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ORDER# 4700.1  
RF09629

# EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.  
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

DIST.	UP	DN
HAL, M.E.		
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BY, W.S.		
NCH, D.B.		
NIVAL, G.J.		
IS, J.G.		
RERA, D.W.		
Y, R.E.		
S, J.A.		
VER, W.S.		
AN, P.M.		
NI, B.J.		
MAN, L.K.		
LY, T.J.		
AHL, T.	X	
SIG, J.G.		
CHINS, N.M.		
KSON, D.T.		
L, R.E.		
STER, A.W.		
IX, G.E.		
ONALD, M.M.		
ENNA, F.G.		
VTROSE, J.K.		
RGAN, R.V.		
TER, G.L.	X	
TUTO, V.M.		
ING, T.L.		
DLIN, N.B.		
WARTZ, J.K.		
LOCK, G.H.		
WART, D.L.		
BER, S.G.	X	
SIN, P.M.		
ORHEIS, G.M.		
SON, J.M.		
WILLI, J.	X	X
REETS, J.D.	X	X
FRPHER, D.R.	X	X

September 16, 1994

94-RF-09629

F. R. Lockhart  
Environmental Restoration Division  
DOE, RFFO

REVISED 904 PAD COMPLIANCE PLAN - SRK-197-94

Action: Forward plan to the Colorado Department of Public Health and Environment

Attached is a further update to the 904 Pad Compliance Plan which includes the precipitation management practices previously provided to the Colorado Department of Public Health and Environment (CDPHE). The schedule included is achievable subject to the assumptions included. Upon your approval, the schedule will be placed in the Rocky Flats Environmental Technology Site (RFETS) Plant Action Tracking System (PATS) as requested by the CDPHE letter of September 12, 1994. Biweekly updates will be provided to you for forwarding to CDPHE with the first update on September 26, 1994.

The container procurement contract was awarded September 14, 1994 to Container Products Corporation. Asphalt repairs to the 750 and 904 pads are currently in progress and expected to be completed by September 16, 1994. Installation of the vents on the 750 and 904 pads is complete. Installation of the new doors on the 750 pad is complete except for the flashing over the new doors and that is in progress to be completed by September 23, 1994. Installation of the doors on the 904 pad and the flashing over the doors is in progress and will be completed by September 30, 1994. Resealing of the tent hold down boards and truck doors is complete on the 750 pad and will be complete on the 904 pad by September 30, 1994.

I would like to point out that the schedule provided in the plan submitted to you on February 28, 1994 was a draft schedule and so labeled. In meeting in April with CDPHE it was pointed out that the schedule duration's were to be used, but the procurement of the containers took longer because it was a major acquisition which required additional actions mandated by the Federal Acquisition Regulations and the Department of Energy (DOE) Orders. At the same meeting when concern was expressed with the duration of the repack effort, it was pointed out that simply adding more personnel to the effort would not necessarily result in a significant improvement since the working space was limited by the existing configuration which requires the completion of repacking of the waste in order to gain access to the next waste packages.

C	X	X
RES CONTROL	X	X
IN RECORD/OBO	X	X
FFIC		
S/T130G		

CLASSIFICATION:

UNCLASSIFIED	
CONFIDENTIAL	
SECRET	

AUTHORIZED CLASSIFIER  
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DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE

REPLY TO RFP CC NO:

CON ITEM STATUS  
PARTIAL/OPEN  
CLOSED  
APPROVALS:

3 & TYPYST INITIALS  
*JL*

**ADMIN RECORD**  
BZ-A-00211

F. R. Lockhart  
September 15, 1994  
94-RF-09629  
Page 2

In spite of the appearance that progress has been lacking, a number of personnel, including procurement, have worked with vigor to make progress and will continued to do so.

Please call me or D. R. Ferrier, extension 8568, or digital page 1841, with any questions or concerns.



