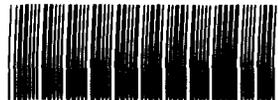


**NOTICE!**

**ALL DRAWINGS  
ARE LOCATED  
AT THE END OF  
THE DOCUMENT**



000021573

CORRES CONTROL  
OUTGOING LTR NO

DATE ORDER# \_\_\_\_\_

# EG&G ROCKY FLATS

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

94 RF 02424 ✓

February 28, 1994

94-RF-02474

F R Lockhart  
Environmental Restoration Division  
DOE,RFO

904 PAD COMPLIANCE PLAN STUDY OF MARCH 1993 - SRK-039-94

Attached is the update to the 904 Pad Compliance Plan Study of March 1993. This update was completed in response to your ltr 94-RF-01226 of June 28, 1994. The recommended approach is one that will achieve compliance on the 903 Pad and will not result in the construction of additional tents for storage. Let it be noted that due to procurement lead times, the containers are not expected to start arriving until June. This will provide the time necessary to complete the Accelerated Sludge Removal Project (ASRP) including the clarifier. This will enable manpower leveling and orderly sequencing of the involved Waste Solidification personnel. I await your review and comments. We are committed to bringing the 904 Pad into Resource Conservation and Recovery Act (RCRA) compliance.

EG&G is prepared to meet with the regulators concerning this plan at your convenience. Should you have any questions regarding this study, please contact D R Ferrier, extension 8568.

*A R Keith*

S R Keith  
Program Director  
Solar Pond Projects

DRF clh

Orig and 1cc-F R Lockhart

Attachment  
As Stated

M Vargas - DOE,RFO  
S Howard - DOE,RFO

DIST		
AMMEL ME		
BENEDETTI RL		
BENJAMIN A		
BERRIAN HS		
BRANCH DB		
CARNIVAL GJ		
COPP RD		
DAVIS JG		
FERREIRA DW		
HANCOCK BJ		
HARRIS LK		
HEALY TJ		
HEDGHL T	XX	
HUBIG JG		
HUTCHINS NM		
KIRBY WA		
LESTER AW		
MAHFFEY JW		
MANN HP	X	
MAPS GE		
MCDONALD MM		
MCKEYNA FG		
MONTROSE JK		
MORCAN RV	XX	
POTTER GL	XX	
PIZZO VM		
RISNG TL		
SANDLIN NB		
SETLOCK GH		
STEWART DL		
SULLIVAN MT		
SWANSON ER		
WILKINSON RB	X	
WILLIAMS STORCI		
WILSON JM		
WYANT RD		
Touchybeet	XX	
S J Roberts	XX	
D R Ferrier	XX	
W J Freeling	XX	
File G	XX	
CORRES CONTROL	XX	
ADMN RECORD/080	XX	
PATS 30C		
TRAFFIC		

CLASSIFICATION		
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE

DATE

REF TO REF CO NO

STATUS

DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE

UNRECORDED

**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

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

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 "grand fathering" of five years is not expected to start in the near future.

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"

