate a lack of sufficient control over commodities containing radioactive material.

The Army recognizes the seriousness of the inadequate corrective actions in the past and the need for complete action at the current time to ensure correction of the radiation protection program deficiencies identified by the NRC, Center for Health Promotion and Preventive Medicine CHPPM, and the last external audit completed by SEG for the ACALA Radiation Protection staff.

This audit plan provides for a baseline assessment of compliance with NRC license conditions, Federal regulations and Army regulations, to determine the nature and extent of program deficiencies and identify specific program areas requiring corrective action. Since proposed program corrective actions from past audits have been ineffective, ACALA has established a group of managers and technical professionals to implement a plan of corrective solutions and has enlisted the support of higher headquarters organizations.

During the week of February 17, an evaluation of the current program status was begun by CHPPM. The primary emphasis of the CHPPM audit will be to evaluate management, management resources, and interfaces as they apply to ACALA's ability to implement the Radiation Protection Program.

1.2 SCOPE

The assessment (audit) will encompass representative elements of the Radiation Protection Program to include a review of license requirements, terms, and conditions for the following NRC Licenses:

- XB001141, Export of Tritium Items
- BML 12-00722-06, H3 in Fire Control on various weapons systems
- BML 12-00722-13, Am241 in M8A1 Chemical Agent Monitor
- BML 12-00722-14, Ni63 in Chemical Agent Monitor
- SUB 1340, U238 in Check Sources

As stated in your letter, the audit "shall determine the Army's compliance with all NRC requirements, and the status of completion of all commitments to which the Army committed in response to NRC enforcement actions issued since January 1, 1992".

Auditors will review records at the ACALA office including previous audit reports, conduct site visits to review program documentation (i.e., inventory and training records, incident reports, standard operating procedures, technical manuals, and programs of instruction for radiation protection training, etc.), interview responsible personnel (i.e., Local Radiation Protection Officers (LRPOs), equipment maintenance personnel, and end users), and observe routine maintenance and handling procedures. Auditors will assess program effectiveness at all levels of the Radiation Protection Program to include responsible activities within the Department of the Army (DA), Army Materiel Command (AMC), Industrial Operations Command (IOC), and the Tank-Automotive and Armaments Command (TACOM). Site visits to field and local commands will include maintenance and user organizations at all applicable echelons (i.e., depot, general support, direct support, and end user unit). Auditors will observe training activities and review training documentation at selected facilities shown in Table 1 below.

Sites will be evaluated by checklists that identify the requirements of the applicable program standards and federal guidance documents shown below. A checklist to be used during site visits will be developed based on the requirements of AR 385-11 and specific license requirements.

- The checklists in Appendix I, *Radiation Protection Program Assessment*, are based on NUREG 0855. The first checklist is aimed at generic points indicated in the NUREG and the second checklist is a more focused document that asks specific questions.

- The checklist in Appendix II is a derivation checklist that was designed for use in auditing a laboratory situation such as the Independent Testing Lab at the Rock Island Arsenal.

- Appendix III are resumes and certification documents to establish the auditors qualifications, including an area of expertise with Army radioactive devices.

The sites to be visited by audit teams included in this evaluation were selected to represent facilities where problems may be identified which are similar in nature to those identified in the past. Other sites to be visited include facilities where no incidents have been reported to the ACALA office.

1.3 REFERENCES

The following references will be used to verify compliance with NRC License requirements, terms, and conditions and Federal and Army regulations.

10 CFR Part 20 Standards for Protection Against Radiation
10 CFR Part 30 Rules of General Applicability to Domestic Licensing of Byproduct Material
10 CFR Part 40 Domestic Licensing of Source Material
29 CFR 1910.120 and 1910.1200 Labor
49 CFR Transportation
AR 385-11 Ionizing Radiation Protection
AR 385-40 Accident Reporting and Records
XB001141, Export of Tritium Items
BML 12-00722-06, H3 in Fire Control on various weapons systems
BML 12-00722-13, Am241 in M8A1 Chemical Agent Monitor
BML 12-00722-14, Ni63 in Chemical Agent Monitor
SUB 1340, U238 in Check Sources

2.0 EVALUATION SCHEDULE

This schedule has begun in a modified form at the Rock Island Arsenal and within the ACALA Safety Office at Rock Island; however, the measurable starting point is contingent upon the NRCs acceptance and approval of an Audit Plan.

2.1 AUDIT SCHEDULE

Due to the widespread use of commodities containing licensed material throughout the military, it is necessary to assess compliance at multiple installations assigned at all levels of the program. The proposed schedule shown below has been developed to ensure maximum program coverage with available resources.

The USA CHPPM audit is scheduled to take place from 18 to 28 February, 1997. All audit activities are expected to be completed no later than 60 days after the NRC has approved this audit plan, with a final audit report provided to the NRC ten days later. This report will include the consolidated findings of the independent auditors, site visits, and the CHPPM organization.

Table 1

Proposed Audit Schedule		
Activity	**Location**	**RPO Name/Telephone**
ACALA	Rock Island, IL	Betty Peterson 309-782-1690
Rock Island (HQ IOC)	Rock Island IL	Kelly Crooks 309-782-0338
Anniston Army Depot	Anniston, AL	Bob Curry 205-235-7544
Radiological Safety Course, 7K-F3, US Ordnance Center and School	Fort McClellan, AL	John May 205-848-5737
Fort Hood, TX Garrison Operations III Corps Headquarters 1st Cav Division Maneuver Brigade Field Artillery Battalion (Technical Supply) 49th Armor Division (Reserve)	Kileen, TX	Mike Scott 817-737-4261 (3725)
Marine Corps Logistics Base	Barstow, CA	Odis Gentry 619-577-6002
Marine Corps Training Center	Camp LeJeune, NC	HQ Marine Safety LtCdr Phil Liotta 703-614-1202
National Training Center & Fort Irwin	Fort Irwin, CA	Ken Evans 619-386-5053
Forces Command Headquarters	Fort McPherson, GA	Lynn Clements 404-464-5764
US Army Reserve Unit Fort McClellan, AL	Anniston, AL 36204	Anna Gibbs 404-629-8654
20th Naval Construction Regiment (Navy)	Gulfport, MS 395xx	Jim Allen 601-871-2896
DA, DLA, CECOM, CHPPM, AMC	Washington, D.C.	John Manfre 717-267-0986

2.2 SITE VISIT SCHEDULE

Due to the lack of reported incidents at certain military locations world-wide, it is necessary to assess the nature of fundamental program awareness and implementation at multiple installations assigned at all levels of the program. The proposed schedule shown below has been developed to ensure maximum program coverage with variable resources.

Table 2

Proposed Site Visit Schedule		
Activity	**Location**	**RPO Name/Telephone**
Marine Corps Units 1st Marine Division Marine Corps Air Ground Combat Center	Camp Pendelton, CA 29 Palms, CA	HQ Marine Safety LtCdr Phil Liotta 703-614-1202
US Army Active Units US Army Training and Doctrine Command Fort Sill US Army Europe (7th Army) 1st Armor Division Southern European Task Force (SETAF)	 Fort Sill, OK Bad Kreuznach, GE Vicenza, IT	 Jeff Isles 405 351-6711 (3856) Gary Ziola 8-370-8124/7751 011-149-622-157-8124 (7751)
US Army War Reserve AWR4	Taegu, Korea	Mr. Colson FKSF-JRC 011-822-7913-6616 (5219) @emh7.Korea.army.mil
National Guard Units 40th Infantry Division Georgia National Guard Idaho National Guard	Sacramento, CA Atlanta, GA Gowen Field, ID	916-854-3039 404-624-6670 208-389-5103
US Army Reserve Units Logistic Support Battalion Garrison Support Unit 2/399A (Prov) Armor Battalion	Fort Sill, OK Fort Sill, OK Bowling Green, KY	Anna Gibbs 404-629-8654

3.0 ASSESSMENT PERSONNEL

3.1 AUDIT PERSONNEL

The audit of the ACALA Radiation Protection Program will be accomplished by Independent Auditors who do not have responsibility for the facility under review. The ACALA Radiation Protection Program has contracted with the firm of Gutierrez-Palmenberg, Inc. (GPI), an environmental services firm based in Phoenix, Arizona, to complete this portion of the comprehensive assessment. GPI specializes in the provision of radiation protection program technical support services, to include quality assurance auditing, NRC and federal requirements interpretation, and health physics support.

GPI auditors are qualified in accordance with ANSI Nuclear Quality Assurance (NQA)-1 standards to thoroughly assess program compliance with applicable license and regulatory requirements and best industry practices. Auditors will have documented experience in the evaluation of objective evidence, and the assessment of radiation protection programs and organizational effectiveness, but will be independent of the Army program being audited.

- Thomas J. O'Dou is certified by the American Board of Health Physics and registered by the National Registry of Radiation Protection Technologists, and is a qualified ANSI NQA-1 Lead Auditor. He has a Bachelor of Science in Radiological Health Physics and a Master of Science in Radiological Science and Protection. Mr. O'Dou has been auditing and assessing radiation protection programs for more than 12 years, managing programs since 1978, and is currently Chairman of the Radiation Safety Committee for GPI's NRC broad scope radioactive materials license. He is the author and instructor for a course on tritium illumination devices which he developed and taught for the Army under the AMCCOM. In the years of 1992 through 1995, he taught over 300 Army RPOs and other radiation protection personnel.

- Dixie Wells is registered by the National Registry of Radiation Protection Technologists and has completed ANSI NQA-1 Lead Auditor training. She has a Bachelor of Science in Engineering and has been working in radiation protection programs for more than 20 years. Ms. Wells has been participating in audits and assessments of radiation protection programs for seven years, has been involved in characterization and remediation for the AMCCOM/IOC since 1992, and is the author of several Agreement State and NRC licenses. She is currently the Radiation Safety Officer for GPI'S NRC broad scope radioactive materials license.

- Cynthia Mueller is qualified as an NQA-1 Auditor. She has a Bachelor of Science degree in Industrial Psychology. She has been conducting onsite auditing of DOE facilities for compliance with the Nevada Test Site radioactive (and hazardous) waste program requirements for over two years. Ms. Mueller has been an NCO in the Army and provides team perspective in military operations.

3.2 SITE VISIT PERSONNEL

The assessments of military site RPOs' familiarity with the ACALA Radiation Protection Program will be accomplished by ACALA personnel skilled in customer support visits and assessing customer satisfaction with ACALA products and services. On-site visits will be accomplished by personnel who have responsibility for neither the site under review, nor implementation of the ACALA Radiation Protection Program.

4.0 AUDIT REPORTS

The audit report will be constructed from completed audit check lists and notes. The reports will identify the commands and facilities visited, the people contacted, the program and license deficiencies.

Each audit finding will be classified by severity and reported as follows:

The most significant deviations from compliance are those which have been reported in the past, and remain uncorrected. These have significant control implications, and require the most substantial resources for resolution. These are termed "program deficiencies". Program deficiencies require completion of a Corrective Action Report and will indicate requirement to consider Command Action.

Those items which indicate deviation from compliance with requirements which have not been significant in the past, but require substantial effort to resolve are termed "deficiencies" and also require completion of a Corrective Action Report.

Those items which are not deviations from requirements, but are practices which could be improved will be highlighted in the text of the audit report. These will be termed "observations" and will require attention of the Radiation Safety Officer. Observations will be individually reported on a Recommendation for Improvement Report.

The consolidated audit report will include the final evaluation of the independent auditor team, the CHPPM evaluation, and the report of site visits.

5.0 REQUESTS FOR SUPPORT

All items which may be required for the evaluation of an activity will be requested in advance. This request will list all items needed by the team in order to ensure timely evaluation of each area of each activity. The following items will be requested for the facilities listed in Tables 1 and 2.