S. R. Keith  
Program Manager  
Solar Pond Projects

DRF:jlb

Attachment:  
As Stated

Orig. and 1 cc - F. R. Lockhart

cc:

S. Howard - DOE, RFFO  
M. A. Witherill - DOE, RFFO

Mr. Chris Gilbreath  
Hazardous Waste Facilities  
Hazardous Materials and Waste Management Division  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, Colorado 80222-1530

Dear Mr. Gilbreath:

Attached is a revision to the 904 Pad Compliance Plan which responds to the concerns raised in the Colorado Department of Public Health and Environment (CDPHE) letter of September 12, 1994 on the subject 904 Pad (Resource Conservation and Recovery Act (RCRA) Unit 15B) Mixed Waste Storage Area. The schedule provided therein is achievable given the schedule assumptions provided. Additions include the precipitation management practices which were previously provided in a separate letter, 94-DOE-07126 of June 29, 1994.

Sincerely,

Frazer F. Lockhart  
Director, Environmental Restoration  
Major System Acquisition

cc:  
D. Ferrier, EG&G  
S. Keith, EG&G  
S. Howard, SAIC, RFFO  
J. Roberson, AMER, RFFO  
M. Vargas, WPD, RFFO

ATTACHMENT TO THE MARCH 1993 COMPLIANCE PLAN

Purpose:

To bring the Compliance plan Study of March 1993 up to date to reflect the changed conditions as a result of other Solar Pond activities and the regulatory actions taken to date. This revision adds the concepts for pad precipitation management and pad maintenance objectives to provide a more complete document.

Background:

The compliance plan of March 1993 was undertaken to identify options to store the pondcrete and saltcrete waste within RCRA compliance on the 904 Pad at Rocky Flats Plant (RFP).

Part of the recommendations of the study in March 1993 were implemented. A request for change to interim status to unit 15B to change the unit from container storage to a waste pile was submitted to the Colorado Department of Health (CDH). This request for change to interim status was denied by CDH, who upon review of the submission found that a change in the process for the treatment, storage, or disposal of hazardous waste had not occurred as required by 6 CCR 1007-3 section 100.20(b)(3).

As a result of Inter Agency Agreement (IAG) dispute resolution of September 30, 1993, it was decided to store the pondsludge from the 207 C and the 207 B ponds in RCRA compliant tanks on the 750 pad. This reduced the volume of waste projected to be stored since treatment is deferred and expected volume increases as a result of the cementation process would not occur.

The newly generated saltcrete production rate was revisited and the generation rate for the changed plant mission established at an annual rate of 240 half crates a year versus the stated 300 crates per year. Characterization efforts continued as the data for saltcrete was reviewed against the waste acceptance criteria for a commercially available waste disposal site. This review indicates that the majority of the "backlog" saltcrete meets Land Disposal Restriction (LDR) requirements and that the commercially available waste disposal site acceptance criteria and license requirements can be met by the saltcrete waste characterization. An additional analytic effort for pondcrete was completed in early 1994 which validated the Halliburton NUS characterization and provided additional information that a large percentage of the existing pondcrete blocks stored on the 904 pad had measurable free liquids.

Study Update Results

The changed information above was used to update the study and assess what would be the appropriate method to achieve compliance. Given the desire to make use of the available space without new construction, the study and regulator concerns with rodents, it was determined that method 2b of the study would not resolve these issues. The present condition of the waste will not support stacking to achieve increased utilization of the available space, will add a significant amount of trash for processing, and will not address the concerns over rodent intrusion. Following the logic contained in figure 8, Regulatory Decision Flow Chart, it was determined that a repackaging would be required in a variant of the study's Method 3. An updated figure 8 is attached to provide the current status. In that there are free liquid concerns and

A14

the potential for packing damage by rodents, the use of wooden overpack containers was considered to not resolve these concerns.

