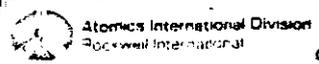


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DOCUMENT TITLE Facilities Dismantling Plan for DORF, Diamond Ordnance Radiation Facility		ORIGINAL ISSUE DATE																																					
PREPARED BY, DATE, DEPT, MAIL ADDR J. M. Harris <i>J.M.H.</i> - 10/23/79 0/731 T034		GO NO. 04764	S/A NO. 20100																																				
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I. OBJECTIVE

The objective for dismantlement and radioactive decontamination of the Diamond Ordnance Radiation Facility (DORF) is to place it in a condition acceptable for release for unrestricted use. Reactor components will be packaged and shipped to the Department of Energy (DOE) at Hanford, Washington. All radioactive materials and components will be removed and decontaminated for release for unrestricted use, or packaged for disposal as radioactive waste and delivered to a licensed burial site. Areas of the facility and materials released for unrestricted use will be decontaminated to levels which are as low as reasonably achievable (ALARA), but in all cases to levels below those described in Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86, Table 1. The methodology in decontamination for release for unrestricted use as stated in this guide will be followed. As part of the ALARA program, Rockwell has established the limits shown in Table 2 as their target for compliance with this contract. The limits are based on experience regarding levels that in most cases are reasonable achievable and can be effectively monitored.

TABLE 2

ROCKWELL INTERNATIONAL/ENERGY SYSTEMS GROUP
CONTAMINATION LIMITS FOR DECONTAMINATION & DISPOSAL OF DORF

	TOTAL	REMOVABLE
Beta-Gamma Emitters	0.1 mrad/hr average ^a and 0.3 mrad/hr maximum ^b at 1 cm with 7 mg/cm ² absorber	100 dpm/100 cm ²
Alpha Emitters	100 dpm/100 cm ²	20 dpm/100 cm ²

^aMeasurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each such object.

^bThe maximum contamination level applies to an area of not more than 100 cm².



II. SCOPE OF PLAN

The scope of this Dismantling Plan is to delineate the activities necessary to realize the objectives stated in Section I. The activities are categorized as: planning, monitoring, and control; radiological survey; dismantlement and disposal; and documentation.



III. PLANNING, MONITORING, AND CONTROL

The activities which comprise the dismantlement of DORF will be initiated, monitored and controlled by the Rockwell Site Manager at DORF. The site manager will also have the overall technical responsibility for the dismantling activities and will be the onsite interface for all contacts with the Army's Site Contracting Officer or his representative. The DORF D&D organization structure is shown in Figure 1. The Rockwell Radiation and Nuclear Safety representative will be responsible for radiological surveys and survey data analyses. Records of significant radiation surveys and analyses will be made available to the Contracting Officer or his representative.

A schedule listing the specific tasks and the proposed sequence for performance is presented in Table 3. The estimated level of manpower and milestones for these activities are included for information. The milestone schedule will serve as the criteria to measure progress in dismantling DORF.

The Operational Safety Plan on Decontamination and Disposal at DORF is attached as Appendix A. It contains the radiation safety, industrial hygiene, and industrial safety procedures in support of the activities described in this Dismantling Plan.

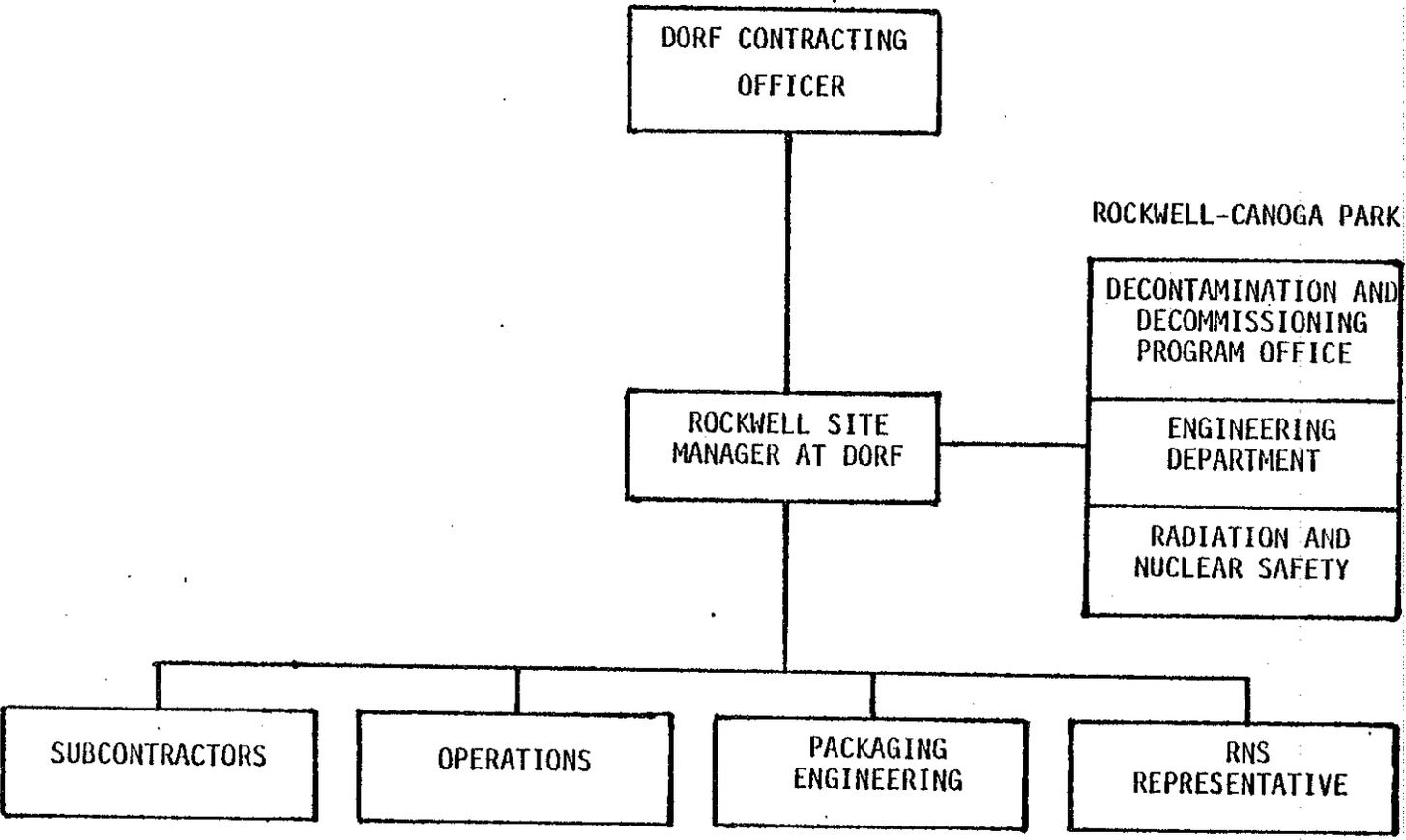


FIGURE 1. DORF D&D ORGANIZATION CHART

FORM 719.P REV. 3-75



IV. RADIOLOGICAL SURVEY

A radiological survey will be made to assess the extent of radioactivity present in the facility. This assessment will include the grounds which surround the facility to establish and record conditions at the site before beginning the dismantling activities.