Table 3

Requests For Support	
Activity	Support Needed
ACALA	Current Copies of License and Amendments Policies and Procedures for Handling Devices Records of Past Inspections Interviews with Radiation Safety Officers Current Regulations in Effect Inventory of Devices containing Radioactive Materials Records of Material Disposal Tracking Information for Incidents Conference Room (work area) Access to: Copy machine, Fax machine, Telephone, Printer (PC)
Rock Island Arsenal IOC FORSCOM SOC Others, as directed	Interviews with Radiation Protection Officers Site Specific Procedures Radiation Worker Documentation List of areas where radiation work is done Instrumentation and calibration records Surveys of areas Leak test results Incident reports "Reports of Survey" RPCC minutes ALARA documentation, trending, tracking, etc. Transportation Documentation Radioactive Waste Documentation Procurement and Requisition Records Records of Training ---- Items for Direct Review ---- Laboratory Practices Sample Analysis Practices and Results Device Handling Practices Device Handler Knowledge Storage, Packaging, and Labeling Access to: Copy machine, Fax machine, Telephone, Printer (PC)

Appendix I

Radiation Protection Program Checklists

which includes

Checklist 1 and Checklist 2

RADIATION PROTECTION PROGRAM

ASSESSMENT

Prepared for: Armament and Chemical Acquisition and Logistics Activity

by: Gutierrez-Palmenberg, Inc.

Checklist 1

Based on **NUREG 0855**

February 22, 1997

Activity/Facility Name: _____

Lead Auditor: _____ Date of Assessment: _____

Auditable Documents: _____

PART I

A. Site-Specific Manual
[Indicate installation level and document(s)]

Site-Specific requirements that invoke the requirements of AR 385-11 are issued and endorsed by the facility command.	❒ Yes	❒ No	❒ N/A
The facility command is that person at the facility or site who has final on-site authority.	❒ Yes	❒ No	❒ N/A
The site requirements do not require review or approval by other authorities.	❒ Yes	❒ No	❒ N/A
Additions and supplements to address unique situations or to provide more detailed or prescriptive direction are included only if they do not conflict with or diminish requirements of AR 385-11.	❒ Yes	❒ No	❒ N/A
Management policies, requirements, expectations and objectives for the TACOM-ACALA Radiological Control Program are clearly and unambiguously stated. (or in the listed site specific document).	❒ Yes	❒ No	❒ N/A

B. Application of Requirements

Other facilities/sites have organizations in place that generally meet the requirements presented in the AR 385-11 text. (It is not the intent of the AR 385-11 to unnecessarily create new or separate organizations.)	❒ Yes	❒ No	❒ N/A
The AR 385-11 organization is incorporated into existing site or facility organization.	❒ Yes	❒ No	❒ N/A
AR 385-11 titles, position descriptions and organizational charts are revised to accurately reflect the required radiological responsibilities.	❒ Yes	❒ No	❒ N/A

The degree of program formality and extent of the associated administrative process are commensurate with the radioactive material contamination and dose potential. (Example: A site with an annual collective effective dose equivalent of one person-rem or less, that works with small quantities of unsealed radioactive material, is not expected to have an ALARA program as complex as required at higher dose sites.) ❒ Yes ❒ No ❒ N/A

At low dose sites, some program elements are satisfied by brief policy statements. ❒ Yes ❒ No ❒ N/A

C. User Groups

Contractors (non-military personnel) are encouraged to establish informal working associations that promote dialogue among the Radiological Control Organizations from similar or comparable facilities. ❒ Yes ❒ No ❒ N/A

User Groups include representation from various contractors. ❒ Yes ❒ No ❒ N/A

Assignment of User Group members is on a rotating basis. ❒ Yes ❒ No ❒ N/A

User Group categories include:

a. Uranium device handlers ❒ Yes ❒ No ❒ N/A

b. Environmental Restoration ❒ Yes ❒ No ❒ N/A

c. Tritium device handlers ❒ Yes ❒ No ❒ N/A

d. Waste Management ❒ Yes ❒ No ❒ N/A

e. Radiological Test Labs ❒ Yes ❒ No ❒ N/A

f. Americium device handlers ❒ Yes ❒ No ❒ N/A

g. Nickel device handlers ❒ Yes ❒ No ❒ N/A

h. Other radioactive materials handlers (specify) ❒ Yes ❒ No ❒ N/A

The development of procedures, tech manuals, etc. is coordinated with the Radiation Safety Officers. ❒ Yes ❒ No ❒ N/A

Evaluation of Part I

❒ YES ❒ NO ❒ N/A ❒ OPEN

PART II

A. Leadership in Radiological Control

Qualified personnel use approved procedures and management actively monitors the workplace and assesses ongoing activities.	❒ Yes	❒ No	❒ N/A
Such activities include, but are not limited to operations, laboratory work, research and development, repair and replacement of devices, and cleanup.	❒ Yes	❒ No	❒ N/A
Constant review and informed interest by senior management or command is required to achieve a superior Radiological Control Program.	❒ Yes	❒ No	❒ N/A
Management at all levels emphasizes the need for high standards for radiological control through direct communication, instruction and inspection of the work space	❒ Yes	❒ No	❒ N/A
The DoD Facility Command and the civilian senior site executive responsible have a basic knowledge of radiation, its effects and radiological controls requirements.	❒ Yes	❒ No	❒ N/A
The ACALA Command is familiar with the current radiological performance record.	❒ Yes	❒ No	❒ N/A

B. Senior Management Commitment

TACOM-ACALA establishes high standards for the performance of radiological control. These standards and management expectations are frequently communicated to the work force.	❒ Yes	❒ No	❒ N/A

DoD, DA, AMC and management commitment and support are demonstrated by allocating sufficient resources including personnel and providing for training to ensure workers are qualified for their assigned duties. ❒ Yes ❒ No ❒ N/A

Command, RPOs, etc. ensure that orientation, training, and indoctrination reinforce rules and guidelines for each worker to minimize radiation exposure and control radioactivity. ❒ Yes ❒ No ❒ N/A

TACOM-ACALA holds users and their RPOs, LRPOs accountable for radiological control performance. ❒ Yes ❒ No ❒ N/A

Relevant knowledge and performance are assessed as a specific part of each person's performance evaluation. ❒ Yes ❒ No ❒ N/A

This assessment is not limited to those who perform radioactive work, since many other users have an impact on the Radiological Control Program. ❒ Yes ❒ No ❒ N/A

Command personnel solicit feedback from their radiological control professionals, line management, and users on radiological control performance. ❒ Yes ❒ No ❒ N/A

Command personnel adopt and promote a positive attitude toward radiological control that encourages initiatives to identify concerns at an early stage, to prevent problems from deteriorating and to promote doing the right job correctly the first time. ❒ Yes ❒ No ❒ N/A

Management throughout the TACOM organization is willing to accept change that will improve radiological control and fosters the mindset that prevention of the spread of radioactivity is less costly than remediation. ❒ Yes ❒ No ❒ N/A

TACOM-ACALA management require and approve radiological improvement goals which are measurable, realistic, auditable and challenging. ❒ Yes ❒ No ❒ N/A

Established goals are not changed without technical justification and command approval. ❒ Yes ❒ No ❒ N/A

TACOM-ACALA management reviews progress toward goals at least:

a. Quarterly ❒ Yes ❒ No ❒ N/A

b. Semi-annually ❒ Yes ❒ No ❒ N/A

c. Annually ❒ Yes ❒ No ❒ N/A

A performance indicator program for measuring and trending the effectiveness of the Radiological Control Program against predetermined goals is established and maintained. ❒ Yes ❒ No ❒ N/A

The authority and responsibility to establish a comprehensive and effective radiological control program is assigned to ACALA, RPOs and their subordinates. ❒ Yes ❒ No ❒ N/A

Training, in most cases, is provided by a dedicated training organization, with the responsibility for quality and effectiveness resting with a line or command management. ❒ Yes ❒ No ❒ N/A

ACALA and the RPOs are alert to opportunities for minimizing the generation of radiological waste and discharges to the environment, controlling contamination at its source, and reducing radiation exposure to workers and the public.
(Note: These RPOs are normally at installation level or above.) ❒ Yes ❒ No ❒ N/A

Reporting a problem to a superior (civilian or DoD) does not absolve the manager from promptly fixing or mitigating a situation. ❒ Yes ❒ No ❒ N/A

C. Worker Attitude

Minimizing user exposure can be achieved only if all persons involved in radiological activities have an understanding of and the proper respect for radiation.	❒ Yes	❒ No	❒ N/A
Each worker understands that proper radiological control is an integral part of their daily duties.	❒ Yes	❒ No	❒ N/A
Training personnel are knowledgeable of the work environment and those aspects of radiological control that are important to developing a better worker perspective and support of the improvement of the attitude of the work force.	❒ Yes	❒ No	❒ N/A
The attitude that constant improvement is required in all radiological work has been developed at all levels of management and in the worker and user force.	❒ Yes	❒ No	❒ N/A
Cooperation between the work force and the Radiological Control Organization has been developed and is fostered.	❒ Yes	❒ No	❒ N/A
Workers do not look upon radiological controls as hurdles or restrictions to be bypassed.	❒ Yes	❒ No	❒ N/A
Radiological Control Organization personnel are helpful in showing workers how to follow the rules.	❒ Yes	❒ No	❒ N/A
A spirit of cooperation is developed without subverting the control functions of the Radiological Control personnel.	❒ Yes	❒ No	❒ N/A
Radiological controls are never left solely to the Radiological Control Organization, but are considered a part of management of the Army mission.	❒ Yes	❒ No	❒ N/A

D. Worker Responsibilities

Trained personnel recognize that their actions directly affect contamination control, personnel radiation exposure and the overall radiological environment associated with their work. ❒ Yes ❒ No ❒ N/A

The following radiological control rules are applicable to each person in the workplace. Where applicable, these rules have been proceduralized. Work has been observed and comments noted:

a. Do not loiter in radiation areas. ❒ Yes ❒ No ❒ N/A

b. Do not smoke, eat, drink or chew in Radiation Areas, Contamination Areas, High Contamination Areas, and Airborne Radioactive Areas. ❒ Yes ❒ No ❒ N/A

c. Wear personnel monitoring devices where required by procedures or by radiological control personnel. ❒ Yes ❒ No ❒ N/A

d Report immediately the loss, damage, or unexpected exposure of personnel monitoring devices (or off-scale readings of self-reading dosimeters) to the Radiological Control Organization. ❒ Yes ❒ No ❒ N/A

e. Keep track of your radiation exposure status and avoid exceeding radiological Administrative Control Levels. ❒ Yes ❒ No ❒ N/A

f. Wear personnel protective equipment and clothing properly whenever required. ❒ Yes ❒ No ❒ N/A

g. Minimize the spread of potential radioactive spills and promptly notify the appropriate personnel of all spills. ❒ Yes ❒ No ❒ N/A

h. Report immediately loss, damage, or breakage of equipment containing radioactive material. ❒ Yes ❒ No ❒ N/A

i. Avoid contact of skin, clothing and equipment with contaminated surfaces. ❒ Yes ❒ No ❒ N/A

j. Place contaminated tools, equipment and solid waste items on disposable surfaces, such as plastic sheets, when not in use. ❒ Yes ❒ No ❒ N/A

k. Notify radiological control personnel of alarming or faulty radiological control equipment. ❒ Yes ❒ No ❒ N/A

l. Notify Radiological Control Personnel of off-site occupational radiation exposures so that worker dosimetry records can be updated. ❒ Yes ❒ No ❒ N/A

m. Prior to entering an area, assure that you are mentally alert and in physically sound condition. ❒ Yes ❒ No ❒ N/A

n. Limit the amount of material taken into radiation or contamination areas to minimize radioactive waste and future decontamination. ❒ Yes ❒ No ❒ N/A

o. Upon leaving an area which requires the use of PPE, properly remove the personnel protective equipment and clothing to minimize the spread of contamination. ❒ Yes ❒ No ❒ N/A

p. Frisk or be frisked for contamination when leaving posted Contamination, High Contamination or Airborne Radioactivity Areas and associated Radiological Buffer Areas and notify radiological control personnel when contamination is found. Wash hands when leaving controlled areas. ❒ Yes ❒ No ❒ N/A

q. Obey all posted, written and oral radiological control instructions and procedures. ❒ Yes ❒ No ❒ N/A

r. Obey "Evacuate" and "Stop Work" orders from radiological control personnel promptly. ❒ Yes ❒ No ❒ N/A