As a result of the slumping of the pondcrete triwalls and the swelling of the saltcrete containers a field survey was done to establish the population size for use in determining repack container size and to reverify the layout drawings used in the study. All accessible pondcrete triwalls were measured and found to be 41"x41" and no taller than 32" including the pallets used in previous repacking efforts. The accessible saltcrete triwalls were found to generally be 41"x41" and less than 34" tall. The exception to this was that approximately 150 of the saltcrete triwalls measured had bulged up to 58"x56"x44". Thus the pondcrete triwall population of 5456 triwalls is consistent in size and could fit into one size repack container. However, the saltcrete population of 2313 triwalls on the 904 pad would need to be divided into two sizes of repack containers, one to fit the approximately 2163 41"x41"x34" saltcrete triwalls, and another container to fit the approximately 150 oversized triwalls. In that not all triwalls of saltcrete could be measured in this effort, procurement of the saltcrete repack containers will need to be somewhat flexible on quantities as the repack effort is executed.

The effort to verify the drawings was completed to include all equipment locations, the tent guy wires, monitoring wells, and other tent interferences that would limit the storage of waste. In the re-layout of the 904 pad storage arrangement, it was found that standard commercially available crates which would fit the slumped and swollen triwalls would result in significant void space within the containers and thus would not effectively use the available 904 pad space.

Container selection was based upon compatibility with the waste, sized to hold at least two triwalls, and to meet current DOT requirements. Additionally, the chosen container would have to meet current forklift lifting capacity of 4750 pounds including the weight of the container, have sufficient structural strength to permit stacking of containers on the pad, have sufficient room inside the container to allow lifting straps to be used to load the triwalls into the containers, and be configured to permit handling by forklifts. The following matrix was used to codify those concerns.

Type of containers	Compatibility	Leak tight	Structural Strength	Other
Wood	yes	no 1]	Stacking yes	2]
Plastic	yes	yes	no	
Metals	yes	yes	yes	3]
Metals to HM-169	yes	yes	yes	4]

1] Wood containers would require a liner which has a high probability of tearing during repack waste handling operations as the triwalls were placed in the containers.

2] Currently all wood containers must have a fire retardant coating applied prior to issue for use as specified by Fire Prevention Department to delay ignition start in case of fire.

3] These containers would meet the current DOT regulations.

4] HM-169 requirements have not yet been implemented by DOT. The required hearings and comment period have not yet been started. Thus the normal "grandfathering" of five years is not expected to start in the near future. HM-169 specifies performance based testing for the containers.

The conclusions reached was that two sizes of containers would be required, one for the general sized triwalls packed two triwalls per container and an other oversized container which would contain one of the "swollen" saltcrete triwalls. Metal is the preferred container based on structural strength, compatibility with the waste form and the potential for liner damage during handling. The container weight would be a maximum of 3500 pounds, 1500 pounds per triwall and 500 pounds for the container. This would require procuring 3810 containers with an inside dimension of 45"x 86"x 35" and 150 containers with dimensions of 60"x 60"x 45". An examination of the corrosion of metal containers currently in use was done with the Materials & Surface Technology group concluding that 14 gauge containers should provide satisfactory service for a minimum of 20 years.

The container specifications which will be issued to Procurement for solicitation include the following attributes:

Minimum of 14 gauge steel for corrosion considerations

Coating 4 mil thick epoxy

Size

- 3768 containers 45"x 86"x35" internal measurement

- 150 containers 60"x 60"x 45"

Forklift accessible

Structurally capable of stacking 4 high

A phased delivery to minimize empty container storage requirements

Structural engineering reviewed the pad load bearing strength and concluded that given an average load bearing capacity of 2000 pounds per square foot, stacking of containers up to five high would be permissible providing that adjacent stacks were banded together for seismic concerns. They also recommended that load dispersion be considered since asphalt would tend to yield over time with any concentrated load.

The selected containers were incorporated into the layout, Drwg #51003-100. Incorporating the tent specific interferences and stacking up to four containers high, there is sufficient room on the 904 pad to repack all the existing triwalls without moving any of the heaters installed in the tents. If the heaters were to be raised, an additional 200 containers could be stored. In summary, 4348 containers will fit on the 904 pad which will repack all triwalls and provide for an access aisle of ten feet per tent and individual aisles of 26 inches within the tents.