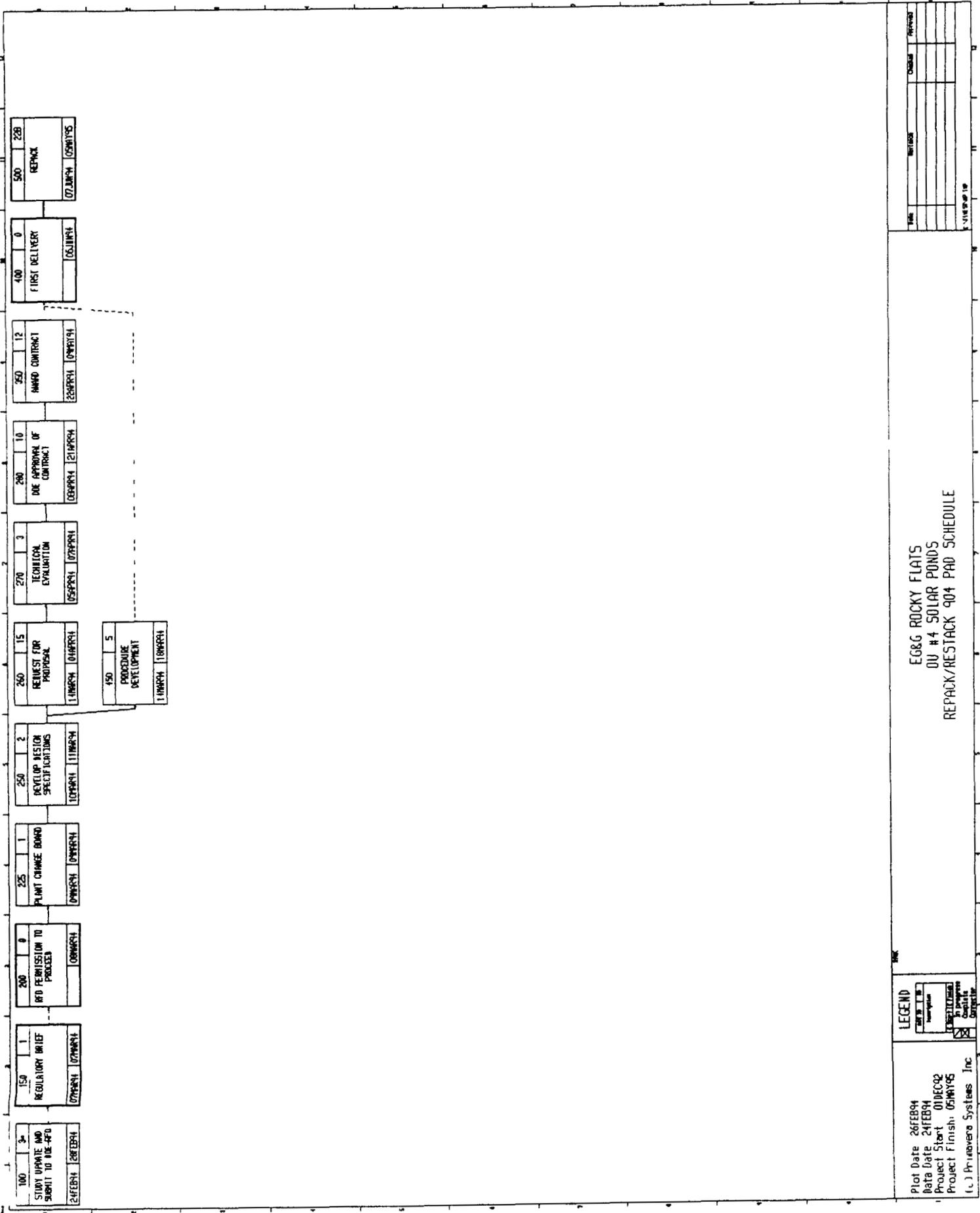
Cost and Schedule

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. 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 \$3,624,399, with \$2,314,661 in FY 94 and \$1,309,738 in FY 95. Detailed estimates and the schedule to achieve compliance are attached.

Conclusions of the update study

The proposed method detailed above will achieve compliance to interim status regulatory requirements and should proceed after CDH review and comment and DOE/RFO approval is received.