E. Radiation and Risk Communications

Due to the continuing concerns related to low radiation exposure and health impacts, command and management personnel should be trained to deal with the concerns of personnel regarding radiation risks.	❒ Yes	❒ No	❒ N/A
DA/Licensee/MACOMs/Installation, its' managers and first-line supervisors take actions which ensure workers know items contain radioactive material and use them properly.	❒ Yes	❒ No	❒ N/A
DA/Licensee/MACOMs/Installation, its' managers and first-line supervisors are sensitive to the fact that workers have to understand the fundamentals of radiation, its risks and their role in minimizing exposure.	❒ Yes	❒ No	❒ N/A
Regulatory limits are not the sole criteria for establishing or defining acceptable work practices and work environments.	❒ Yes	❒ No	❒ N/A
Appropriate personnel receive training which is helpful in their dealing with workers who have anxiety about radiation including the following:	❒ Yes	❒ No	❒ N/A
a. Guidance on handling such personnel interactions.	❒ Yes	❒ No	❒ N/A
b. Emphasis on being factual.	❒ Yes	❒ No	❒ N/A
c. Fundamentals of communicating risks.	❒ Yes	❒ No	❒ N/A
d. Importance of keeping management informed.	❒ Yes	❒ No	❒ N/A
Instances such as discussed above receive special attention on the part of the manager.	❒ Yes	❒ No	❒ N/A
Counseling is available to those personnel.	❒ Yes	❒ No	❒ N/A
In some cases (i.e., Declared Pregnant Woman), Special Control Levels are applied.	❒ Yes	❒ No	❒ N/A

F. Conduct of Radiological Operations

Management at all levels is involved in the planning, scheduling and conduct of radiological work. Assurance of adequate radiological safety is not compromised to achieve production, mission objectives, remediation or research objectives.	❒ Yes	❒ No	❒ N/A
Supervisors are technically knowledgeable, inquisitive and ask questions of the work force concerning details of radiological work to assure and demonstrate worker understanding and comprehension.	❒ Yes	❒ No	❒ N/A
Line managers periodically monitor work areas to observe personnel at work and to identify radiological deficiencies and concerns.	❒ Yes	❒ No	❒ N/A
Frequent inspections and walk-throughs, including off-hours and weekends (where appropriate), are conducted to reinforce management expectations to the work force.	❒ Yes	❒ No	❒ N/A
Managers, supervisors and workers are involved in the development of accurate, clear written procedures and/or tech manuals for performing radiological work, (i.e., shooting a howitzer, which has fire control containing tritium).	❒ Yes	❒ No	❒ N/A
If during the use of procedures, a written requirement cannot be responsibly followed, work is stopped and guidance is obtained.	❒ Yes	❒ No	❒ N/A
Supervisors and managers encourage the work force to identify radiological control deficiencies and concerns.	❒ Yes	❒ No	❒ N/A
Prompt action is taken to address and eliminate identified issues and prevent recurrence utilizing retraining, indoctrination, and procedure review.	❒ Yes	❒ No	❒ N/A
Work conditions are considered in planning work.	❒ Yes	❒ No	❒ N/A

Cleanliness and good housekeeping practices are enforced. ❒ Yes ❒ No ❒ N/A

Cleaning up after operations is automatic for each worker. ❒ Yes ❒ No ❒ N/A

Civilians are treated the same as facility/military staff in the area of radiological matters, having comparable training and meeting the same requirements and expectations. ❒ Yes ❒ No ❒ N/A

Conditions that could cause or promote the spread of contamination are identified and corrected on a priority basis. ❒ Yes ❒ No ❒ N/A

G. Improving Worker Awareness of Radiological Conditions

Workers are familiar with the area radiological conditions and the possibility that changes may occur due to unforseen reasons. ❒ Yes ❒ No ❒ N/A

Maintenance personnel and RPOs (technicians) are properly trained, qualified and capable of performing supplemental radiological surveys. ❒ Yes ❒ No ❒ N/A

The performance of legal record surveys such as release surveys is the responsibility of qualified Radiological Control personnel at a post/camp/station. ❒ Yes ❒ No ❒ N/A

H. Critiques

It is the Department's desire and expectation, based on concern for the safety and well-being of workers and the general public, that radiological work practices be continually scrutinized and questioned so that the opportunities for improvement can be identified, assessed and incorporated into AR 385-11 and Facility and Installation Specific Guidance.

A formal process has been established to obtain pertinent facts following an unusual radiological situation or at the satisfactory conclusion of a new or unusual operation involving radiological controls, such as AR 40-5. ❒ Yes ❒ No ❒ N/A

This process is used to quickly establish facts in chronological order so that the underlying reasons or causes for the success or failure are well understood. ❒ Yes ❒ No ❒ N/A

Work force participation is encouraged. ❒ Yes ❒ No ❒ N/A

Critiques are used as a management tool and not to "fix blame" or "shoot the messenger". ❒ Yes ❒ No ❒ N/A

I. Facility Modifications and Radiological Design Considerations

Radiological control performance is affected by human performance and engineered design features. AR 385-11 primarily addresses the way people operate and use existing facilities and sites.

Designs for new facilities and major modifications to existing facilities are based on the following additional radiological control design criteria: ❒ Yes ❒ No ❒ N/A

a. Individual worker exposure should be ALARA. ❒ Yes ❒ No ❒ N/A

b. Efficiency of maintenance, decontamination and operations should be maximized. ❒ Yes ❒ No ❒ N/A

c. Components should be selected to minimize the buildup of radioactivity. ❒ Yes ❒ No ❒ N/A

d. Support facilities should be provided for donning and removal of protective clothing and for personnel monitoring, where appropriate. ❒ Yes ❒ No ❒ N/A

Facilities/operations currently under construction are evaluated and the above criteria is applied where practicable. ❒ Yes ❒ No ❒ N/A

Locating eating areas, restrooms, drinking fountains, showers and similar facilities and devices within Radiation, Contamination and High Contamination Areas, Airborne Radioactivity Areas, Radioactive Materials Areas and Radiological Buffer Areas is strongly discouraged. ❒ Yes ❒ No ❒ N/A

Steps are taken to preclude unnecessary occupancy of office spaces within these areas to the extent that such space is essential to support radiological work. ❒ Yes ❒ No ❒ N/A

Evaluation of Part II

❒ YES ❒ NO ❒ N/A ❒ OPEN

PART III.

A. Improving Radiological Performance - Radiological Performance Goals

Goals are intended as a measure of and a motivation for improvement, not an end in themselves.	❒ Yes	❒ No	❒ N/A
These performance indicators are not viewed narrowly as numerical goals and are used as tools to assist management and the command in focusing their priorities and attention.	❒ Yes	❒ No	❒ N/A
Person-Rem of Collective Exposure goal is based upon planned activities and historical performance.	❒ Yes	❒ No	❒ N/A
Numbers of Skin and Personal Clothing Contamination Occurrences do not indicate a breakdown of controls intended to prevent the spread of contamination.	❒ Yes	❒ No	❒ N/A
Number of Intakes of Radioactivity are minimized and management focuses attention on any failure of the controls that result in intakes.	❒ Yes	❒ No	❒ N/A
Square Feet of Contaminated Area (within buildings) in existence which need reduction is balanced by the recognition that this generates radioactive waste and the goals of both are correlated when attempting to operate with a smaller contaminated area with fewer personnel contaminations and improved productivity.	❒ Yes	❒ No	❒ N/A
Cubic Feet of Radioactive Waste generation is minimized.	❒ Yes	❒ No	❒ N/A
Curies of Liquid and Airborne Radioactivity Released goals are set to minimize effluents and reduce the environmental impact of DOD operations and costs associated with remediation.	❒ Yes	❒ No	❒ N/A

B. Management of Radiological Performance Goals

The military and/or civilian senior site executive has established, approved and maintains a radiological performance goals program. ❒ Yes ❒ No ❒ N/A

These performance goals are measurable, achievable, auditable, challenging, and meaningful in promoting improvement. ❒ Yes ❒ No ❒ N/A

Radiological performance goals are reviewed at least annually and revised as appropriate. ❒ Yes ❒ No ❒ N/A

More stringent goals are set annually to reflect the improved radiological performance at the facility or installation with consideration that occasionally a goal may be made less stringent to accommodate changes in work load or mission. ❒ Yes ❒ No ❒ N/A

. Radiological Performance Reports

The Radiological Protection Officer provides a periodic summary report to the senior personnel for sites which have unplanned exposures. ❒ Yes ❒ No ❒ N/A

The report may contain the following indicators as well as tracking and trending for the period. ❒ Yes ❒ No ❒ N/A

Exposure Control

a. Collective Dose ❒ Yes ❒ No ❒ N/A

b. Average worker dose ❒ Yes ❒ No ❒ N/A

c. Maximum dose to a worker ❒ Yes ❒ No ❒ N/A

d. Number of unplanned exposures resulting in doses greater than the Administrative Control Level. ❒ Yes ❒ No ❒ N/A

e. Number of dose assessments for lost or damaged dosimeters. ❒ Yes ❒ No ❒ N/A

Personnel Contamination

a. Number of skin and personnel clothing contamination.	❒ Yes	❒ No	❒ N/A
b. Number of contaminated wounds.	❒ Yes	❒ No	❒ N/A
c. Number of facial contaminations.	❒ Yes	❒ No	❒ N/A
d. Type of device involved in the contamination.	❒ Yes	❒ No	❒ N/A
e. Radioactive isotope involved in the contamination	❒ Yes	❒ No	❒ N/A

Control of Internal Exposure

a. Number of positive bioassays.	❒ Yes	❒ No	❒ N/A
b. Number of airborne events.	❒ Yes	❒ No	❒ N/A
c. Number of alarms on airborne monitors (actual and false).	❒ Yes	❒ No	❒ N/A
d. Number of Airborne Radioactivity Areas.	❒ Yes	❒ No	❒ N/A
e. Area of Airborne Radioactivity Areas in square feet.	❒ Yes	❒ No	❒ N/A

Control of Contaminated Areas in Operational Areas

a. Number of Contamination and High Contamination Areas.	❒ Yes	❒ No	❒ N/A
b. Area of Contamination Areas in square feet.	❒ Yes	❒ No	❒ N/A
c. Area of High Contamination Areas in square feet.	❒ Yes	❒ No	❒ N/A
d. Number of spills.	❒ Yes	❒ No	❒ N/A

Minimization of Radioactive Waste

a. Volume and activity of radioactive waste in cubic feet and Curies, respectively.	❒ Yes	❒ No	❒ N/A
b. Number of cubic feet not subject to volume reduction by incineration, compaction or other means.	❒ Yes	❒ No	❒ N/A

Control of Radioactive Discharges

a. Activity of liquid radioactivity discharges in Curies. ❒ Yes ❒ No ❒ N/A

b. Activity of airborne radioactivity discharges in Curies. ❒ Yes ❒ No ❒ N/A

Evaluation of Part III

❒ YES ❒ NO ❒ N/A ❒ OPEN

PART IV

A. Assessments

Assessment, as used in this document, refers to the process of providing independent feedback to TACOM-ACALA, RPOs, and Senior line managers to indicate the adequacy of the Radiological Control Program.	❒ Yes	❒ No	❒ N/A
Internal and external inspections, audits, reviews, investigations and self-assessments are part of the numerous checks and balances in place to assure a good Radiological Control Program.	❒ Yes	❒ No	❒ N/A
Internal audits of the Radiological Control Program are conducted such that over a 3-year period, all functional elements are assessed for program performance, applicability, content and implementation.	❒ Yes	❒ No	❒ N/A
These audits are performed by the Radiological Control Organization, the Quality Assurance Organization and other organizations.	❒ Yes	❒ No	❒ N/A
Assessments are approached with nothing to hide and with the Radiological Control Program as an open book.	❒ Yes	❒ No	❒ N/A
All personnel have access to the findings from these assessments.	❒ Yes	❒ No	❒ N/A
Results of these assessments are incorporated into the ongoing process of improving radiological control.	❒ Yes	❒ No	❒ N/A
Managers encourage the positive view that identifying even minor deficiencies represents an opportunity for further improvement.	❒ Yes	❒ No	❒ N/A
The number of deficiencies are not in themselves used to measure the overall quality of the Radiological Control Program.	❒ Yes	❒ No	❒ N/A