#### Permitting Requirements Review

As part of the repackaging review effort, upgrading the 904 pad to comply with permitted storage unit requirements was considered. The only significant additional requirement for permitted storage unit versus the present interim status is the requirement for secondary containment. The cost and schedule impacts for providing secondary containment as part of this repackaging effort were found to be prohibitive. In addition, RFP plans to dispose of the waste stored on the 904 pad, so pursuing long term permitted storage for the waste does not appear appropriate at this time. Given the decision to continue to operate the 904 pad under RCRA

interim status, the applicable sections of the Colorado Waste Regulations were reviewed with the following results.

Type of Container (Part 265, Subpart I)

- Not specified. The option chosen will provide for the use of steel, strong tight containers.

Condition of Containers ( Section 265.171 )

- Container must be in good condition ( no rusting, structural defects, or leaking). The containers selected will be new and the technical specifications will include these relevant proscriptions.

Compatibility of Waste with Containers ( Section 265.172 )

- Container must be made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired. The containers will be coated with an epoxy paint and the receipt inspection will verify continuity of the coating.

Inspections ( Section 265.174)

- At least weekly, the owner or operator must inspect areas where containers are stored, looking for leaking containers and for deterioration of containers caused by corrosion or other factors. Inspection of the containers will continue at the weekly frequency using the cited standards.

Aisle Space Requirements (Section 265.35)

- Must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment and decontamination equipment to any area of facility operation in an emergency. For each tent on the 904 pad there will be one access aisle of ten feet, and individual aisles of 26 inches.

Stacking Restrictions (Part 265, Subpart I)

- Not specified. To effectively use the available space an engineering analysis of the pad was done and it was determined that stacking up to four high of the selected containers could be accomplished safely. Additionally, the report recommended banding together adjacent stacks to achieve stability to meet seismic concerns. This will be done as repacking progresses.

Free Liquids (Section 260.10 )

- " Free liquids" means liquids which readily separate from the solid portion of a waste under ambient temperature and pressure. An absorbent material will be placed in each new container of pondcrete at an amount necessary to absorb twice that found to be present in the recent characterization effort as a "Best Management Practice".

### Cost and Schedule

Cost and schedule were reviewed based on the above repackaging approach. The container costs were estimated at \$410 per small container and \$465 for the larger containers which are a pre-negotiated estimate of the costs. Upon approval of the repackaging effort, a Request for Proposal will be issued to further refine the cost. In the competitive bid process, the price was established as \$796 for the smaller containers and \$876 for the 150 larger containers. The Waste Solidification efforts were based on a crew of ten repacking 40 triwalls per day. At this rate, the task would take approximately 39 weeks after the start of container arrivals. The total estimated cost for this effort is \$5,874,738. Detailed estimates and the schedule to achieve compliance are attached.

### Precipitation Management Practices

The concepts presented here are the same as previously provided to CDH in June 1994.

#### o Pad Upgrades

The doors and vents on both pads are being replaced by stronger and more durable hardware. This effort is planned to be completed in September 1994. The new doors will have a sill which is one inch high and will be sealed to the pad. This will correct the cause of the majority of the in-flow to the tents.

Recaulking of the tent perimeter seals has been completed. Additional sealing around the area where the tent metal support structure meets the pads is in progress and is planned to be completed in September 1994. Additional sealing is being placed around the truck doors as part of this task. This effort is part of a normal summer activity which is planned and accomplished each year.

It is to be noted that due to the nature of the tents, water from snow or heavy rains can penetrate to the interior of the tents. The above actions will restore the tents to the as designed condition and provide a foundation to minimize the infiltration of precipitation.