Radiological surveys will be conducted before and during the Phase II work only to provide information for guidance in determining (1) what areas are radioactive, (2) when sufficient material has been removed to release these areas for unrestricted use, and (3) personnel surveillance.

The comprehensive radio-isotopic analysis appended to the Request for Quotation (RFQ) as Appendix IV was an estimate of the radioactive material remaining in the DORF structure as of the spring of 1978. This will serve as a guide and will be used as a qualitative indication of the presence of radioactivity.



V. DISMANTLEMENT AND DISPOSAL

The scope of work required to dismantle DORF is presented, followed by a description of the principal tasks required to accomplish the Phase II and III work defined in the RFQ. The tasks will be performed in the order shown in Table 3 if practicable. Overlap of the schedule tasks will occur as required to maintain continuity in the overall program.

A. DISMANTLEMENT SCOPE OF WORK

Activities required to accomplish the dismantlement of DORF include: (1) surveying and recording the radiological condition of the facility and surrounding grounds to define the existing condition; (2) the analysis and disposal of the core tank water per 10 CFR 20 limits; (3) the removing, packaging and shipping of the reactor components listed in Table 4 of this plan; (4) removing, packaging, and shipping to a licensed burial site the radioactive materials and components referenced in the RFQ and those generated during the dismantlement of DORF; (5) removing and disposing of the nonradioactive components or materials listed in Paragraph F.4.1 (a through g) of the RFQ (Note that (h) is included in Activity 3 above); (6) removing and delivering the jib-crane to the AURORA facility; and (7) the Health Physics support necessary to assure compliance with NRC Regulatory Guide 1.86 and 10 CFR 20.

B. PHASE II

1. Site Preparation

The site preparation task includes those activities required to move the ESG staff and their equipment to the site and to establish a base of operations. A radiation survey of the nonradioactive portions of the site will be conducted for documentation. An analysis of the pool water to determine compliance with 10 CFR 20 will be performed.



TABLE 4
REACTOR COMPONENTS FOR SHIPMENT TO
DOE-HEDL, RICHLAND, WASHINGTON

Item No.	Description	Unit	Quantity
1	Core Support Structure, Upper Section	Each	1
2	Core Support Structure, Lower Section	Each	1
3	Top and Bottom Grid Plates	Each	1
4	Connecting Rods for Control Rods	Set	1
5	Control Rods	Set	1
6	Carriage Drive Motor	Each	1
7	Water Pump: 1.5 hp	Each	1
8	Incore Experiment Tube	Each	1
9	Ion Chamber Supports and Ion Chambers	Set	3
10	Carriage Support Rails	Set	1
11	Lead Shield Door Drives and Linkage	Set	1
12	Pool Cover Plates	Set	1
13	Fuel Storage Racks, Underwater	Each	8
14	Fuel Measurement Tool with Dial Micrometer	Each	1
15	Aluminum Water System Piping	Each	1
16	Water Pumps	Each	3
17	Demineralizers, 3 ft ³	Each	4
18	Flowmeters, 25 gpm	Each	2
19	Neutron Source, 10 curies, am-be	Each	1
20	Neutron Source Holder	Each	1
21	Pool Lights	Set	1
22	Carriage Positioning Potentiometer	Each	1
23	Carriage Umbilical Arm	Each	1
24	Fuel Element Location Diagram	Each	1
25	Water Box, 1 ft ³ Capacity	Each	1
26	Charcoal Filter, 1 ft ³ Capacity	Each	1



The pool water will be discharged to the sanitary sewer as analysis permits. The appropriate limits are those listed in 10 CFR 20, Appendix B, Table 1, Column 2, as provided by 10 CFR 20.303. A radiation survey of the reactor components that are scheduled for shipment to HEDL will be conducted. Should the water analysis show contamination above limits, the existing purification system will be used for cleanup.

2. Packaging and Shipping Reactor Components to HEDL

The electrical service for the reactor auxiliary systems will be disconnected from the relay and power distribution panels and the wiring will be removed. This will include power disconnects to the lead shield doors, carriage drive, and the diffuser pump.

All of the items listed in Table 4 will be removed, packed into weatherproof containers, and staged for transportation to the DOE, Hanford Engineering Development Laboratory (HEDL), Richland, Washington. The Americium-Beryllium neutron source will be placed in an approved Type A shipping container for shipment with the above items.

The water treatment system in the Filter Room will be removed after the pool water has been discharged to the sanitary sewer and a determination has been made that it will no longer be required. Water will be drained from the piping and filter medium and the water will be dispositioned based on radiation survey analysis. All of the items listed will be shipped to HEDL when they have been packaged and are available for shipment. Components will only be disassembled to the degree necessary to permit packing into reasonably sized containers.

All packaging will conform to the Department of Transportation (DOT) Specification Title 49 Code of Federal Regulations. Each package shall be monitored by the Health Physicist to determine its radioactive content and will be weighed to establish its shipping weight.



When all radioactive components have been removed from the facility, the areas which housed those components will be radiologically surveyed and the survey documented. Those areas which are above the release limits will be identified on a facility plot plan and scheduled for removal during the appropriate demolition task.

The jib crane will be removed from DORF and transported to the AURORA facility when it is no longer required to support dismantling activities.

3. Exposure Room

The exposure room will be stripped of its wood lining, lead shields, lead shield hoist, and other removable components. The material will be separated and dispositioned either to salvage or packaged for radioactive disposal.

Before starting activities in the exposure room, the floor drains will be plugged to reduce the potential for transporting radioactive materials into the sanitary sewer system.

The wood timber lining will be removed from the room using conventional techniques. Each timber will be surveyed to determine radioactivity and will be dispositioned according to Table 2 criteria. Material that is activated to levels that exceed Table 2 limits will be packed in strong, tight shipping containers, while material that is not activated will be set aside for salvage. The lead shields will be removed, surveyed and set aside for disposition. The lead shield hoist will be removed in its entirety and packed in a strong, tight shipping container. All other removable components will be removed from the room and will be dispositioned accordingly. When all removable material has been dispositioned, the exposure room will be vacuumed to remove remaining residue from the surfaces.

A detailed radiation survey of the exposure room will be conducted to establish a mapping of activity in the concrete. Selected areas will be sampled by core drilling to establish the extent of activation. The exposure room door and doorway will be included in the survey analyses. An excavation plan will be developed, for implementation during concrete excavation detailed in Section 5.

4. Core Tank Removal

All extraneous structures will be removed from the core tank, the lead shield doors will be drained of lead, the lead and doors will be removed from the core tank, the core tank will be stripped from the concrete, and the activated tar paper lining will be removed from the concrete surfaces. The materials will be surveyed when they are removed from the area and will be dispositioned accordingly.