A prioritization system to implement actions for resolving the deficiencies is implemented. ❒ Yes ❒ No ❒ N/A

In developing corrective action plans for assessment activities, the command and its' managers address basic underlying reasons for the identified deficiencies or concerns, not just the specific symptoms identified by the reviewer. ❒ Yes ❒ No ❒ N/A

Feedback on findings from assessments, root-cause analyses, status of corrective actions and adherence to action plan schedules is frequently provided up-line. ❒ Yes ❒ No ❒ N/A

B. Workplace Awareness

Management initiatives to facilitate the expression of concerns on the part of the work force, to address such concerns and to solve them are strongly encouraged to ensure the proper respect for and understanding of radiation. ❒ Yes ❒ No ❒ N/A

A *Radiological Awareness Reports* system, such as Net Alerts, is established and supported by management. ❒ Yes ❒ No ❒ N/A

The program enhances work force awareness by encouraging continuous evaluation and improvements, tracking the resolution of concerns, providing feedback to employees and posting results and trends. ❒ Yes ❒ No ❒ N/A

C. Internal Exposures

Control and prevention of internal exposure from long-lived radionuclides in the workplace present special challenges to a Radiological Control Program and warrant particular attention. Even though internal exposure is measured in the same units as external exposure and carries the same risk per unit effective dose equivalent, the perception exists that it is of greater significance since the exposure is the result of radioisotopes retained within the body. Administration of internal dose assessment is costly in dollars and worker time. Control of analysis of samples is also more complicated than the elements of external dosimetry.

In order to minimize internal exposures, RPOs, LRPOs, and worker supervisory personnel take deliberate actions to control contamination at the source and reduce Airborne Radioactivity, Contamination and High Contamination Areas.	❒ Yes	❒ No	❒ N/A
Work is planned to avoid the routine use of respiratory protection devices.	❒ Yes	❒ No	❒ N/A
Internal exposures are reduced to the minimum practicable level and the following is considered:	❒ Yes	❒ No	❒ N/A
a. Workers exposure to unanticipated levels of elevated airborne radioactivity.	❒ Yes	❒ No	❒ N/A
b. Collecting representative airborne radioactivity samples and the time required may contribute to worker intakes of radioactivity.	❒ Yes	❒ No	❒ N/A
c. Internal depositions of radionuclides can occur in a short period of time if controls fail.	❒ Yes	❒ No	❒ N/A
d. Continued exposure to airborne radioactivity of workers over extended periods of time can create worker concerns.	❒ Yes	❒ No	❒ N/A
e. The difficulty in measuring doses from some internal radionuclides.	❒ Yes	❒ No	❒ N/A
f. Some long-lived radionuclides, such as uranium and americium, require years for accurate measurements of hundreds of mrem.	❒ Yes	❒ No	❒ N/A
g. Mechanical intervention, such as administration of blocking and chelating agents, to mitigate internal deposition adds risks by introducing additional chemicals into the body.	❒ Yes	❒ No	❒ N/A

h. Sampling of body excretions and whole body or organ counting techniques encourage worker perceptions of internal exposure significance. ❒ Yes ❒ No ❒ N/A

E. ALARA Committee

The As-Low-As-Reasonably-Achievable (ALARA) process of reducing radiation exposures is a fundamental part of the facility and/or installation's Radiological Control Program. ❒ Yes ❒ No ❒ N/A

An ALARA (or equivalent) Committee has been established. ❒ Yes ❒ No ❒ N/A

An effective position, such as Director of Operations, serves as the Chair and its' membership includes personnel in positions to make decisions and commitments for their departments or divisions.. ❒ Yes ❒ No ❒ N/A

The Committee makes recommendations to management to improve progress toward minimizing radiation exposure and radiological releases. ❒ Yes ❒ No ❒ N/A

The Committee evaluates items such as construction and design of facilities and systems, planned major modifications or work activities, as well as experimental test plans for exposure, waste, and release minimization. ❒ Yes ❒ No ❒ N/A

The Committee receives, as a minimum, the results of all reviews and audits, both internal and external, and reviews the overall conduct of the Radiological Control Program. ❒ Yes ❒ No ❒ N/A

Evaluation of Part IV

❒ YES ❒ NO ❒ N/A ❒ OPEN

PART V

A. Radiological Control Organization

Within the structure of the Army, there are various levels of the RCO. Questions will be answered based on which portion of the program is reviewed. The structure or program level(s) will be indicated (by Name), such as; local/installation/depot/licensee.

The Radiological Control Organization is independent of the line organizational element responsible for production, operation or research activities and has an equivalent reporting level. ❒ Yes ❒ No ❒ N/A

Program Level: _____

The RPO or Senior Line Manager responsible for operations at the facility/installation is assigned radiological control personnel dedicated to the facility. ❒ Yes ❒ No ❒ N/A

Program Level: _____

Consistency of radiological control is evident at the facility. ❒ Yes ❒ No ❒ N/A

Program Level: _____

The Radiological Protection Manager has access to the command or senior site executive for radiological control matters. ❒ Yes ❒ No ❒ N/A

Program Level: _____

B. Radiological Protection Manager Qualifications

The Radiological Protection Manager is an experienced professional in radiological control and familiar with the design features and operations of the facility/installation that affect the potential for exposures of persons to radiation. ❒ Yes ❒ No ❒ N/A

The Radiological Protection Manager has the technical competence and experience to establish radiological control programs and the supervisory capability to direct the implementation and maintenance of those programs. ❒ Yes ❒ No ❒ N/A

The Radiological Protection Manager has, at a minimum, a bachelor's degree or the equivalent in science or engineering, including some formal training in radiological control. (Advanced academic degrees can count as experience where course work related to radiological control is involved).

❒ Yes ❒ No ❒ N/A

The Radiological Protection Manager has at least three years of professional experience in applied radiological control work. (Certification by the American Board of Health Physics provides equivalency to the above).

❒ Yes ❒ No ❒ N/A

The Radiological Protection Manager has met the minimum qualifications in education, experience, and training, as prescribed in AR 385-11. Please note specifics.

❒ Yes ❒ No ❒ N/A

In situations where the most effective manager for this position does not satisfy the above qualifications, special arrangements are made such as the assignment of a deputy with the requisite expertise and qualifications to satisfy the requirement.

❒ Yes ❒ No ❒ N/A

Management provides persons assigned to or being considered for the Radiological Protection Manager a structured program leading to certification by the American Board of Health Physics.

❒ Yes ❒ No ❒ N/A

C. Radiological Control Organization Functions and Staffing

The senior staff of the Radiological Control Organization includes health physicists and other professionals with four-year degrees in science or engineering.

❒ Yes ❒ No ❒ N/A

A continuing training program is established.

❒ Yes ❒ No ❒ N/A

Pursuit of certification by the American Board of Health Physics for senior and professional staff members is encouraged.

❒ Yes ❒ No ❒ N/A

Radiological support personnel have the technical qualifications pertinent to their assigned duties. (i.e. Provision of health physics and radiological engineering, dosimetry, bioassay, independent oversight, instrumentation and calibration functions). ❒ Yes ❒ No ❒ N/A

D. Radiation Program Personnel Qualifications

The Installation (level) RPO is qualified in accordance with: (List documents or courses of qualification.) ❒ Yes ❒ No ❒ N/A

The Maintenance Personnel are qualified in accordance with: (List documents or courses of qualification.) ❒ Yes ❒ No ❒ N/A

The User Personnel are qualified in accordance with: (List documents or courses of qualification.) ❒ Yes ❒ No ❒ N/A

E. Relationship Between Radiological Control Personnel and Workers

Radiological Control personnel function well in assisting and guiding workers in the radiological aspects of the job. ❒ Yes ❒ No ❒ N/A

Radiological workers are sufficiently qualified to recognize the symptoms of deteriorating radiological conditions and to seek advice from Radiological Control personnel. ❒ Yes ❒ No ❒ N/A

Radiological Control personnel have the authority and take responsibility for stop work or mitigation of an activity if they suspect that the initiation or continued performance of a job, evolution, or test will result in the violation of radiological control standards or result in imminent danger or unacceptable risk. ❒ Yes ❒ No ❒ N/A

Workers are not absolved of their responsibility for properly conducting radiological aspects of the job by the actions or presence of Radiological Control Personnel. ❒ Yes ❒ No ❒ N/A

Radiological Control Personnel are not present to compensate for poor management of the work force and are not required to do so. ❒ Yes ❒ No ❒ N/A

F. Marginal Radiological Control Performance

When radiological control performance is less than adequate, consideration is given to strengthening management and the Radiological Control Organization to provide adequate radiological control. ❒ Yes ❒ No ❒ N/A

If a poorly trained work force exists, they participate in an accelerated training initiative(s). ❒ Yes ❒ No ❒ N/A

In the case of a work force not having the required level of sensitivity for radiological work practices, additional management attention is given to assure the proper outcome. ❒ Yes ❒ No ❒ N/A

Line management is held accountable for implementation of the Radiological Control Program with initial actions including: ❒ Yes ❒ No ❒ N/A

a. More direct line supervision in the work space. ❒ Yes ❒ No ❒ N/A

b. Curtailment of work schedules. ❒ Yes ❒ No ❒ N/A

c. Deferral of work. ❒ Yes ❒ No ❒ N/A

d. Addition of extra radiological control personnel. ❒ Yes ❒ No ❒ N/A

e. Conduct of additional training. ❒ Yes ❒ No ❒ N/A

Evaluation of Part V

❒ YES ❒ NO ❒ N/A ❒ OPEN

PART VI

A. Independent Radiological Control Performance Oversight

The Office of TACOM-ACALA Safety effectively carries out its responsibility to provide independent radiological control performance oversight, on behalf of the Department of the Army, through the following:	❒ Yes ❒ No ❒ N/A
Uses AR 385-11 as its basis document.	❒ Yes ❒ No ❒ N/A
Assesses DoD Programs and Depot/Installation performance of their line management responsibilities for implementation and maintenance of radiological controls as detailed in AR 385-11.	❒ Yes ❒ No ❒ N/A

Evaluation of Part VI

❒ YES ❒ NO ❒ N/A ❒ OPEN

RADIATION PROTECTION PROGRAM

ASSESSMENT

Prepared for: Armament and Chemical Acquisition and Logistics Activity

by: Gutierrez-Palmenberg, Inc.