#### o Pad Asphalt Maintenance Objectives

Normal activities on the pads, in particular, the use of forklift trucks or other support activities cause the asphalt to degrade. The pads are inspected as part of the RCRA inspections and all deficiencies are noted in the inspection report. Waste Solidification management reviews and dispositions these reports into the appropriate work document. In general, asphalt repairs are scheduled for the summer months. Currently as a result of the movement of the sludge into tanks on the 750 pad, additional ramps, including clean fill, are being used to mitigate the damage to the pads caused by truck movement. Upon completion of this activity, asphalt repairs and resealing of the affected area will be completed. There are currently areas not impacted by the sludge movement activity that have been identified as available for repair. These areas are currently being contracted for repair by the on-site contractor and will be completed in September. All berms have been restored to the "as installed" height.

#### o Precipitation Management

Drainage pipes constructed of six inch black HDPE piping will be bonded into a concrete berm. The concrete berm will be constructed such that the concrete will extend six inches into the pad asphalt and sealed to the pad asphalt. The cement berms will be placed at the low points on each pad. The pipes will be fitted with "cam lock" closure devices on

each pipe. This task is currently in the design process where the design details are being codified.

Any liquids that are inside of a tent will be collected and sent to the Building 374 Evaporator as is the current procedure. If there have been no spills on the pad which have not been triple rinsed as specified by pad operating procedures, then precipitation which collects on the pads will be drained off the pad. If spills have occurred but have not been triple rinsed, then the precipitation collected will be sent to the Building 374 Evaporator. The closure devices on the drainage pipes ( when installation is complete) will be maintained in a closed position if there has been a spill until the spill has been triple rinsed or if there are evolutions in progress which present a high risk for spills, i.e., decant operations outside of the tents.

Conclusions of the update study

The proposed method detailed above will achieve compliance to interim status regulatory requirements and should proceed after CDPHE review and comment and DOE/RFFO approval is received. The pad maintenance and precipitation practices detailed above will provide a firm foundation to minimize any impact to the environment. Biweekly updates, verbally or in writing will be provided to CDPHE as requested in the CDPHE letter of September 12, 1994

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**10.1 BASIS OF ESTIMATE/BACK-UP DOCUMENTS**

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Activity Number: <b>Total - 12153/1320356000</b>	Total Hours:	18,477
Activity Title: <b>Repack/Restack 904 Pad</b>	Non-Labor Dollars:	4,084,234
	Total Dollars:	5,874,738

**10.1.1) Scope Description:**

All work associated with repacking and restacking the triple-wall (tri-wall) containers on the 904 pad. Includes required loading tri-walls into metal containers, labeling, and paper work, e.g., Waste Residue Travelers, RCRA Saltcrete/Pondcrete Log Sheets, WEMs, etc.

**10.1.2) Primary Driver(s):**

Interagency Agreement (IAG), Resource Conservation and Recovery Act (RCRA), Code of Colorado Regulations (CCR) 6 CFR 1007-3, Colorado Hazardous Waste Regulations, Part 265, Sub-part I, Use and Management of Containers.

**10.1.3) Milestones/Deliverables:**

Completion of the repacking of Tri-wall containers in metal crates and stacking per IAG/RCRA requirements and all associated labeling and paperwork.

**10.1.4) Assumptions:**

1. Effort will repack 40 tri-walls per day.
2. An adequate number of qualified workers will be available.
3. Tent 11 Perma Con will not have to be removed to complete the effort.
4. All work will take place in the tents and will not require the use of Perma Cons.
5. Any spills of material which occur during repacking operations will be contained within the bounds of the RCA and will not require the use of a Perma Con during clean-up and re-containment efforts.

**10.1.5) Estimating Approach / Estimating Rationale:**

A bottoms-up approach was used to arrive at the estimate using a combination of the compliance study dated February 28, 1994 and Engineering Judgement. In addition, data contained in the Pad Operations and Waste Storage Cost Investigative Team (CIT) Final Report, dated May 4, 1994, was used to determine training and administrative/technical support requirements. Both of these referenced documents are on file in the Solar Pond Project Office (SPPO).

**Repack/Restack 904 Pad (continued)**

**LABOR HOURS**

Cost Center 1397:

Effort to move material in preparation of repack/restack activity:

WS: 6 PS x 3 weeks x 40 hours/week = 720 hours

Cost Center 1397:

Shift Manager for coordination of all repack operations.