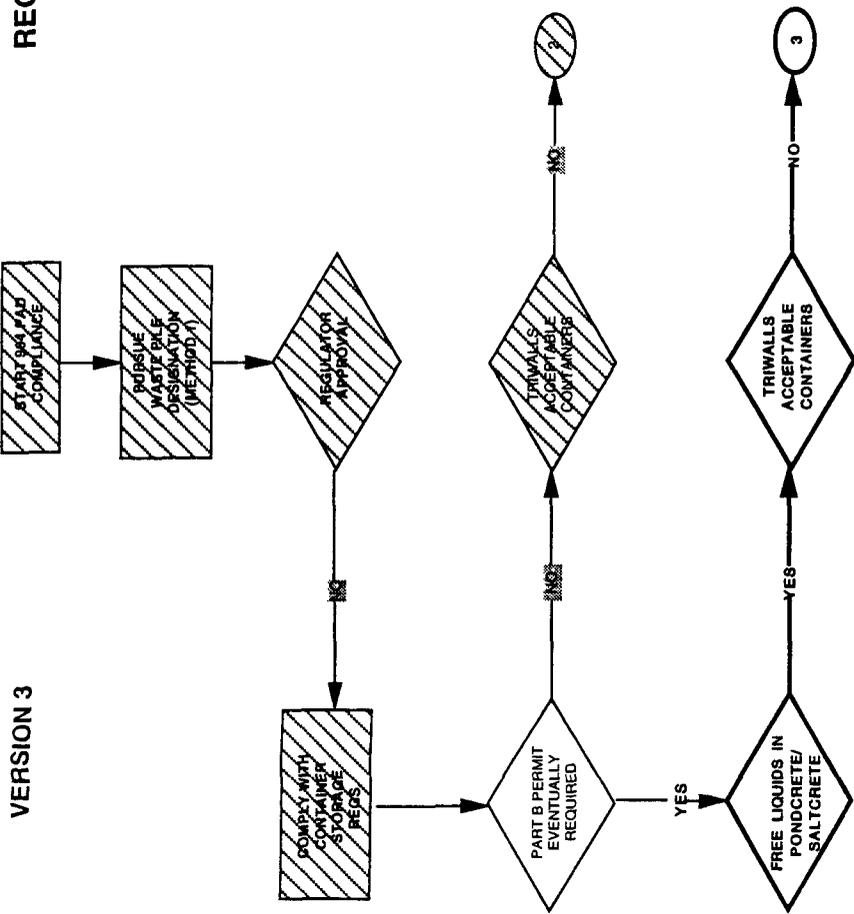
EG&G ROCKY FLATS  
 DU #4 SOLAR PONDS  
 REPACK/RESTACK 904 PAD SCHEDULE

**LEGEND**

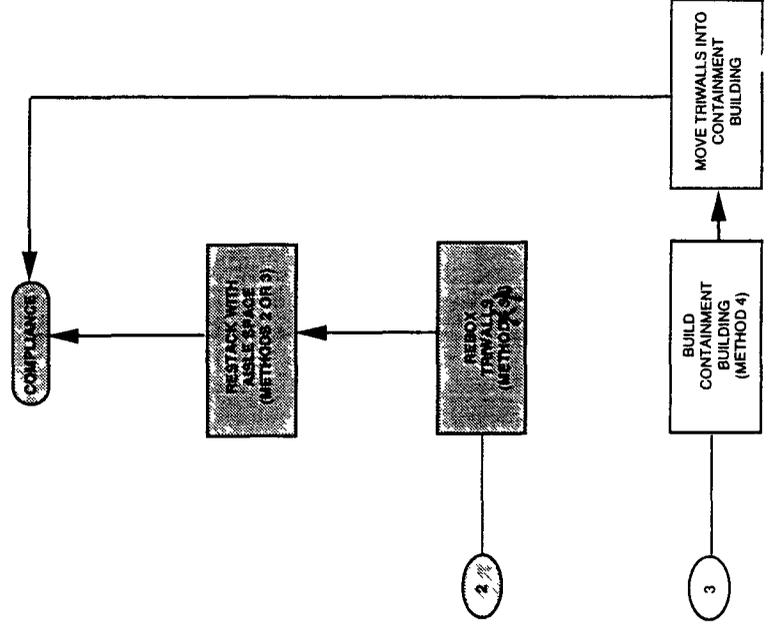
CONSTRUCTION  
 COMMISSIONING  
 OPERATION

Plot Date: 26 FEB 94  
 Beta Date: 24 FEB 94  
 Project Start: 01 DEC 92  
 Project Finish: 05 MAY 95  
 (c) Primavera Systems, Inc.