Checklist 2

Based on **NUREG 0855**

February 22, 1997

Activity/Facility Name: _____

Lead Auditor: _____ Date of Assessment: _____

Auditable Documents: _____

1.0 RADIATION PROTECTION ORGANIZATION and MANAGEMENT

Description

Is there an organizational chart depicting the command, installation and local radiation protection organization? ❒ Yes ❒ No ❒ N/A

Does the chart clearly show that the Radiation Protection Officer (RPO) has a direct reporting chain to the Facility/Installation Commander? ❒ Yes ❒ No ❒ N/A

Are the persons who may be assigned to the following functional areas of Radiation Program activity specified by position or title:

a. Radiological environmental survey and monitoring. ❒ Yes ❒ No ❒ N/A
b. Personnel monitoring. ❒ Yes ❒ No ❒ N/A
c. Recordkeeping and retention. ❒ Yes ❒ No ❒ N/A
d. Radiation protection. ❒ Yes ❒ No ❒ N/A

Are there command personnel specified who will augment the facility/installation emergency staff in the following areas:

a. Environs monitoring. ❒ Yes ❒ No ❒ N/A
b. Logistics support (e.g., equipment and supplies procurement) ❒ Yes ❒ No ❒ N/A

Are there civilian and private organizations who may be requested to provide technical assistance to and augmentation of the Radiation Protection organization specified during emergency situations? ❒ Yes ❒ No ❒ N/A

Scope of Responsibilities

Are the responsibilities assigned to the radiation protection organization described? Where? Has Commander concurred? ❒ Yes ❒ No ❒ N/A

Are there collateral or supplementary responsibilities performed by the radiation protection organization that are not reflected in the formal assignment of responsibilities? If so, what are they and what % of time is devoted to each? ❒ Yes ❒ No ❒ N/A

Is there a clear assignment of authorities and responsibility within the radiation protection organization? ❒ Yes ❒ No ❒ N/A

Does the radiation protection organization have adequate authority to ensure that the radiation protection program is implemented (e.g., enforce adherence to procedures, stop work, etc.)? ❒ Yes ❒ No ❒ N/A

Is there documentation of actual responsibilities, authorities and reporting chains in the job descriptions of radiation protection personnel? ❒ Yes ❒ No ❒ N/A

Are job descriptions (e.g., responsibilities, authorities and reporting chains) understood by the individuals to whom they apply and by other personnel in the command? ❒ Yes ❒ No ❒ N/A

Are there any other individuals in the radiation protection organization assigned responsibilities for maintaining the Radiation Protection program to include emergency response capabilities? If so, what are the responsibilities? Positions? ❒ Yes ❒ No ❒ N/A

Do the individuals in the radiation protection organization charged with responsbilities for maintaining Radiation Protection preparedness have adequate authority to ensure program implementation? ❒ Yes ❒ No ❒ N/A

Are the interfaces between and among the onsite (TACOM-ACALA or equivalent) and offsite (installation or local) areas of Radiation Protection program activity clearly understood? ❒ Yes ❒ No ❒ N/A

Is there a clear reporting chain for emergencies and emergency response to <u>any</u> incident? Documentation? Command level interface? ❒ Yes ❒ No ❒ N/A

Staffing

Is there adequate staffing(numbers) of radiation protection functional areas at TACOM-ACALA level? ❒ Yes ❒ No ❒ N/A

Is there adequate staffing(numbers) of radiation protection functional areas at installation/local levels? ❒ Yes ❒ No ❒ N/A

Is there adequate staffing(numbers) of radiation protection functional areas at facility/depot levels? ❒ Yes ❒ No ❒ N/A

Is the overall staffing level of radiation protection management and staff adequate to perform assigned responsibilities within the normal workload? Installation/local level/depot/licensee. Indicate which is being assessed. ❒ Yes ❒ No ❒ N/A

Is there adequate administrative support to relieve technical personnel from clerical duties?
Installation/local level/depot/licensee. Indicate which is being assessed. ❒ Yes ❒ No ❒ N/A

Is there sufficient technical support at the command level?
Installation/local level/depot/licensee. Indicate which is being assessed. ❒ Yes ❒ No ❒ N/A

Are adequate radiation protection resources (e.g., time, manpower, and money) devoted to the emergency preparedness program? To the routine program? Note other deficiencies in this area. ❒ Yes ❒ No ❒ N/A

Evaluation of 1.0

Comments/Findings/Results

2.0 PERSONNEL SELECTION, QUALIFICATION, and TRAINING

Selection Criteria

Are there formal selection criteria for all positions in the radiation protection organization. ❒ Yes ❒ No ❒ N/A

Do the criteria relate to the job (job description) which the individual is expected to perform? ❒ Yes ❒ No ❒ N/A

Do the criteria include measurable formal education and experience factors? ❒ Yes ❒ No ❒ N/A

Are the criteria actually used in the contracting, hiring, and promotion process? ❒ Yes ❒ No ❒ N/A

Are personnel aware of the selection criteria, methods, and requirements for promotion? ❒ Yes ❒ No ❒ N/A

Qualification Criteria

Are there qualification requirements for each position in the radiation protection organization? ❒ Yes ❒ No ❒ N/A

Are there qualification requirements for persons not in the licensee's radiation protection organization, but who may provide civilian support to it. ❒ Yes ❒ No ❒ N/A

Do individuals in the radiation protection program (licensee and civilian) meet qualification requirements? ❒ Yes ❒ No ❒ N/A

Training Program

Are the qualification criteria used as a basis for the development of the qualification training program? ❒ Yes ❒ No ❒ N/A

Do the training and retraining programs include:

a. Frequency? ❒ Yes ❒ No ❒ N/A
b. Scope/content? ❒ Yes ❒ No ❒ N/A
c. Student performance objective (qualification requirements)? ❒ Yes ❒ No ❒ N/A
d. Schedules and lesson plans? ❒ Yes ❒ No ❒ N/A
e. Student demonstration of attainment of standards? ❒ Yes ❒ No ❒ N/A
f. Record maintenance? ❒ Yes ❒ No ❒ N/A
g. Qualification of instructors? ❒ Yes ❒ No ❒ N/A

Are appropriate personnel required to undertake training/qualification, such as:

a. Radiation Protection Officer(s)? ❒ Yes ❒ No ❒ N/A
b. Alternate RPOs and Local RPOs? ❒ Yes ❒ No ❒ N/A
c. Managers/supervisors? ❒ Yes ❒ No ❒ N/A
e. Depot maintenance? ❒ Yes ❒ No ❒ N/A
f. Radiation workers? ❒ Yes ❒ No ❒ N/A

Is the scope of the training provided to each categaory adequate in content, nature, and length? ❒ Yes ❒ No ❒ N/A

Does the training include an appropriate level of knowledge of military, fire control and/or radioactive control systems? ❒ Yes ❒ No ❒ N/A

Are adequate instructions provided on procedures including reasons and bases for the procedures? ❒ Yes ❒ No ❒ N/A

Is instruction provided on the capabilities and limitaitons of instrumentation (fixed and portable) (e.g., duct monitors and field gradients)? ❒ Yes ❒ No ❒ N/A

Is training provided for special or unique activities (e.g., special maintenance)? ❒ Yes ❒ No ❒ N/A

Does the training program encompass the minimum following content:

a. General duties? ❒ Yes ❒ No ❒ N/A
b. Responsbilities vs. Job? ❒ Yes ❒ No ❒ N/A
c. Reporting/communication chain? ❒ Yes ❒ No ❒ N/A
d. Theory and practicum? ❒ Yes ❒ No ❒ N/A
e. Facility/installation? ❒ Yes ❒ No ❒ N/A
f. Site specific or job specific? ❒ Yes ❒ No ❒ N/A
g. Related industrial and rad safety? ❒ Yes ❒ No ❒ N/A
h. Job-related systems? ❒ Yes ❒ No ❒ N/A
I. Specific related procedures? ❒ Yes ❒ No ❒ N/A
j. Special protection (i.e., respiratory, PPE)? ❒ Yes ❒ No ❒ N/A
k. ALARA? ❒ Yes ❒ No ❒ N/A

Are the operators of the various counting and analysis systems properly and adequately trained in their use, and qualified to operate them? ❒ Yes ❒ No ❒ N/A

Is there an adequate operator training and qualifications course for all level maintenance personnel? ❒ Yes ❒ No ❒ N/A

Is formal on-the-job training available at appropriate intervals for all individuals? ❒ Yes ❒ No ❒ N/A

Is there a retraining, requalification, and trainng up to the state of the art for required personnel in new instrumentation/devices and its full range of capabilities? ❒ Yes ❒ No ❒ N/A

Are special surveys, unusual conditions, uncommonly encountered radiations, and non-routine survey locations adequately covered in training? ❒ Yes ❒ No ❒ N/A

Is there a retraining program for all aspects of the use of fixed and semi-fixed instrumentation? ❒ Yes ❒ No ❒ N/A

Is the licensee required to have a documented emergency plan training program? If so, is that documentation in place? ❒ Yes ❒ No ❒ N/A

Does the training include information on what might be expected under unusual conditions (e.g., componenets and areas with high contamination levels, magnitudes of radiation increases, changed nuclide composition, etc.)? ❒ Yes ❒ No ❒ N/A

Is there adequate training of personnel in suveillance under accident conditions, including use of equipment, interpretation of results, personnel access control, and special precautions? ❒ Yes ❒ No ❒ N/A

Are initial training and periodic retraining programs provided to each of the following categories of emergency personnel?

a. Personnel responsible for radiological assessment, ❒ Yes ❒ No ❒ N/A
b. Radiological enviromental survey and monitoring teams, ❒ Yes ❒ No ❒ N/A
c. Chemistry (contamination and exposure control for *hot* samples), ❒ Yes ❒ No ❒ N/A
d. Repair/corrective action teams. ❒ Yes ❒ No ❒ N/A

Are there approved, forman lesson plans for each category of training as a supplement to the procedure? ❒ Yes ❒ No ❒ N/A

Are the instructors qualified? ❒ Yes ❒ No ❒ N/A

Evaluation of 2.0

Comments/Findings/Results:

3.0 EXPOSURE CONTROL

External Exposure Control

Dosimetry Program

Is there an external radiation dosimetry system suitable for the radiation exposure types and levels anticipated during routine or non-routine work operations? ❒ Yes ❒ No ❒ N/A

Are there adequate facilities for reading, processing, storing, and calibrating all types of dosimeters in use? ❒ Yes ❒ No ❒ N/A

Are adequate equipment and facilities available to perform non-routine dosimetry and exposure control functions? ❒ Yes ❒ No ❒ N/A

Is there capability to determine skin exposure by measurement or modeling? ❒ Yes ❒ No ❒ N/A

Are there suitable techniques to measure photon energies of greater than 3 MeV and less than 80 keV? ❒ Yes ❒ No ❒ N/A

Is there a system as backup or are there alternate offsite facilities if needed? ❒ Yes ❒ No ❒ N/A

Are exposure records kept up to date? ❒ Yes ❒ No ❒ N/A

Is information dissemination timely and accurate? ❒ Yes ❒ No ❒ N/A

Is there a dedicated exposure records system? ❒ Yes ❒ No ❒ N/A

Exposure Review

Are reviews of exposure data performed routinely by management? ❒ Yes ❒ No ❒ N/A

Are exposure trends plotted and reviewed for feedback in exposure control? ❒ Yes ❒ No ❒ N/A

Are exposure rates and integrated exposures evaluated against 10 CFR 20 and ALARA as a routine review? ❒ Yes ❒ No ❒ N/A

Exposure Limitations

Administrative

Are there procedures which clearly establish and convey required actions and action levels? (e.g., administrative exposure limits)? ❒ Yes ❒ No ❒ N/A

Do procedures clearly reflect the existing regulations and recognize the ALARA concept? ❒ Yes ❒ No ❒ N/A

Are procedures written and disseminated for use and application by appropriate personnel regarding posting of various hazardous or potentially hazardous areas in accordance with 10 CFR 20? ❒ Yes ❒ No ❒ N/A

Are areas accurately identified, posted, and controlled? ❒ Yes ❒ No ❒ N/A

Physical

For alarmed access areas, are periodic tests performed for assurance of operation and function? ❒ Yes ❒ No ❒ N/A

Are physical barriers reviewed on a regular basis? ❒ Yes ❒ No ❒ N/A

Quality Assurance

Is an active quality assurance element present? ❒ Yes ❒ No ❒ N/A

Is it managed and reviewed at an appropriate frequency and level? ❒ Yes ❒ No ❒ N/A

Is calibration of instruments, devices, and processed a part of or reviewed by the person charged with quality assurance? ❒ Yes ❒ No ❒ N/A

Is quality assurance extended to the review of procedures? ❒ Yes ❒ No ❒ N/A

Are quality assurance reviews extended into work recently performed? ❒ Yes ❒ No ❒ N/A

Are there suitable feedback procedures to suitable levels of the command? ❒ Yes ❒ No ❒ N/A

Internal Exposure Controls
Dosimetry Program

Are there sufficient types of biosurveillance techniques and counting facilities to make a reasonable assessment of internal bioburdens of radionuclides? ❒ Yes ❒ No ❒ N/A

Are models or claibration capabilities available to ensure accuracy and reproducibility of measured findings? ❒ Yes ❒ No ❒ N/A

What biosurveillance capabilities are available:

a. Whole body counting? ❒ Yes ❒ No ❒ N/A
b. Thyroid counting? ❒ Yes ❒ No ❒ N/A
c. Urinalysis? ❒ Yes ❒ No ❒ N/A
d. Fecal analysis? ❒ Yes ❒ No ❒ N/A
e. Blood activity? ❒ Yes ❒ No ❒ N/A
f. Others? ❒ Yes ❒ No ❒ N/A

What radiation types are detectable by each system? ❒ Yes ❒ No ❒ N/A

Are sensitivities adequate to assess Annual Limit of Intake (ALIs)? ❒ Yes ❒ No ❒ N/A

Does equipment have adequate energy or radiation type discrimination capability?