The procedure to remove the lead shield doors will consist of drilling holes through the lower wall of each door to drain enough lead to permit them to be lifted with the 3.5-ton overhead crane. A dynamometer will be used to provide assurance that the weight of the load is within the crane limit. Each door will be lifted from the core tank and transferred to an area where the remaining lead can be removed. The doors and lead will be surveyed and dispositioned accordingly.

The procedure to remove the core tank will be to section the tank (by saw cutting) into vertical strips. Each strip will be pulled from the concrete by conventional techniques as determined by experience gained during the first and subsequent removal attempts. Because of the uncertainty associated with the adhesion of the tank to the concrete by virtue of tar paper, trial and error will be required. Leverage tools such as pry-bars, wedges, block and tackle, etc., will be used initially. If these techniques prove unsuccessful, then hydraulic or pneumatic techniques will be applied.



The activated tar paper lining will be removed from the concrete by scraping and/or by chipping away portions of the concrete. Where the concrete is also activated, the tar paper will be left for removal with the concrete.

All activated and contaminated materials will be packaged for disposal as detailed in the Waste Disposal section. Material will be size reduced, where practical, to reduce the volume of radioactive waste.

A detailed radiation survey will be conducted of the exposed concrete structure to establish a map of radioactivity. Selected areas will be sampled by core drilling to establish the extent of the activation. An excavation plan will be developed for the concrete structures. Implementation of the plan will be described in Section 5, "Concrete Excavation."

5. Concrete Excavation

Concrete will be removed from the pool cavity, exposure room, and exposure room door to the extent required to permit release of these structures for unrestricted use. Guidance for the amount of concrete to be removed will be determined by radiation survey and by the excavation plans developed after core tank removal and exposure room cleaning. When the detectable levels of radioactivity in the concrete are below the levels shown in Table 2, they will be considered to be in compliance with NRC Guide 1.86 (Table 1).

The extent of removal will be governed by the extent to which the structures are activated. Where activation is shallow, scabbling or chipping with pneumatic hammers will be used to break the concrete at the surface. High volume vacuum cleaners equipped with HEPA filtration will be used to remove the concrete and to control airborne

contamination. Where penetration is several inches deep, jack hammers will be used. This operation will be aided by depth cutting with a concrete saw if necessary. If depth of activation is such that these techniques are not applicable, a hydraulic ram hoe or other devices will be used to break the concrete for removal.

Dust and particulate generation will be monitored by the Radiation and Nuclear Safety representative and control will be accomplished by use of a vacuum cleaner or water mist depending on the operation in progress. High volume air sampling will be conducted within the work area during operations which might produce airborne contamination. Personnel will be required to wear respirators whenever sampling indicates unacceptable levels of airborne contamination. Temporary structures will be built around the work area if necessary to control the spread of contamination.

Radiation survey data generated during the activated concrete excavation will be analyzed to provide a basis for compliance with Regulatory Guide 1.86 and ALARA (Tables 1 and 2). When the data indicates that compliance with these criteria have been met, concurrence will be solicited from the U.S. Army Environmental Health Agency.

6. Site Survey

A final radiation survey will be conducted to verify the site condition. Surface smears and material samples will be selected by the Rockwell Site Manager with assistance from the Radiation and Nuclear Safety representative and the DORF Contracting Officer. These specimens will be sent to an independent laboratory for analysis. The specimens will be taken from representative areas of the buildings and excavations to confirm compliance with ALARA and Regulatory Guide 1.86. These data will provide independent analyses of the site condition and will form a basis for demonstrating that the facility can be released for unrestricted use.



7. Waste Disposal

Radioactive waste will be packaged when it is generated and will be staged in full load lots (~40-45,000 lb) for shipment. Shipments will be made under the exclusive use provision of Title 49 Code of Federal Regulations which permits low specific activity (LSA) waste to be packaged for shipment in strong, tight containers. Shipments will be monitored by the Radiation and Nuclear Safety Representative for conformance to DOT regulations. Radioactive waste will be delivered to a common carrier for delivery to a licensed disposal site as full load lots become available, or at the completion of Phase II.

Noncontaminated components and waste materials listed in the RFQ for disposal (F.4.1) will either be retained and used as backfill in the pool cavity or hauled to a local licensed landfill during Phase III.

C. PHASE III

A concrete wall will be erected between the exposure room and the pool cavity to provide a barrier between the two areas so the pool cavity can be used to hold backfilled concrete debris. The steel ramp structure and concrete parapet surrounding the pool cavity will be dismantled. The steel structures will be removed for salvage and the concrete support wall will be broken up and the debris will be placed into the pool cavity. The debris shall not be filled to a level above the main floor.

The air conditioning system inlet and exhaust ducts to the exposure room will be restored if necessary and made operable. Where practical, all electric outlets, air, water, and sewer lines will be retained in working order during the dismantling activities.



At the completion of Phase III, the accumulated demolition debris not deposited into the pool cavity will be removed from the facility area. The contractor's equipment will be removed and a reasonable effort will be made to clean the interior of the facility building of accumulated dirt and dust resulting from the demolition efforts.



VI. DOCUMENTATION

Documentation of the Dismantlement of DORF will consist of informal weekly progress reports, radiation survey reports, and a final report.

The informal weekly progress reports are primarily written to the Rockwell home office in Canoga Park, California, to keep them informed of the DORF site operations and to alert them to any changes that may impact schedule or cost. Copies of these reports will be sent to the Contracting Officer or his representative.

Radiation survey reports of significant data will be entered on a Rockwell Form 732-A, Health & Safety Analysis Report for distribution within the Rockwell organization. Copies of these reports will be sent to the DORF Contracting Officer or his representative.

At the completion of Phase II, a final report will be written to document the dismantlement of DORF. The report will describe the activities required to accomplish the work, problems encountered, solutions to the problems, and the current status of the facility and structures. The report will also include data, specified in units identical to those shown in Table 1, to show the effort made to reduce residual contamination to levels that are as low as reasonably achievable. It will describe the scope of the radiation survey, the general procedures followed to obtain the data, and any other pertinent information about the radiation survey data. A summary of the radioactive waste disposal information will be included to show the quantities of material removed from DORF.

The final report will be appended at the completion of Phase III to document the final status of the facility at the termination of this contract.



APPENDIX A
OPERATIONAL SAFETY PLAN
FOR DECONTAMINATION AND DISPOSAL OF DORF

I. PURPOSE

To delineate the radiation safety, industrial hygiene, and industrial safety procedures for the decontamination and disposition (D&D) of the Diamond Ordnance Radiation Facilities (DORF).

II. SCOPE

This plan applies to all operations at DORF involving the deactivation, dismantling, decontamination, and disposal of that nuclear facility.

The plan meets or exceeds the requirements set forth in Rockwell/ESG Standard Operating Policies, in applicable regulations and standards, in DOEM 0524, in the Williams-Steiger Occupational Safety and Health Act of 1970 (OSHA), 10 CFR 19 and 20, and in Nuclear Regulatory Commission (NRC) Regulatory Guide 1.86.

III. RESPONSIBILITIES

A. HEALTH SAFETY AND RADIATION SERVICES

1. Radiation and Nuclear Safety

Radiation and Nuclear Safety shall establish requirements for design and operational procedures; and approve disposition of source and special nuclear material, and byproduct radioactive material.