REGULATORY DECISION FLOW CHART  
 FIGURE 8



VERSION 3



 COMPLETED HOWEVER A LITTLE DIFFERENT  
 INDICATED AREAS BEING EMPHASIZED  
 INDICATES PLANNED ROUTE

**7 1 BASIS OF ESTIMATE**  
**repack/restack 904 pad Total costs EM40/EM30 75%/25%**

Activity Number FY 94 Total Hours 10,840  
 Non-Labor Dollars \$1,398,107  
 Total Dollars \$2,314,661

Description Funds execution of 904 Pad restack/repack compliance study

Basis of Estimate This estimate is based upon the compliance study completed 2/28/94 Container procurement is funded partially FY 94 with completion in FY 95 Assumes that all material will be available to start repack May 2,1994

Cost Center	Cost Element	Basis of Estimate	Hours or unburdened \$'s
1397	750	Provided labor for placing steel underlayments for each stack, shift manager during all repack operations, foreman (overhead), three forklift drivers, one for triwall retrieval, one for triwall loading, one for lid and steel placement, and other support The stacking to be done by "free" forklift one spotter per forklift (total 3) two WS for triwall loading and lid installation One Admin support 22 weeks FY 94 This effort should repack 40 triwalls per day An additional 3 weeks of effort to move material to prepare for the restack is included Six operators 720 hours total	9520
0379	750	Establish a RCA for each tent as repacking occurs Man RCA and conduct surveys as required 22 weeks one shift per day, 5 days per week	880
0264	750	Once per week, band adjacent stacks together Two carpenters 8 hours per week, 22 weeks	352
0264	A5C	Banding material	\$4400 (2 rolls/week@\$100/roll)

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3061	750	System Engineering Support 88 4 hours per week Validate installation to CAD Drwgs	
3002	A5H	Container procurement 2640 at \$496 each	\$1309440 Incremental funding 2640 FY 94 , 1320 FY 95
3002	A5C	Absorbent material Radsorb or equivalent Triwall moisture@ 7ml/100grams = 105#/triwallx 5456 = 572880#'s water Radsorb per # of water = 0 011 = 6302 #'s Radsorb	\$14 95 per # = \$95000 for 115 ,55# packages

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Work Package Manager

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Central Planning Representative

**7 1 BASIS OF ESTIMATE**  
**repack/restack 904 pad Total Costs EM40/EM30 75%/25%**

Activity Number FY 95 Total Hours 7,820  
 Non-Labor Dollars \$648,694  
 Total Dollars \$1,309,738

Description Funds execution of 904 Pad restack/repack compliance study This activity completes the repack effort commenced in FY 94

Basis of Estimate This estimate is based upon the compliance study completed 2/28/94 Container procurement is funded partially FY 94 with remainder in FY 95

Cost Center	Cost Element	Basis of Estimate	Hours or unburdened \$'s
1397	750	Provided labor for placing steel underlayments for each stack, shift manager during all repack operations, foreman (overhead), three forklift drivers, one for triwall retrieval, one for triwall loading, one for lid and steel placement, and other support The stacking to be done by "free" forklift one spotter per forklift (total 3) two WS for triwall loading and lid installation One Admin support 17 weeks FY 95 This effort should repack 40 triwalls per day	6800
0379	750	Establish a RCA for each tent as repacking occurs Man RCA and conduct surveys as required 17 weeks one shift per day, 5 days per week	680
0264	750	Once per week, band adjacent stacks together Two carpenters 8 hours per week, 17 weeks	272
0264	A5C	Banding material	\$3400 (2 rolls/week@\$100/roll)
3061	750	System Engineering Support 4 hours per week Validate installation to CAD drws	68

**EG&G ROCKY FLATS, Inc**  
Fiscal Year 1994 Work Package Documentation

Work Package Number  
Revision No

Attachment 1  
SRK-039-94  
Page 12 of 13

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3002	A5H	Container Procurement 1170 at \$496 each and 150 at \$584 each	\$667,920	Incrementally funded 2640 FY 94, 1320 FY 95
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Work Package Manager

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Central Planning Representative