Are procedures adequate to reduce or control against cross-contamination of samples or of counting facilities? ❒ Yes ❒ No ❒ N/A

Are dose estimations or dose factor calculations maintained as a matter of record? ❒ Yes ❒ No ❒ N/A

Are records maintained up to date and with suitable cross-reference? ❒ Yes ❒ No ❒ N/A

Exposure Review

Are radiation exposure dose limits for routine and non-routine events maintained ALARA? ❒ Yes ❒ No ❒ N/A

Are survey and internal exposure data on an individual adequately compared? ❒ Yes ❒ No ❒ N/A

Are incidents of personnel contamination documented and followed up with a causal evaluation? ❒ Yes ❒ No ❒ N/A

Are the records reviewed for possible exposure investigation? ❒ Yes ❒ No ❒ N/A

Are the investigation records complete and maintained? ❒ Yes ❒ No ❒ N/A

Exposure Limitations
Administrative

Are uptake limits considered in the establishment of administrative and physical barrier controls? ❒ Yes ❒ No ❒ N/A

Are methods and calculations for results using uptake limits documented? ❒ Yes ❒ No ❒ N/A

Are procedures well defined for determining need for protective clothing and equipment? ❒ Yes ❒ No ❒ N/A

Are procedures well defined to control or prevent cross-contamination of both facilities/installations and personnel? ❒ Yes ❒ No ❒ N/A

Do adequate procedures exist to establish authorized personnel in a controlled area? ❒ Yes ❒ No ❒ N/A

Are procedures defined for posting areas where controlled access, airborne, or other contamination are known to exist? ❒ Yes ❒ No ❒ N/A

Do the procedures clearly specify the need for exposure review relative to the specification of dosimetry and/or barriers? ❒ Yes ❒ No ❒ N/A

Surveillance Program

Scope

Is there a clear definition and basis of the surveillance activities? ❒ Yes ❒ No ❒ N/A

Are procedures for performing routine and periodic surveys and surveillance well defined? ❒ Yes ❒ No ❒ N/A

Do the procedures for performance adequately reflect instrument selection. ❒ Yes ❒ No ❒ N/A

Responsibility

Are there any special surveillance or unusually complex surveillance tasks performed by another facility or a civilian firm? If so, are they well described and defined? ❒ Yes ❒ No ❒ N/A

Are surveillance routines reviewed with regard to both necessity and frequency consistent with good health physics practices and regulatory requirements? ❒ Yes ❒ No ❒ N/A

Types

Does the surveillance program include provisions for radiation, airborne, and contamination surveys? ❒ Yes ❒ No ❒ N/A

Are the various types consistent with the hazards and work conditions as specified in the procedures and program basis? ❒ Yes ❒ No ❒ N/A

Records

Are surveys and surveillance activities documented? ❒ Yes ❒ No ❒ N/A

Are documented surveys clearly written and is traceability suitably indicated as to instrument, person performing measurement, locations, date, time, and other pertinent conditions? ❒ Yes ❒ No ❒ N/A

Is there timely and adequate feedback of analytical results to user groups? ❒ Yes ❒ No ❒ N/A

Instrument Suitability and Use

Is there an adequate complement of instrumentation for the performance of the Health Physics surveillance program to minimum standards required by the regulations and license specifications? ❒ Yes ❒ No ❒ N/A

Are calibrations up to date? ❒ Yes ❒ No ❒ N/A

Have operational checks been developed and adopted for field use? ❒ Yes ❒ No ❒ N/A

Is there an adequate complement of semi-fixed and fixed (dedicated) instrumentation?	❒ Yes ❒ No ❒ N/A
Are calibration checks and procedures adequate?	❒ Yes ❒ No ❒ N/A
Are calibrations traceable to a recognized standard?	❒ Yes ❒ No ❒ N/A

Evaluation of 3.0

Comments/Findings/Results:

4.0 RADIOACTIVE WASTE MANAGEMENT SYSTEM

Program Responsibility

Is the responsibility for radioactive waste management assigned? ❒ Yes ❒ No ❒ N/A

Is the responsibility assigned at a sufficiently high level? ❒ Yes ❒ No ❒ N/A

Is there proper attention, review, and management oversight? ❒ Yes ❒ No ❒ N/A

Waste Processing Systems
Liquid and Gaseous

Are checks, tests, and laboratory analysis performed on HEPA filters and charcoal adsorber systems? ❒ Yes ❒ No ❒ N/A

Are checks, tests, and laboratory analysis performed on installed air-cleaning systems not specifically listed. ❒ Yes ❒ No ❒ N/A

Do procedures exist for moving and discharging liquid and/or gaseous effluents? Specify. ❒ Yes ❒ No ❒ N/A

Are the sample collection media and the delivery systems adequate regarding constant gaseous monitors? ❒ Yes ❒ No ❒ N/A

Are items of supply evaluated and properly coded by maintenance personnel (waste or non-waste)? ❒ Yes ❒ No ❒ N/A

Are maintenance personnel knowledgeable of RPO and RPO process for accepting radioactive waste? ❒ Yes ❒ No ❒ N/A

Are the samples representative? ❒ Yes ❒ No ❒ N/A

Solid Waste Processing Disposition

Does a volume-reduction program exist at the installation? If so, has it been effective? ❒ Yes ❒ No ❒ N/A

Is solid waste processed, packaged, and shipped in a timely manner so as to avoid the unnecessary build-up of waste materials? ❒ Yes ❒ No ❒ N/A

Evaluation of 4.0

Comments/Findings/Results:

5.0 ALARA PROGRAM

Program Establishment

Is there a written management policy or commitment to ALARA? ❒ Yes ❒ No ❒ N/A

Are there written administrative procedures to implement the ALARA policy? ❒ Yes ❒ No ❒ N/A

Do installation equipment and design features incorporate ALARA concerns? ❒ Yes ❒ No ❒ N/A

Are the responsibility and authority assigned to an individual in upper management or a command position? ❒ Yes ❒ No ❒ N/A

Facility/Equipment Design Features

Are ventilation systems adequate? ❒ Yes ❒ No ❒ N/A

Is surface contamination controlled adequately? ❒ Yes ❒ No ❒ N/A

Are decontamination methods effective? ❒ Yes ❒ No ❒ N/A

Integration with Radiation Protection Program

Is there adequate preparation and planning incorporated in work activities? ❒ Yes ❒ No ❒ N/A

Are health physicists involved in the planning of work activities? ❒ Yes ❒ No ❒ N/A

Is cleanup of leakage/spillage and material which is contaminated given thorough decon treatment to reduce further spread of contamination? ❒ Yes ❒ No ❒ N/A

Evaluation of 5.0

Comments/Findings/Results:

6.0 HEALTH PHYSICS FACILITIES AND EQUIPMENT

Facilities

Radiation Protection

Are suitable areas available at appropriate locations for:

a. Offices? ❒ Yes ❒ No ❒ N/A
b. Instrument storage? ❒ Yes ❒ No ❒ N/A
c. Dosimetry? ❒ Yes ❒ No ❒ N/A
d. Maintenance of equipment containing radioactive sources? ❒ Yes ❒ No ❒ N/A

Does the licensee have provisions for offsite decontamination of personnel? ❒ Yes ❒ No ❒ N/A

Do adequate calibration facilities exist for the portable equipment? ❒ Yes ❒ No ❒ N/A

Is the medical facility adequately equipped to handle contaminated workers? ❒ Yes ❒ No ❒ N/A

Testing Laboratories

Do the physical facilities for the laboratory functions meet the design criteria? ❒ Yes ❒ No ❒ N/A

Are suitable areas available at appropriate locations for:

a. Analysis? ❒ Yes ❒ No ❒ N/A
b. Sampling storage? ❒ Yes ❒ No ❒ N/A

Are sampling areas available for safe and efficient collection of:

a. Tritium oxides? ❒ Yes ❒ No ❒ N/A
b. Airborne effluent? ❒ Yes ❒ No ❒ N/A
c. Low energy beta emitters? ❒ Yes ❒ No ❒ N/A
d. Alpha emitters? ❒ Yes ❒ No ❒ N/A

Does the licensee have and maintain an adequate depot maintenance facility, (e.g., fume hoods, analysis equipment, storage, locations, etc.)? ❒ Yes ❒ No ❒ N/A

Does the licensee have and maintain adequate maintenance and storage facilities at user installations? ❒ Yes ❒ No ❒ N/A

Are they secure? ❒ Yes ❒ No ❒ N/A

For tritium, is storage outside , if at all possible? ❒ Yes ❒ No ❒ N/A

Evaluation of 6.0

Comments/Findings/Results:

7.0 COMMAND OVERSIGHT

Within the structure of the Army, there are various levels of the RCO. Questions will be answered based on which portion of the program is reviewed. The structure or program level(s) will be indicated (by Name), such as; local/installation/depot/licensee.

Command Adequacy

Planning

Are plans completed before being implemented? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Does planning consider radiation protection aspects? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Are objectives to be accomplished clearly stated? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Are the resources needed to implement plans clearly defined? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Are policies outlined and procedures and guidelines established as part of the planning process? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Are milestones and check points established? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Is worker input included in the planning process? ❒ Yes ❒ No ❒ N/A
Program Level: _____

Do plans include time phasing of radiation protection aspects into the developmental and fielding cycle: ❒ Yes ❒ No ❒ N/A
Program Level: _____

Organizing

Are priorities set? ❒ Yes ❒ No ❒ N/A

Is the method for setting priorities adequate? ❒ Yes ❒ No ❒ N/A

Directing

Are there policy statements and/or guidance documents issued for plans and programs to the individuals having responsibility for program implementation? ❒ Yes ❒ No ❒ N/A

Coordinating

Does the facility or installation command coordinate with license personnel? ❒ Yes ❒ No ❒ N/A

Controlling

Are standards of performance established, documented, and communicated to those responsible for meeting the standards? (For example, AR 385-11, AR 40-14, AR 40-5). ❒ Yes ❒ No ❒ N/A

Is substandard performance promptly corrected? ❒ Yes ❒ No ❒ N/A

Is there a formal audit program? ❒ Yes ❒ No ❒ N/A

Are there self-audits and independent audits? ❒ Yes ❒ No ❒ N/A

Evaluation of 70

Comments/Findings/Results:

8.0 GENERAL PROCEDURES DEVELOPMENT

Format and Amendment Process

Is there a procedure and amendment format document that responds to published guidance? If so, which guidance documents? ❒ Yes ❒ No ❒ N/A

Job Task Analysis

Is there an established priority in which jobs are to be evaluated? ❒ Yes ❒ No ❒ N/A

Is the job broken down into elements or individual steps? ❒ Yes ❒ No ❒ N/A

Are all of the contact possibilities identified? ❒ Yes ❒ No ❒ N/A

Procedural Requirements Established

Do the procedures for each task meet selections and training criteria and the applicable operating criteria? Are the procedures responsive to supervisory problems? ❒ Yes ❒ No ❒ N/A

Are there sufficient check points in written procedures to ensure that steps are being done correctly? ❒ Yes ❒ No ❒ N/A

Do procedures give users clear instructions for all anticipated conditions? Are instructions easy to follow? ❒ Yes ❒ No ❒ N/A

Are procedures written in such a way as to ensure that the step is in an order-of-logic sequence? ❒ Yes ❒ No ❒ N/A

Evaluation of 8.0

Comments/Findings/Results:

Appendix II

Laboratory In-Use Modified Checklist

Used at Rock Island Arsensal to audit the

Independent Testing Laboratory

Depot or Installation RPO or Designee:

The following items of support have been chosen to help GPI in the audit/assessment of your program and some portion of its' elements. We understand that these are not all that your program consists of and your program elements are not being evaluated solely on their existence or contents. Please feel free to advise us if you have additional elements that you believe will aid in an accurate evaluation.