WS: 1 SM x 39 weeks x 40 hours/week = 1560 hours

Cost Center 1397:

Forklift drivers (3): One required for tri-wall retrieval, one for tri-wall loading, and one for steel container and lid placement and other support.

WS: 3 PS x 39 weeks x 40 hours/week = 4680 hours

Cost Center 1397:

Forklift Spotters: One spotter for each forklift.

WS: 3 PS x 39 weeks x 40 hours/week = 4680 hours

Cost Center 1397:

Administrative/technical support for this project.

WS: 1 x 39 weeks x 40 hours/week = 1560 hours

Cost Center 1397:

Training required for the WS personnel associated with this project. Since this is a one-time activity, training hours are determined separately from the baseline pad activities, i.e., activities 1000 through 5000. Hours were calculated based on what the CIT report determined was the proper training for a full year and then adjusted for the activity taking place in 39 weeks. Total hours to complete the activity for each source of labor were divided by 1237.5 hours to determine the approximate number of personnel requiring training. (Note: 39 weeks = .75 years, FTE = Full Time Equivalent - strictly used for determining the approximate number of personnel requiring training)

Process Specialists (PS)

13,200 hours ÷ 1237.5 hours/FTE/.75 year = 12 FTE PS

12 PS x 103 hours/.75 year = 1236 hours

Shift Manager (SM)

1 SM x 117 hours/.75 year = 117 hours

Tech/Admin Support (T/A)

1 T/A x 53 hours/.75 year = 53 hours

11/14

**Repack/Restack 904 Pad (continued)**

Cost Center 3090:  
Training support for this project.  
1 T x 39 weeks x 5 hours/week = 195 hours

Cost Center 1397  
Labels/Forms  
These activities will be performed at the 904 Pad during the repack/restack operation. This includes the completion and application of all labels and the completion and processing of all required forms and paper work. This activity also includes verifying and validating the old crate log numbers and the new label numbers and thus must proceed apace with the repacking effort.  
WS: 1 PS x 39 weeks x 40 hours/week = 1560 hours

Cost Center 0379:  
Establish an RCA for each tent as repacking occurs. Man RCA and conduct surveys as required.  
1 RCT x 39 weeks x 40 hours/week = 1560 hours

Cost Center 3061  
System Engineering Support to validate installation to CAD Drawings.  
1 x 39 weeks x 4 hours/week = 156 hours

Cost Center 1392  
Waste Inspection of 1000 containers with LDR compliant Saltcrete.  
This estimate is based on previous inspections and engineering judgement.  
2 Waste Inspectors x 1000 containers x .20 hours/container = 400 hours

**NON-LABOR DOLLARS BASIS OF ESTIMATE**

All costs below are from Request for Quotations (RFQ) from the supplying vendors. Additional documentation to support these quotes is on file at the SPPO.

Cost Center 3002  
Containers (price includes shipment FOB to RFETS)  
4,000 small containers x \$796./container = \$3,184,000.

150 large containers x \$875.80/container = \$131,250.

Cost Center 3002  
Absorbent Material (Radsorb or equivalent).  
6,355 # x \$14.95/# = \$95,000.

12/14



Assumptions Repack 904 Pad Schedule

Aisle space requirements will be founded on the RCRA regulation performance based requirements.

Radiological controls practices will not change from that planned, use of the permacon will not be stipulated.

Weather concerns will not shut down operations on plant site nor impact the delivery of containers from the vendor.

The container delivery concept of "just-in-time" will obviate the need for a major lay-down area to stage the containers.

There will be no major reductions in force which would require a major retraining effort for Process Specialists "bumped".

The execution of the restack configuration will fit the CAD derived configuration and will not require the removal of the Tent 11 Permacon.

The absorbent material will be appropriate and compatible with the downstream processing design as it is developed.

There will be no proscription to unpack the waste from the pallets, triwalls, and plastic wrapping as a result of out-year processing concerns.

The planned man-power will be sufficient to repack/restack forty triwalls per shift.

7/24