Radiation and Nuclear Safety will designate and identify radiologically posted areas, radiological safeguards requirements, and radioactive materials; and will control the use and disposition of radioactive materials, and implement radiological safety standards.

Radiation and Nuclear Safety will perform field measurements of radiation and radioactive contamination levels, evaluate internal and external personnel radiation exposures, and evaluate radioactive material in the workplace environment.

Radiation and Nuclear Safety will maintain records as necessary to demonstrate compliance with ESG standards and applicable regulations. Included in these records will be a chronological log of information dealing with daily operations, conditions, and occurrences relating to radiological safety.

Radiation and Nuclear Safety will advise the Rockwell Site Manager and operations personnel on the safe performance of their assigned tasks.

Radiation and Nuclear Safety will evaluate operational conditions to determine requirements for personnel monitoring and protective devices such as film badges, breathing zone air samplers, bioassay, protective clothing, and respiratory protection devices.

The Radiation and Nuclear Safety (RNS) representative assigned to the project will conduct the radiological surveillance program and will maintain sufficient familiarity with program operations and facility conditions to be aware of those areas which may require increased surveillance or corrective action.



2. Industrial Hygiene and Safety

Radiation and Nuclear Safety will provide the services necessary to control personnel exposures to toxic chemicals and harmful physical agents and to control mechanical and electrical hazards. RNS Representative will maintain surveillance of the occupational environment to identify, evaluate, and control conditions pertinent to health and safety, and to assure compliance with the requirements of DOE Manual, OSHA, 10 CFR 19 and 20, as appropriate.

B. ROCKWELL SITE MANAGEMENT AT DORF

The Rockwell Site Manager is responsible for the safety of all personnel within facilities under the jurisdiction of the DORF D&D Program.

The Site Manager will ensure that all personnel employed at or visiting the facility know and understand the rules and regulations governing work with radioactive materials and will assure compliance with these rules. The Site Manager will carry out the responsibilities charged to "Operating Supervision" and will provide safe conditions at the facility, in conformance with applicable regulations and standards, and under the guidance of Radiation and Nuclear Safety.

The Site Manager will establish the requirements for the packaging of radioactive waste, collecting of packaged waste, and will arrange for disposal by land burial.

Rockwell Program Management and the Site Manager will coordinate radiological and industrial hygiene and safety problems with Radiation and Nuclear Safety as appropriate.



C. OPERATIONS PERSONNEL

Operations personnel are responsible for compliance with all rules governing work with radioactive and hazardous materials as outlined by this procedure and as established by Radiation and Nuclear Safety and D&D Program Management. Operations personnel are responsible for taking every reasonable precaution to minimize radiation exposures to themselves and to fellow workers and to prevent the unnecessary release of radioactive material.

D. CONTRACTOR PERSONNEL

Contractor personnel are responsible for compliance with all safety rules and requirements established by Radiation and Nuclear Safety and for responding to specific instructions from the RNS Representative with regard to radiation safety and industrial hygiene.

IV. ADMINISTRATIVE SAFEGUARDS

A. PROCEDURAL CONTROL

Any changes to the radiation safety or industrial hygiene and safety procedures must be jointly authorized by Radiation and Nuclear Safety and the Site Manager following evaluation of the proposed changes by the RNS Representative. Revised procedures will be distributed to all personnel directly affected by the change.

Operations involving potential radiological hazards or potential industrial safety hazards will be reviewed in advance by Radiation and Nuclear Safety.

B. METHODS OF REPORTING DAY-TO-DAY CONDITIONS

Day-to-day operational safety conditions will be observed by the assigned Radiation and Nuclear Safety representative, who will report all recognized hazardous conditions and each instance of noncompliance with regulatory directives to the Site Manager and the workers involved. Radiological data (film badge and bioassay results, radiation and contamination survey results, air sampling reports, etc.) will be maintained by the RNS Representative. Whenever these data indicate the need for corrective action, the RNS representatives will contact the Site Manager to arrange for such action. Industrial hygiene and safety conditions observed by the RNS representative will also be communicated to the Site Manager. A summary of incidents and data will be reported to the Site Manager, the Radiation and Nuclear Safety Office, and the Rockwell Program Management Office on a weekly basis.

V. GENERAL RADIATION AND INDUSTRIAL HYGIENE AND SAFETY PROCEDURES

Certain radiological and industrial safety controls and procedures are independent of operations in the facilities, and are required to provide facility surveillance and radiological and industrial safety protection commensurate with the ESG contract and regulatory agency standards.

A. AREA DESIGNATION, RADIOLOGICAL SAFETY CONTROL

All areas are designated as either radiologically posted or unposted. A posted radiological area is an area, defined by physical barriers, which is posted with prescribed caution signs or labels for purposes of radiation protection. Signs used to designate posted radiological areas must comply with applicable regulations. There are six posted area classifications as defined below:



1. Radiation Area

A Radiation Area is an area subject to radiation from encapsulated radioactive materials and/or radiation machines within the area, or to radiation from any source outside the area; where there exists radiation at such levels that an individual could receive in any one hour a dose to the whole body in excess of 5 millirem, or in any five consecutive days a dose in excess of 100 millirem.

Each Radiation Area will be posted with a sign meeting all regulatory requirements including the radiation symbol and the words "CAUTION - RADIATION AREA." Where appropriate, indications of the radiation level will be included in the area posting.

2. Radiation Area - Radioactive Contamination

A Radiation Area - Radioactive Contamination is an area in which work with and/or storage of unencapsulated material is permitted with the provision that the radioactive material concentration in air is not likely to exceed 25% of the appropriate occupational exposure limit. Each Radiation Area - Radioactive Contamination will be posted with signs meeting all applicable regulatory requirements including the radiation symbol and the words "CAUTION - RADIATION AREA - RADIOACTIVE CONTAMINATION."

3. Radiation Area - Airborne Radioactivity

A Radiation Area - Airborne Radioactivity is an area in which the radioactive material concentration in air is likely to exceed 25% of the applicable regulatory standard for occupational exposure.

Each Radiation Area - Airborne Radioactivity will be posted with signs meeting all applicable regulatory standards including the radiation symbol and the words "CAUTION - RADIATION AREA - AIRBORNE RADIOACTIVITY."



4. High Radiation Area

A High Radiation Area is an area accessible to individuals in which there exists radiation at such levels that an individual could receive in any one hour a dose to the whole body in excess of 100 millirem. Each High Radiation Area will be posted with signs meeting all applicable regulatory requirements including the radiation symbol and the words "CAUTION - HIGH RADIATION AREA."

5. Radiation Area - Radioactive Materials

A Radiation Area - Radioactive Materials is an area in which work with and/or storage of encapsulated materials is permitted.