---- Items for Direct Review ----

Laboratory Practices

a. What are the isotopes that are normally handled in your laboratory?
b. Are your lab practices covered under an ACALA license or permitted from an NRC license?
c. Provide a brief list of your lab practices.

Sample Analysis Practices and Results

See c. above

Device Handling Practices/Device Handler Knowledge

a. Types of devices (by military and *popular* nomenclature, if appropriate).
b. Procedures and discussion regarding the proper handling of the devices.
c. Demonstration of device handling, if possible.

Storage, Packaging, and Labeling

a. Do you perform any storage, packaging or labeling?
b. Does IOC provide a complete service to you?
c. Do you retain any copies of the records prepared (if you do not do your own)?

Inventory of the Radioactive Materials

a. See comments on Storage, Packaging and Labeling
b. How do you perform and record an accurate inventory of devices that you repair and return to the field.

Instrumentation and Calibration Records

a. Types and purpose of instruments used in your program.
    1. List radiacs.
b. Personnel dosimetry and dosimetry processor
    1. Types (TLD, film badge, etc)
    2. Processor certification (NVLAP, DOELAP, equivalent?) Show equivalency.

Surveys of Areas

a. How many areas? Of what type?
b. Permanent or temporary areas. Square footage involved in both.
c. Types and periodicity of documentation.
d. Postings.

Leak Test Results

a. Periodicity of leak tests.
b. Results and actions taken based on those results, if necessary.
c. Documentation and notification or reporting, if necessary.

Incident Reports

a. Criteria for incident reporting?
b. Incident occurrences?
c. Level of notification.
d. Documentation

"Reports of Survey"

----Items for Discussion or Indirect Review----

1. Interview with Radiation Protection Officers or any designee to that position

2. Site Specific Procedures, which would also include the primary reference AR 385-11 and appropriate NRC documents.

3. Radiation Worker Documentation

4. List of areas where radiation work is done

5. IRCC minutes

6. ALARA documentation, trending, tracking, etc.

7. Transportation Documentation/Radioactive Waste Documentation

8. Procurement and Requisition Records

ONLY those elements which deal with your program will be evaluated. All others will be marked N/A.

Appendix III

CPI Auditor Qualifications

Which includes

Resumes and Certifications

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Cynthia L. Mueller	**Education:** **Degree/Year/Specialization** BA 1989 Industrial Psychology
Project Assignment: QA Auditor	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** OSHA Hazardous Materials Training American Society for Quality Control RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **4** yr. With other Firms **12** yrs.	

Other experience and qualifications relevant to the proposed project:

Ms Mueller is Manager of GPI's Las Vegas Operations. She is responsible for managing all technical support services provided to DOE organizations from the Las Vega Operations Office. Among these services are included the following:

- Reviewing applications, waste profiles, and supporting documentation for dispoal of low-level radioactive waste,
- Conducting audit and surveillance activities, and facility evaluations for defense waste generators approved for shipment to the Nevada Test Site (NTS),
- Developing waste characterization and certification programs,
- Technical consulting with regard to radioactive and mixed waste treatment/storage/disposal options.

Ms. Mueller has also served as Deputy Program Manager for GPI's Sierra Vista operations where she was responsible for:

- Technical support,
- Allocation of resources,
- Scheduling,
- Monitoring of project status and progress.

She trained and supervised the performance of subordinates, as well as interfacing weekly with customers and technical representatives regarding project requirements, technical issues, project scheduling, and contract coordination.

Prior to serving in this position, Ms. Mueller was Assistant Project Leader and Intelligence Analyst at Sierra Vista. Here she developed and validated a comprehensive process model and performed following functions:

- Documented all inputs, outputs, constraints on, and mechanism necessary to produce intelligence at all echelons for the US Army,
- Conducted technical research and documented requirements for Army Intelligence systems to ensure compatibility with appropriate systems and architectures,
- Prepared non-standard documentation in support of technical requirements,
- Conducted document review, technical evaluations, and investigative surveys,
- Produced reports documenting;
  - Analytical methodology,
  - Results,
  - Conclusions,
  - Recommendations,

  for future actions in support of DoD requirements.

Ms. Mueller's previous experience provides an extensive background in research and quality assurance including:

- Fourteen years in conducting technical research, data compilation and reduction, detailed analysis, and technical report preparation,

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Cynthia L. Mueller	**Education:** **Degree/Year/Specialization**
Project Assignment: QA Auditor	BA 1989 Industrial Psychology
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** OSHA Hazardous Materials Training American Society for Quality Control RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **4** yr. With other Firms **12** yrs.	

Other experience and qualifications (continued):

- Ten years experience in requirements documentation and assessment,
- Six years experience in conducting compliance assessments/audits, documenting results, and recommending corrective action programs,
- Three years experience in program management for federal contracts,
- Knowledgeable of DOE Orders, federal and state regulations governing low-level radioactive and mixed waste operations,
- familiar with DOE/NV and Nevada Test Site Operations pertaining to waste handling and disposal,
- Hands-on experience as an auditor for Waste Management Division's Radioactive Waste Acceptance Program.

Ms. Mueller has been actively expanding her areas of expertise into the environmental arena, taking college courses in environmental restoration technologies. She is actively involved in the affairs of the DOE/NTS community serving as member of the RWAP team and Process Improvement Steering Committee, as coordinator for the DOE/NV Radioactive Waste Generator Workshop.

Ms. Mueller has sought to expand her level of qualifications with the incorporation of several external training courses to enhance her current abilities and prepare her for future responsibilities. Among these courses are: ISO-9000 Series, Quality Team training, and DOT Waste Broker.

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Dixie J. Wells	**Education:** **Degree/Year/Specialization** BS 1986 Electrical Engineering BA 1968 English
Project Assignment: Radiation Safety Officer	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** Registered Radiation Protection Technologist OSHA Hazardous Materials Training INPO Qualified HPES Coordinator RCRA Hazardous Waste Regulation NQA-1 Auditor
Years Experience: With this Firm **1** yr. With other Firms **23** yrs.	

Other experience and qualifications relevant to the proposed project:

Ms. Wells has more than 20 years experience in the nuclear industry. Her function in the GPI organization is as Radiation Safety Officer (RSO), a position she has performed previously. The RSO is responsible for implementation of GPI's radiological controls and safety program, including the following:

- Order any operation suspended when it presents an imminent radiological or safety threat or hazard to employees, the general public, or to the environment,
- Review, investigate, and document an abnormalities in the environmental monitoring data, or bioassay data,
- Establish standards and guidelines to comply with requirements and regulations.
- Submit license application(s) and amendments to Federal and/or State regulatory agency(ies), including application and maintenance of any required permits,
- Act as liaison with regulatory authorities; available for assistance in inspections and audits, and make required notifications to authorities,
- Establish, review, and approve procedures for radiological protection and monitoring,
- Perform as Health and Safety Officer for field projects, as required,
- Perform assigned project and field audits,
- Ensure radiological controls documentation required by license is complete and accurate,
- Investigate radiological incidents and assist in the development of corrective action plans in the areas of radiological controls and environmental protection,
- Implement GPI's ALARA Plan:
  - Ensure standards for protection of personnel, to maintain exposure to ionizing radiation and radioactive contamination ALARA,
  - Review procedures and planned work in the developmental stage to ensure inclusion of ALARA principles,
  - Provide selection criteria for equipment, supplies, and services for radiological controls and safety, and monitoring personnel for radiation exposure.

In conjunction with this function, Ms. Wells has written, processed and received both NRC and Agreement State Radioactive Materials Licenses. She has accomplished this for GPI, ATG, and other companies, as a contractor.

Ms. Wells prepares work project characterizations, complete all work package definition (Health and Safety Plan, QA Plan and Detailed Work Plan), and writes pertinent reports for a project. some of the specific support she provides, includes:

- Project preparation of radioactive material characterizations and RSO/Health and Safety Officer for decontamination/decommissioning projects,
- Health Physics technical support for decontamination, decommissioning, and radioactive waste volume reduction projects,
- Health Physics Radiological Administrator for facilities doing radioactive waste brokering, radioactive waste volume reduction, and radioactive materials decontamination and decommissioning.

Ms. Wells has field experience in several areas of radioactive waste, including

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Dixie J. Wells	**Education:** **Degree/Year/Specialization** BS 1986 Electrical Engineering BA 1968 English
Project Assignment: Radiation Safety Officer	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** Registered Radiation Protection Technologist OSHA Hazardous Materials Training INPO Qualified HPES Coordinator RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **1** yr. With other Firms **23** yrs.	

processing, packaging, shipping, decontamination/decommissioning, volume reduction, and preparation, submittal, and approval of work packages.

Other experience and qualifications (continued):

Ms. Wells presents many shills from the field of nuclear power operations and health physics. Based on her many years of success in that arena, some of those skills are:

- Special Projects Engineer as Vice-Chairman for the NRC Region III 10 CFR 20 Working Group responsible for implementing the changes to 10 CFR 20 including conducting training sessions for the inspectors,
- Certified Human Performance (HPES) Evaluator and Coordinator,
- Radiological assessor during the implementation of a QA Deviation Event Record system at Fermi 2 Nuclear Power Plant,
- Contractor coordinator and administrator for refueling outage radiation control and decontamination personnel,
- Internal dosimetry specialist, supervising personnel in routine and security in processing operations,
- Radiation Protection shift supervisor,
- Established policy and procedures for Radiological Assessor.

Ms. Wells has performed as a Human Performance Evaluator in accordance with standards set by the INPO. She has written and presented dozens of evaluations that were required by the NRC or an Agreement State to meet a response to finding(s) or concern(s). During the course of fact-finding for an evaluation, all parameters are considered therefore these evaluations are used to address technical/mechanical, personnel, or environmental findings. In most cases, the results are used by the regulating authority to bring closure to an identified finding or failure.

Other primary operational skills include 10 CFR 50.59 qualifications. this training has prepared her to perform, review, and document Safety Analysis Reports (SAR) and/or Final Safety Analysis Reports (FSAR) in support of any Federal or State radioactive materials operation license. The specifics of "50.59" focus on review of design and construction documents and proceed to the end product operation. They document and authorize the manner in which an operation shall be performed in order to comply with the design of the system and the federal or state requirements regulating that operation. this also established the tolerances for personnel performance within that operation.

In addition to her extensive background in power plant operations, she received training from and worked with DoD (USN) for several years. Within the last few years, she has been involved in characterization, processing and remediation work the AMCCOM/IOC division of the AMC command at Rock Island. The projects involve recovery or remediation of many of the radioactive devices currently managed under the ACALA radioactive materials licenses.

Ms. Wells has written papers and articles on waste processing and management. She has prepared brochures, flyers, and similar advertising media for radwaste volume reduction, processing treatment, storage, transportation and burial. She has worked with the public in the form of lectures and presentations. She has also written and published white papers dealing with the implementation of the changes to 10 CFR 20.

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Thomas J. O'Dou	**Education:** **Degree/Year/Specialization** MS 1981 Radiological Sciences and Protection BS 1974 Radiological Health Physics
Project Assignment: Project Manager	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** Certified Health Physicist Registered Radiation Protection Technologist OSHA Hazardous Materials Training RESRAD Certified Training RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **1** yr. With other Firms **21** yrs.	

Other experience and qualifications relevant to the proposed project:

Mr. O'Dou has extensive project field experience serving as Project Manager for government contracts that were completed 'ahead of time' and 'under budget'. In coordination with his technical background, he has served as the project technical advisor and liaison.