Each Radiation Area - Radioactive Materials will be posted with signs meeting all applicable requirements, including the radiation symbol, and the words "CAUTION - RADIATION AREA - RADIOACTIVE MATERIALS." Federal and State regulations also require that storage containers and localized areas in which radioactive materials are present in certain amounts will be posted with signs containing the radiation symbol and the words "CAUTION - RADIOACTIVE MATERIALS." It should be noted that these containers and areas may or may not be located within posted areas. Radiation and Nuclear Safety will advise operating supervision as to the amounts of radioactive materials in containers or localized areas which require such signs.

6. Restricted Access Area

A Restricted Access Area is an area identified by Radiation and Nuclear Safety as requiring special safety precautions for entry and requiring inspection immediately prior to entry by any person. Each



Restricted Access Area will be posted with signs with the following words in yellow over a red background:

"WARNING - RESTRICTED ACCESS AREA - OBTAIN PERMIT
FROM OPERATIONAL SAFETY PRIOR TO ENTRY"

Any area meeting more than one of the above criteria will be posted with all of the applicable signs.

B. AREA DESIGNATION, INDUSTRIAL SAFETY CONTROL

Operations posing potential hazards shall be identified by appropriate caution or warning signs. The signs shall conform to specifications in 29 CFR 17, Section 1910.145. Examples of posting are:

1. Hard Hat Area

A Hard Hat Area will be established wherever personnel are working at different elevations and there is a potential of being hit by falling objects.

2. Eye Protection Area

An Eye Protection Area will be established where a hazard due to flying objects exists.

3. No Smoking Area

No Smoking Areas will be established where explosives, flammable liquids, or gases may be present.



4. Open Excavations

Open Excavations will be protected by appropriate physical barriers.

5. Obstructions

Obstructions will be made clearly visible by the use of yellow and black striping.

C. RADIOLOGICAL SURVEY FREQUENCY

Routine radiation and contamination surveys will be performed in work areas at a frequency to be determined by the assigned Radiation and Nuclear Safety representative in accordance with established procedures. Additional surveys may be required to determine the effectiveness of contamination control procedures. The requirement for these surveys will be established on the basis of initial experience with those tasks which may pose significant personnel radiation or airborne contamination exposure.

D. RADIOACTIVE CONTAMINATION LIMITS

Evaluation of levels of radioactive contamination will be required in order to determine:

- 1) The adequacy of the level of decontamination performed on the facilities;
- 2) The extent of required excavation or other demolition of activated structures; and
- 3) The disposition of equipment, materials, and scrap.

Facilities and equipment will be evaluated for removable and total (fixed plus removable) contamination by means of wipe surveys and instrument surveys. Activated structures will be evaluated for radioactive concentrations by sampling or surveying with detection instruments.



Removable contamination limits for radiologically posted and unposted areas are described in Table A-1. The upper limit of allowable contamination listed in the table is that level which, if reached, requires immediate cessation of operations, immediate decontamination must be effected and measures taken to prevent recurrence. The action limits specified in Table A-1 are the upper limits of the amount of general area contamination tolerable in posted and unposted areas. General contamination in an area in excess of the action limit requires prompt decontamination.

TABLE A-1
REMOVABLE CONTAMINATION LIMITS
(dpm/100 cm²)

Area	Activity	Upper Limit	Action Limit
Unposted Areas and Radiation Areas	Beta	1,000	100
	Alpha	200	20
Contamination Areas Airborne Radioactivity Areas	Beta	50,000	5,000
	Alpha	20,000	200
Restricted Access Areas	Beta	Not Defined	Not Defined
	Alpha	Not Defined	Not Defined

The levels of contamination which will be considered acceptable for unconditional release of equipment or facilities are as follows:

Removable Contamination

20 dpm/100 cm² alpha

100 dpm/100 cm² beta-gamma



Total Contamination

100 dpm/100 cm² alpha

0.1 mrad/hr beta-gamma measured through 7 mg/cm² absorber at
1 cm

Water

3×10^{-7} μ Ci/ml beta-gamma

3×10^{-8} μ Ci/ml alpha

Soil (If Subject to Contamination)

100 μ Ci/g gross detectable beta-gamma

10 μ Ci/g alpha

Where practicable, items may be decontaminated to levels lower than the acceptable limits.

During demolition activities, all scrap generated will be evaluated for radioactive contamination prior to release to normal waste channels or packaging for disposal by land burial.

E, SURVEY REPORTS

The original copy of radiation, contamination survey, and special radioanalysis reports will be forwarded promptly to the Site Manager and Radiation and Nuclear Safety supervision. These reports will indicate contamination and radiation levels at specific locations throughout the facility. Copies of these survey reports will be retained indefinitely by Radiation and Nuclear Safety.



Radiation and Nuclear Safety will post or have posted such signs as are necessary for the clear identification of potential radiological hazards. To assure that the posting of radiological hazards is current, periodic surveys will be conducted by the Site Manager and the RNS Representative. Signs which have been approved by Radiation and Nuclear Safety will be used to indicate radiological hazards in the facility. No such signs will be removed without the approval of Radiation and Nuclear Safety. In addition, warning signs relative to hazardous conditions and/or special safety requirements may also be posted.

G. FACILITY VENTILATION

The DORF facility ventilation systems will be used to control airborne contamination. If greater control is necessary in localized areas, a system will be constructed.

Direction of air flow from areas of lower contamination to areas of higher contamination will be maintained at all times.

Exhaust from areas in which airborne contamination potential is present will be directed through prefilters and high efficiency particulate air (HEPA) filters.

Filter replacement will be performed when pressure differential across HEPA filters exceed 6 in. of water, or when indicated by reduced air flows. Prefilters will be replaced when pressure differentials across the filters exceed 1 in. of water.

Where practical, a minimum of six air changes per hour will be provided in areas posted as airborne radioactivity areas.

Ventilation systems will provide once-through air with no provision for recirculation.



H. EVALUATION OF AIRBORNE CONTAMINATION

Airborne contamination will be evaluated to assure that no individual is exposed to airborne radioactive or toxic material in excess of regulatory limits.

1. Air Monitoring

Air monitoring for airborne radioactive material will be performed by means of continuous air monitors in such areas as deemed necessary by the RNS Representative.

2. Air Sampling

Air sampling for airborne radioactive or toxic material could be performed by the following methods:

- a) Continuously or intermittently by Gast Vacuum Pump air sampling units located at various points throughout a facility. Data from these samples will be evaluated and recorded weekly or daily as indicated by the potential for airborne activity.
- b) Special, "hi-volume grab samples" at the discretion of the Radiation and Nuclear Safety representative.
- d) Toxic gas detectors, such as the "length of stain" type will be used as indicated by the potential for such exposure.

I. LIMITS FOR AIRBORNE RADIOACTIVITY LEVELS

Every reasonable effort will be made by the use of engineering safeguards to maintain airborne contamination levels at less than 10% of the applicable limits described in DOE 0524 and 10 CFR 20. In the



event airborne contamination levels approach or exceed the applicable limits, the appropriate respiratory protective devices will be utilized to control the exposure.

The applicable limits for airborne contamination levels in the radiologically posted areas are the limits described in Column 1, Table I, Appendix B, 10 CFR 20. These limits will apply to occupational exposure for 40 hours in any seven consecutive days which translates to a time-integrated exposure for seven consecutive days. In the event any employee receives a time-integrated exposure to airborne radioactive materials in excess of 25% of the allowable exposure in seven consecutive days, as indicated by lapel air sampling, appropriate respiratory protection will be required to prevent exposures in excess of the limit. Specific protection factors will be applied to specific types of respirators. Protection factors are applied to airborne concentrations to determine the concentration inhaled by the wearer, according to the following formula:

$$\text{Concentration Inhaled} = \frac{\text{Airborne Concentration}}{\text{Protection Factor}}$$

Applicable protection factors for air purifying respirators will be 10 (0.1% toxic gas or vapor concentration) for half-face masks and 50 (0.5% toxic gas or vapor concentration) for full-face masks. Only limited use of atmosphere supplying respirators is anticipated. If required, they will be used only by persons specifically qualified and trained in the use of such devices.

At the discretion of the RNS Representative, certain specific operations may require the use of respiratory protective devices strictly on the basis of the potential for exposure to airborne contaminants. Such operations will be identified as work progresses.



In the event that air sampling indicates airborne radioactive material in concentrations greater than the occupational limits, all persons entering the facility will be required to wear lapel air samplers and, if necessary, appropriate respiratory protection devices if the use of such devices is authorized by the RNS Representative.

J. PERSONNEL MONITORING DEVICES

1. Film Badges

Film badges will be worn by all persons entering radiologically posted areas. Film badges will normally be exchanged at the end of each calendar quarter, or in the case of persons with greater exposure potential, at the end of each month. Special film badges and direct reading dosimeters may be required in addition to the regular personal badge for radiation exposure control during work in High Radiation Areas. The special badges will be processed as required to evaluate cumulative radiation exposure. An exposure report sheet will be provided to supervision listing the reported radiation exposure for each person assigned to the program. Radiation exposure to personnel will be maintained to as-low-as-practicable levels. During any calendar quarter the occupational dose to the whole body of radiation workers shall not exceed 3 rems, as modified by the lifetime occupational exposure limit of 5 (N-18) rems, where "N" equals the individual's age in years at his last birthday. Whenever practicable, dismantling tasks will be planned to utilize remote tooling or shadow shielding to reduce the personnel exposure associated with the performance of the task. Personal film badges will be distributed to job-site personnel by the RNS representative. Visitors film badges will also be located at the job site for issuance by the RNS representative. A signout sheet will be provided for use in the issuance of the visitor badges. All visitors entering a radiologically posted



area will complete the signout sheet and obtain a visitor's badge prior to entry. The badge will be returned following the visit, with the exception that visitors anticipating multiple entries may keep the badge for the balance of the calendar quarter.

All film badges used for the DORF program will contain beta-gamma sensitive film packets with the appropriate shields for radiation quality assessment.

2. Dosimeters

Dosimeters may be issued in conjunction with film badges during certain operations at the discretion of the RNS representative to provide an additional control on planned radiation exposures.

3. Extremity Monitoring

Whenever operations are performed which pose a potential for significant extremity exposure, extremity monitoring will be performed. Finger ring film badges or thermoluminescent dosimeters will be utilized for extremity monitoring.

K. AREA RADIATION MONITORING SYSTEMS

1. Area Film Badges

Area film badges will be mounted at selected locations throughout those facilities under the jurisdiction of the D&D program. These film badges will provide a record of integrated radiation levels for the exposure period at these locations. Area badges will be exchanged once each quarter and records of the badge exposures will be maintained by Radiation and Nuclear Safety.



L. BIOASSAY

1. Requirement

Bioassay, principally by means of urinalysis, will be utilized as a means of assessing internal radiation exposure of personnel. A baseline specimen will be obtained from each worker assigned to work in the radiologically posted areas. During the initial period of actual facility decommissioning, specimens may be collected at frequencies of 1 week to 1 month (depending on the nature of the work). Following the initial period, the collection frequency may be reduced, assuming engineering safeguards against airborne radioactivity are demonstrated to be effective. Specimens will then be submitted at least once each calendar quarter, with the exception that specimens will be submitted once each 6 months by persons not routinely assigned the radiologically posted areas.

Special bioassay specimens, including urine and fecal specimens, will be submitted at the discretion of the RNS representative or Radiation and Nuclear Safety Management whenever there is reason to believe that personnel may have been subjected to internal exposure.

Whenever the analysis of a routine or special bioassay specimen indicates radioactivity present in excess of the minimum detection limit of the analysis, resampling will be performed at a frequency no greater than biweekly.

Invivo lung counting or whole body counting may be used to provide direct evaluation of internal deposition of radioactivity for purposes of confirming urinalysis data, or of providing further evaluation of suspected exposures.



Radiation and Nuclear Safety will notify the Site Manager of the names of employees for whom bioassay specimens are due. The Site Manager will assure that those employees pick up a specimen bottle on the date indicated and collect and return the specimen as directed on the bottle.

2. Analysis

Bioassay specimens will be accumulated by Radiation and Nuclear Safety and shipped to a vendor laboratory for appropriate analysis. Radiation and Nuclear Safety will notify the Site Manager and Rockwell Program Management of any significantly positive results of bioassay analysis. In the event urinalysis indicates excretion rates which are indicative of the presence in an employee of greater than 50% of a maximum permissible body burden, that employee will be restricted from further work in radiologically posted areas until such time as two consecutive urinalyses submitted at least 5 days apart each indicate less than 25% of a maximum permissible body burden.

3. Incidents and Injuries

Any injury, no matter how small, received while working in a radiologically posted area must be reported immediately to the Site Manager or the RNS representative. Medical services will be obtained as required. The RNS representative will conduct wound monitoring, as necessary.

Employees with open cuts, abrasions, etc., will be restricted from work in radiologically posted areas unless specific approval is given by Radiation and Nuclear Safety. All incidents suspected, or known to have caused internal deposition of radioactivity must be reported immediately to the RNS representative.



M. PROTECTIVE CLOTHING AND EQUIPMENT

All persons entering a radiologically posted area in which unencapsulated radioactive material is processed will be required to don protective clothing at the change line located outside the entrance to these areas. The items of protective clothing required for entrance into these areas include, as appropriate:

- 1) Red-trimmed laboratory coat or coverall
- 2) Plastic or canvas shoe covers
- 3) Respirators.

Protective clothing and equipment for protection against potential hazards other than ionizing radiation will be prescribed on a case by case basis.

Respirators will only be fitted and issued by the RNS representative. No employee will be allowed to work in areas in which respirators are required unless he has been fitted and has completed the Rockwell/ESG Respiratory Protection training course within the past 12 months, including appropriate medical evaluation.

The RNS representative will establish respirator exchange frequencies as indicated by individual requirements. In addition to the protective clothing required for entry, certain additional items of clothing, such as skull caps or red-trimmed coveralls, may be required for certain operations posing high potential for contamination. Surgeons gloves will be required for operations involving direct handling of contaminated equipment. Persons exiting radiologically posted areas will remove their protective clothing at the change line and place the items of clothing in the drums, racks, or hangers provided as appropriate.