Mr. O'Dou prepares work project characterizations, completes all work package definition (Health and Safety Plan, QA Plan and Detailed Work Plan), and writes all pertinent reports for a project. Some of the specific support he provides, includes:

- Project management of radioactive material characterization and decontamination/decommissioning projects,
- Health Physics technical support for decontamination, decommissioning, radioactive waste volume reduction projects,
- Health Physics program administrator for facilities during radioactive waste brokering, radioactive waste volume reduction, and radioactive materials decontamination and decommissioning.

Mr. O'Dou also provides expertise in several areas that augment and enhance radiological talents, such as:

  - RESRAD (RESidual RADioactive) certified in accordance with the Radiological Health Risk Section Environmental Assessment Division of Argonne National Laboratory. RESRAD is a computer code developed at ANL for US DOE to calculate;
    - Site specific cleanup criteria,
    - Radiation dose and excess lifetime cancer risks to an on-site resident (a maximally exposed individual or a member of a critical population group).

- Development of unique instrumentation, build instrument systems, and calibration of instrumentation,
- Develop and conduct training programs for customers as needed;
  - Author and instructor for a course of instruction entitled *Basic Radiation Protection and Tritium Illumination Devices*. This course was developed for US Army-AMCCOM and was taught to over 300 Radiation Protection Officers and personnel from 1992 to 1995.
- Assess company radiation protection programs and customer programs as required,
- Project dosimetry, field operations procedures; preparation, review and approval.

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Thomas J. O'Dou	**Education:** **Degree/Year/Specialization** MS 1981 Radiological Sciences and Protection BS 1974 Radiological Health Physics
Project Assignment: Project Manager	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** Certified Health Physicist Registered Radiation Protection Technologist OSHA Hazardous Materials Training RESRAD Certified Training RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **1** yr. With other Firms **21** yrs.	

Mr. O'Dou has an extensive background in computers, computer programming and in writing training software. He maintains technical cognizance over software that he has written for use in a variety of health physics fields, such as:

- For use in educational advancement;
  - HPEXAM for ABHP Certification,
  - RPEXAM for NRRPT Certification,
- Operational Health Physics practice;
  - SOURCES for radioactive source accountability and control,
  - RAD-STORE for accountability in radioactive material storage,
  - RAD-AWARE for awareness report tracking,
  - RAD-SPOTS for radiation hot-spot tracking.
- Theoretical Health Physics operations;
  - SEARCH, a radionuclide database for emission identification,
  - DK, a simple radioactive decay calculator,
- Developmental Health Physics;
  - RWP, a program developed for radiation work permit creation and management which has been expanded to meet the needs of Los Alamos National Laboratory. Mr. O'Dou has developed an expanded program to write, track, inventory radiological parameters, and interface with the contract TLD service to allow LANL complete cognizance and control over their radiological controls division.

Other experience and qualifications (continued):

From his 20 years of continued success in the files on nuclear power operations and health physics, Mr. O'Dou brings many skills to this arena. Among them are:

- Utilizing continuous assessment of a radiological control operation, he provides evaluation of program direction and makes recommendations for improvement,
- Provides technical and administrative assistance to effect improvement of a Radiological Control Section,
- He managed a Health Physics Branch at a Naval Shipyard which consisted of eleven (11) professional and technical personnel. This branch processed dosimetry for 2000 radiation workers at that facility, was well as maintaining control of dose records for radiation workers
- He has served as a Radiological Control Ombudsman, Radiological Control Program advisor, as a member of the Radiological and Chemistry subcommittee of the Company Nuclear Review Board and Radiological Health Advisory Board, and other similar technical positions.

Date: 2/97

Brief resume of key persons, specialists and individual consultants for this project.	
Name: Thomas J. O'Dou	**Education:** **Degree/Year/Specialization** MS 1981 Radiological Sciences and Protection BS 1974 Radiological Health Physics
Project Assignment: Project Manager	
Name of firm with which associated: Gutierrez-Palmenberg, Inc.	**Active Registration:** Certified Health Physicist Registered Radiation Protection Technologist OSHA Hazardous Materials Training RESRAD Certified Training RCRA Hazardous Waste Regulations NQA-1 Auditor
Years Experience: With this Firm **1** yr. With other Firms **21** yrs.	

Mr. O'Dou has been published in several professional publications; such as, *Radiation Protection management, The Ohio Engineer,* and *HPS Journal.* In addition, he has written and/or presented papers at *Waste Management '95, Health Physics Society Meetings,* and *Ohio Engineer's Symposium.*

Date: 2/97

DOCUMENTATION OF TECHNICAL SUBJECT MATTER EXPERTISE

Instructor:
Thomas O'Dou

Title/Content of Course: Basic Radiation Protection and Tritium Illumination Devices

Nature of Audience: Radiation Protection Officers and Radiation Safety Officers from US Army, Navy, Air Force, Marines, National Guard and Coast Guard

Length of Course/ Number of Instructional Hours in Course: 24 Hours (3 days)

Description of Course Contents: This course is designed for Radiation Protection Officers and Radiation Safety Officers in all branches of national service. The topics covered include:

a) Regulatory Overview
b) Radiological Terms and Definitions
c) Biological Effects of Radiation
d) Exposure Limits
e) Routes of Entry
f) Radiation Control Methods
g) Sources of Radiation
h) Personnel Monitoring
i) Dosimetry Programs
j) Radioactive Waste Management
k) Waste Volume Reduction
l) Contamination Control
m) Decontamination
n) Emergency Actions

Name of Agencies Trained: US Army, Navy, Air Force, Marines, National Guard and Coast Guard

L. MARVIN JOHNSON and ASSOCIATES, INC.

Certification

PROFESSIONAL QUALITY ASSURANCE
LEAD AUDITOR
32 CEUs

L Marvin Johnson and Associates, Inc. **certifies that**

DIXIE J. WELLS

has successfully demonstrated by examination knowledge of the principles of quality assurance auditing as delineated in ANSI N45.2 or NQA-1.

Presented this day November 1
in the year of Nineteen Hundred and Ninety -six **at** the Marriott Courtyard in Las Vegas, Nevada.

L. Marvin Johnson
Proctor

L. MARVIN JOHNSON and ASSOCIATES, INC.

Certification

PROFESSIONAL QUALITY ASSURANCE
LEAD AUDITOR
32 CEUs

L. Marvin Johnson and Associates Inc. certifies that

THOMAS J. O'DOU

has successfully demonstrated by examination knowledge of the principles of quality assurance auditing as delineated in ANSI N45.2 or NQA-1.

Presented this day June 14
in the year of Nineteen Hundred and Ninety -six at
the Courtyard Marriott in Las Vegas, Nevada.

Proctor

L. Marvin Johnson

CERTIFICATE OF COMPLETION

This certifies that

Thomas J. O'Dou

has completed 24 hours of classroom training on the

RCRA HAZARDOUS WASTE REGULATIONS

Training conducted by

McCoy and Associates, Inc.

October 28, 29 & 30, 1996

Las Vegas, Nevada

Drew L. McCoy

Signature of Instructor

U. S. Department of Energy
Argonne National Laboratory

Recognizes

Tom O'Dou

for the successful completion of the

RESRAD Training Workshop

March 27-28, 1996
Los Alamos, NM

DOE Program Manager | ANL Project Leader | Primary Course Instructor

Certificate of Completion

Presented to

Thomas J. O'Dou

In Recognition of Having Successfully
Completed the 8-Hour Refresher Course
for

Hazardous Waste Operations

at ATG, Inc

Awarded this 2nd day of November, 1995

Chad Beeler

Manager of Health and Safety, ATG
99A Midway Lane, Oak Ridge, TN 37830

MEDICAL COLLEGE OF OHIO

THIS CERTIFIES

THOMAS J. O'DOU

PARTICIPATED IN THE EDUCATIONAL PROGRAM

TOPICS IN RADIOLOGICAL HEALTH FOR PHYSICIANS

JANUARY 19-20, 1990

William J. Potvin, Ph.D.
Course Director

Frank P. Saul, Ph.D.
Associate Dean, Continuing Medical Education

The Medical College of Ohio and Associated Teaching Hospitals (Mercy Hospital, St. Vincent Medical Center, The Toledo Hospital) designate this CME activity for 7 credit hours in Category 1 of the Physician's Recognition Award of the American Medical Association

This program has been reviewed and is acceptable for 6 prescribed hours by the American Academy of Family Physicians

This program has been approved for 7 credit hours in Category 2 D of the American Osteopathic Association

Gutierrez - Palmenberg, Inc.

This is to certify that

Thomas J. O'Dou

Has successfully completed the:

Standard First Aid and CPR Recertification

Conducted by:
Gutierrez - Palmenberg, Inc.

This Ninth *Day of* January *1997*

GPI

97001-6-01-007

Certificate Number

James E. Marissanti
Field Supervisor/Safety

THE UNIVERSITY OF TEXAS AT AUSTIN

COLLEGE OF ENGINEERING
CONTINUING ENGINEERING STUDIES

This is to certify that

Thomas J. O'Dou

has completed an engineering program on

Techniques in Nuclear Radiation Shield Analysis
April 30-May 4, 1990

Herbert H. Woodson
Dean of Engineering

CERTIFICATE OF COMPLETION

This certifies that

Dixie Wells

has completed 3.1 CEU (31 hours) on the RCRA hazardous waste regulations entitled

AVOIDING THE MOST COMMON MISTAKES IN WASTE IDENTIFICATION

GENERATOR ISSUES

ADVANCED RCRA TOPICS

RCRA LAND DISPOSAL RESTRICTIONS: STEP-BY-STEP COMPLIANCE

WHAT'S NEW IN RCRA

Courses given by

McCoy and Associates, Inc.

September 16, 17, 18, 19 & 20, 1996

San Diego, California

Dan E. McCoy

Signature of Instructor

Paul v. Gallagher

Signature of Instructor

Gutierrez - Palmenberg, Inc.

This is to certify that

Dixie J. Wells

Has successfully completed the:

Standard First Aid and CPR Recertification

Conducted by:
Gutierrez - Palmenberg, Inc.

This Ninth *Day of* January, 1997

97001-6-01-008

Certificate Number

James E. Ma[illegible]ssanti,,
Field Supervi[illegible]r/Safety

L. MARVIN JOHNSON and ASSOCIATES, INC.

Certification

PROFESSIONAL QUALITY ASSURANCE
LEAD AUDITOR
32 CEU's

L Marvin Johnson and Associates, Inc **certifies that**

CYNTHIA MUELLER

has successfully demonstrated by examination knowledge of the principles of quality assurance auditing as delineated in ANSI N45.2 or NQA-1.

Presented this day June 16
in the year of Nineteen Hundred and Ninety -five **at**
Harrah's in Las Vegas, Nevada.

L. Marvin Johnson
Proctor

L. Marvin Johnson

CERTIFICATE OF COMPLETION

This certifies that

Cindy Mueller

has completed 3.1 CEU (31 hours) on the RCRA hazardous waste regulations entitled

AVOIDING THE MOST COMMON MISTAKES IN WASTE IDENTIFICATION

GENERATOR ISSUES

ADVANCED RCRA TOPICS

RCRA LAND DISPOSAL RESTRICTIONS: STEP-BY-STEP COMPLIANCE

WHAT'S NEW IN RCRA

Courses given by

McCoy and Associates, Inc.

June 10, 11, 12, 13 & 14, 1996

Seattle, Washington

Drew T. McCoy

Signature of Instructor

Paul V. Gallagher

Signature of Instructor

Certificate

Cynthia L. Mueller

satisfactorily completed training requirements specified in USNRC Bulletin 79-19 and USDOT 49 CFR 172 Subpart H for shipping hazardous and radioactive materials during the January 29- February 2, 1996 on-site class conducted for GPI in Las Vegas, NV.

Charles H. Smith, President
Applied Radwaste Management, Inc.
100 Mill Pond Road, P.O. Box 2225, West Columbia, SC 29171