Respirators will be returned to the plastic bag in which they were issued pending re-use or return to the respirator maintenance laboratory. Immediately upon exiting these areas, all persons will monitor their hands and feet with the count rate meter provided there. They will then proceed to the nearest washroom and wash their hands.

N. HANDLING OF CONTAMINATED PROTECTIVE CLOTHING

All reusable items of protective clothing will be removed from the facility for decontamination and reissue. Disposable items will be collected and disposed of as radioactive waste. Laundry drums, lined with 50-gallon plastic bags, will be provided at the change line for the accumulation of contaminated laboratory coats, canvas shoe covers, and coveralls. The contaminated laundry will be collected as the bags are filled and will be processed through a licensed vendor.

Waste drums, lined with plastic bags, will be provided at the change line for the accumulation of disposable items such as caps, plastic shoe covers, and surgeons gloves. This waste will be packaged as the bags are filled and will be processed for ultimate disposal.

O. INSTRUCTION OF PERSONNEL

Prior to beginning work in the radiologically posted areas, all employees will be indoctrinated with regard to radiation and industrial safety rules.

Employees whose regular assignments include for the first time work in radiologically posted areas, must complete a training course covering the general aspects of working with radioactive materials. This course will include (a) a description of the properties and potential hazards of radiation and radioactive material; (b) the basic principles of radiation protection; (c) the requirements of applicable Standard Operating



Policies and applicable regulations; (d) safe handling practices; and (e) emergency procedures.

P. EMPLOYEE QUALIFICATIONS

The Site Manager will furnish to Radiation and Nuclear Safety the names of all persons who will be assigned to work in the radiologically posted areas. Subsequently, whenever additional employees are to be assigned to work in these areas, Radiation and Nuclear Safety will be notified prior to each assignment. Radiation and Nuclear Safety will review the qualifications of persons assigned to work in the radiologically posted area and establish that these persons are fully qualified "radiation workers" and that they have sufficient familiarity with the operations in the posted areas to allow them to work safely in these areas. Included in the required qualifications or preparations for assignment to work in these areas are:

- 1) Personal film badge assignment
- 2) Bioassay baseline sample
- 3) Inclusion on periodic bioassay roster
- 4) Medical baseline examination
- 5) Inclusion on periodic medical examination roster
- 6) Completion of radiation worker training course
- 7) Completion of respirator training course
- 8) Successfully fitted with an approved respiratory protective device
- 9) Completion of facility indoctrination
- 10) Completion of required special training
- 11) No precluding physical limitations or radiological restrictions
- 12) NRC Form 4 or equivalent on file with Radiation and Nuclear Safety.



Rockwell Program Management or the Site Manager will also notify Radiation and Nuclear Safety of those persons whose assignments in posted areas are being terminated.

Q. INSTRUMENTATION

Radiation and Nuclear Safety will establish the requirements for radiological instrumentation, provide the instruments from general inventory if available, request calibration and repairs as required and instruct operations personnel in the use of these instruments as required.

Personnel monitors will be provided at change lines and in change rooms. Each of these monitors will consist of an alpha or beta-sensitive (as appropriate) detector, a count rate meter, and an audible "poppy-type" signal. These monitors will be inspected by Instrument Repair at least once each 3 months.

Continuous air monitors will be provided as required. These monitors will sample air through a filter media at a rate of about 1 cfm and will continuously monitor the particulate radioactive material collected on the filter media. The monitors will provide a ratemeter display of activity levels and an audible alarm which will actuate automatically in the event the radioactive material collected on the filter exceeds a preset level. These monitors will be serviced and calibrated at least once each 3 months.

Beta-gamma and alpha sensitive counting systems will be provided for use by the RNS representative in evaluating air samples and surface contamination samples for radioactivity. These systems will be serviced and calibrated at least once each 6 months.

Various types of beta-gamma and alpha sensitive portable radiation survey instruments will be provided for use by the Radiation and Nuclear



Safety representative in the day-to-day surveillance of operations in radiologically posted areas. All portable radiation survey instruments will be serviced and calibrated at least once each 3 months, or at shorter time intervals if recommended by the manufacturer.

R. DECONTAMINATION REQUIREMENTS

The requirements for decontamination in day-to-day operations will be determined by the RNS representative and communicated to the Site Manager who will assure that the required decontamination is performed.

1. Personnel Decontamination

In the event radioactive contamination is detected or suspected to be present on the skin or hair of an employee, the RNS representative will evaluate the degree of contamination and direct the decontamination efforts. In the event the contaminated employee is injured, the Site Manager will arrange for medical services. The RNS representative will direct or perform decontamination of the employee to acceptable limits using prescribed methods, unless it becomes apparent that further decontamination efforts will cause significant skin damage. In this case, the RNS representative will ask that further decontamination be accomplished under the direct supervision of a licensed practicing physician.

2. Equipment Decontamination

In the event that equipment, components, materials, etc., are found to be contaminated in excess of the appropriate limits, the RNS representative will promptly notify the Site Manager who will effect the required decontamination by operations personnel.



3. Area Decontamination

In the event the floors or walls of an area are found to be contaminated in excess of the appropriate limits, the RNS representative will notify the Site Manager and request decontamination. The RNS representative will coordinate decontamination efforts with operations personnel as necessary.

S. REMOVAL OF EQUIPMENT FROM RADIOLOGICALLY POSTED AREAS

All equipment or materials moving into unposted areas from any radiologically posted area must be surveyed for radiation and radioactive contamination levels. No item may be moved into any unposted areas if it is contaminated in excess of the limits established for such areas as shown in Table A-1. The radiation and contamination levels will be assessed by the RNS representative immediately prior to the transfer of the item. Required decontamination will be performed by the operations personnel.

In case of packaged items, the outer surfaces of the package will be surveyed for radiation and contamination levels, and these surfaces must be free of contamination in excess of the limits for unposted areas as shown in Table A-1. Packaged contaminated items will comply with the provisions of Title 49 Code of Federal Regulations and will be tagged with a completed radioactive materials tag prior to transfer into radiologically unposted areas.

T. RESTRICTED ACCESS AREA ENTRY PERMIT (FORM 719-L)

Varying degrees of control, consistent with the hazard involved, are exercised over posted areas by Radiation and Nuclear Safety. The Form 719-L is a means of restricting access to posted areas on the basis of personnel and potential hazards. The highest degree of hazard is



associated with an area in which the active contamination and radiation levels are of such significance that special rigid entry controls and safety precautions are necessary.

1. Subcontractors

Subcontractor personnel who have cause to work within any radiologically posted area must have a completed Form 719-1 which will be submitted by the Site Manager and approved by the RNS representative prior to the start of work. Groups representing the same contractor and who work in the same general area need only one tagged area entry permit.

All contractor personnel entering any radiologically posted area must obtain a film badge prior to entry. Radiation and Nuclear Safety shall determine if previous entries into posted areas had been made during the current calendar year and if so, shall ascertain from personnel monitoring records the dose received, and plan radiation exposures accordingly.

Contractor personnel performing work in a radiological posted area will be surveyed prior to breaks, lunch and quitting time by means of portable battery operated or ac survey instruments. If the instrument survey indicates contamination, decontamination will be effected immediately.

Radiation and Nuclear Safety will attend any operation involving contractor personnel in a posted area to the extent necessary to ensure that such personnel perform their duties in such a manner as not to cause the release of radioactive material or become unduly exposed to radiation. Should such an event occur, work will be stopped until appropriate surveys have been performed and necessary corrections effected.



All tools and equipment used by contractor personnel in radiologically posted areas must be surveyed and found to be free of contamination before they may be removed. The removable contamination limit for tools and equipment shall be 20 dpm/100 cm² alpha activity and 100 dpm/100 cm² beta. Fixed contamination shall be undetectable with appropriate portable survey instruments.

Contractor personnel shall not be exposed to concentrations of radioactive material in air and water greater than 10% of the maximum permissible concentrations as listed in 10 CFR 20, "Standards for Protection Against Radiation," under Table I of Appendix B unless they are qualified as radiation workers as described below.

Whole body dose to contractor personnel will be limited to 500 mrem/year. An exception to the standard 500 mrem/year will be made if an affidavit, signed by a representative of the contractor, authorizes their employees to be considered radiation workers, in which case the employee will be required to execute an NRC Form 4 or equivalent authorizing Rockwell/ESG to obtain occupational radiation exposure histories.

Cumulative records of radiation exposures will be maintained by Radiation and Nuclear Safety to ensure that personnel are not exposed in excess of applicable standards.

If a contractor employee receives a radiation exposure in excess of 25 mrem, Rockwell/ESG will notify the contractor of the dose within 30 days following the determination of such exposure.

Contractor personnel under 18 years of age will be limited to 125 mrem/calendar quarter.

Approved visitors will be considered in the same category as outside contractors and must have completed a Form 719-L prior to performing



work in radiologically posted areas, or visiting such facilities for extended periods during which they are not under continuous escort.

2. Rockwell Employees - Other Than Personnel Assigned to the DORF D&D Program

Personnel who have cause to enter the radiologically posted areas for maintenance or repair purposes will complete a Form 719-L prior to entry.

3. Restricted Access Areas

All personnel who have reason to enter certain rigidly controlled areas, "Restricted Access Areas," such as radioactive exhaust system filter plena or liquid waste holdup tanks, will complete a Form 719-L prior to entry into these areas. A minimum of two persons will be assigned to perform operations in these areas, or as otherwise specified by HSRS.

4. Preparation of Form 719-L

When a Form 719-L is required, the individual or manager of the group requesting entry will fill out his portion of the form and give it to the RNS representative who will outline the pertinent radiological safety instructions, sign the form, and return it to the originator.

The originator will obtain the signature of the Site Manager and distribute copies as required.

The entire working crew will initial the Form 719-L, signifying receipt and comprehension of instructions on the form.



Copies of completed Forms 719-L will be kept on file indefinitely by Radiation and Nuclear Safety.

U. EMERGENCY CONDITIONS

1. Ventilation Loss or Airborne Radioactivity Alarms

In the event of a radioactive exhaust system failure, or of other evidence of loss of airflow in ventilated areas, personnel will leave these areas and await evaluation of the facility conditions by Radiation and Nuclear Safety.

In the event of actuation of the "variable warble" and/or bell alarm of continuous air monitors, personnel present will evacuate the facility and await evaluation by Radiation and Nuclear Safety.

V. RADIOACTIVE WASTE MANAGEMENT

All radioactive waste will be collected, evaluated, processed, and shipped for disposal to a licensed radioactive waste disposal site.

1. Solid Waste

Low level solid radioactive waste will be packaged into standard containers such as steel DOE Specification 17-H 55-gallon drums or wood type box DOT Specification 19-A or low specific activity, strong, tight containers. In the case of low level waste such as concrete rubble which is generated in large volumes, special containers may be designed. Low-level solid radioactive waste generated in support of decontamination operations (i.e., plastic shoe covers, surgeons gloves, kim-wipes, miscellaneous plastic, etc.) will be collected in drums lined with plastic bags. When the bags are filled, they will be final packaged for disposal.



High-level radioactive waste will be packaged and shipped in containers such as reusable lead-shielded casks, one-way concrete shielded containers, or DOT approved overpacks.

2. Liquid Waste

Liquid radioactive waste will be solidified. In the event there is other liquid radioactive waste such as acids or corrosives, they will be neutralized in drums and then solidified for disposal by land burial. Solidification will consist of cementation.

W. INDUSTRIAL SAFETY REQUIREMENTS

Industrial safety requirements are described by Rockwell/ESG Health and Safety Procedures, SOP's ANSI, AEC Manual, and OSHA.

1. Hoisting and Rigging

Hoisting and rigging operations shall be conducted in compliance with the requirements of 29 CFR 17, Part 1910, Subpart N, and the ANSI B30 Series.

Equipment used in material handling shall be proof-loaded and maintained per PL Series 8.

All personnel engaged in hoisting and rigging shall be qualified by appropriate experience and training.

2. Explosives

Explosives use and handling shall be in accordance with Federal, State, and local regulations including 29 CFR 17, Part 1910.109, Health and Safety Procedure G-16, and Section XXV, EM 385-1-1, "General Safety Requirements Manual," of the Corp of Engineers with the exception of Paragraph 25.8.04.



3. Insulation Removal

The removal of insulation material containing asbestos will be done in compliance with 29 CFR 17, Part 1910.93a.

Warning signs, OSHA approved, will be displayed at each location where the airborne concentration of asbestos fibers may exceed the allowable exposure limits. The airborne concentration will be verified by environmental sampling.

Insulation will be removed in a manner that will minimize the generation of airborne dust. Wet methods will be used if practical. Approved respirators will be worn during all asbestos insulation removal operations. If the presence of asbestos in a material is questionable, it will be assumed to be present.

4. Burning, Cutting, and Welding

Burning, cutting, and welding will be performed only as authorized by the Site Manager. Additional requirements may be imposed by the RNS representative as necessary to protect against toxic and/or radioactive vapors and fumes.

5. Noise

Personnel exposed to noise in excess of the limits specified in 29 CFR 17, Part 1910.95 will be required to wear approved ear protection. The noise level for an 8-hour exposure is 90 dbA. Personnel exposures to noise over 90 dbA shall be evaluated by the RNS representative. Personnel exposures to noise in excess of 115 dbA are prohibited without approved ear protection.



6. Confined Space Entry

Confined space entries will be made in compliance with Health and Safety Procedure G-19. All Class 2 entries will require the preparation of a Form 719-L, Rev. 5-70, "Restricted Access Area Entry Permit," which will designate the required control measures.

7. Contractor Safety

Contractors will conduct operations in compliance with Federal, State, and local codes, standards and regulations as applicable. Contractors are subject to compliance with Rockwell International and ESG regulations as indicated in Form 511-C which describes Contractor Safety Requirements at Rockwell International facilities.