

Draft

DOE/EA-0432

APPENDIX F: RESPONSE TO COMMENTS

ENVIRONMENTAL ASSESSMENT OF  
SUPERCOMPACTOR AND REPACKAGING  
FACILITY AND TRU WASTE SHREDDER

U.S. DEPARTMENT OF ENERGY  
Rocky Flats Plant  
Golden, Colorado



July 1990

DOCUMENT CLASSIFICATION  
REVIEW WAIVER PER  
CLASSIFICATION OFFICE

ADMIN RECORD

## EXECUTIVE SUMMARY

This is a Response-to-Comments document published as Appendix F to the Environmental Assessment of Supercompactor and Repackaging Facility and TRU Waste Shredder (DOE/EA-0432, March 22, 1990) This document contains all of the comments received on the environmental assessment and DOE's responses to them

On March 30, 1990, the Department of Energy (DOE) published a proposed finding of no significant impact (FONSI) in the *Federal Register* (Vol 55, No 62, pp 11997-12000) The proposed FONSI was based on and summarized DOE's environmental assessment (EA) on the proposed action to complete the construction and to operate a supercompactor and repackaging facility (SARF) and a transuranic (TRU) waste shredder (TWS) in the existing Building 776 at the Rocky Flats Plant (RFP) The SARF and TWS, respectively, would compact and shred solid plutonium contaminated TRU wastes, including TRU wastes that contain hazardous constituents The *Federal Register* notice also stated that the proposed FONSI and the EA were being made available for a 30-day public comment period Comments received by the DOE would be considered prior to a final determination whether to prepare a FONSI or to prepare an environmental impact statement for the proposed action In response to public request, the DOE published a follow-up notice in the *Federal Register* on May 16, 1990 (Vol 55, No 95, p 20297) announcing an extension of the public comment period on the proposed FONSI to May 22, 1990

Approximately 154 comments on the proposed FONSI and the EA were received from 14 commenters The comments were segregated into 19 categories of issues and concerns, and responses to the comments were prepared Categories of issues and concerns that received 10 or more comments each were Radiological Impact Analysis (27 comments), Ventilation and Filtration (24 comments), Criticality (14 comments), Gas Generation (10 comments), and Liquids Management and Processing (10 comments)

The majority of the responses to comments required restating or clarifying information that was contained in the EA Some of the public concerns regarding the proposed action and its impacts together with DOE's responses are listed as follows

- Concern The EA did not address the impacts of plutonium in the existing ventilation ducts at RFP
- Response Plutonium has been found in a number of ducts at RFP and a program is underway to remove plutonium from any duct that has 400 grams or more of plutonium. Also, steps will be taken to reduce its future accumulation and a comprehensive monitoring program is being implemented to monitor any further accumulation so that accumulation can be addressed before it becomes a problem. With the exception of one line that feeds into Plenum 250 (which is no way affected or influenced by operation of the SARF and TWS), the duct assay program has found only small amounts of plutonium in ducts in Building 776. The measurement program is continuing and will provide more details on the status of plutonium in ducts. The SARF and TWS will have a completely new duct work all the way to the second story of Building 776. This will tie into an elbow just above Plenum 205 which contains four stages of high efficiency particulate air (HEPA) filters. Operation of the SARF and TWS will not impact or be impacted by any current accumulation of plutonium in ducts at Rocky Flats.
- Concern Supercompacted wastes are proposed to be stored in buildings which do not meet design basis criteria for wind and earthquakes
- Response The EA states that efforts will be implemented over the next two to three year period to reduce the risk of storing supercompacted wastes to levels lower than those associated with the status quo by transferring wastes into buildings designed to withstand severe natural phenomena (e.g., earthquakes and extreme winds)
- Concern The proposed action includes the disposal of wastes at the Waste Isolation Pilot Plant (WIPP) which is not currently operational
- Response The Rocky Flats Plant has a 1601 cubic yard limitation for on site storage of TRU-mixed wastes. If WIPP or other sites are not available to receive supercompacted or non-supercompacted wastes prior to reaching the 1601 cubic yard limit, it will be necessary to halt waste production at RFP in order to comply with the limit or a variance will have to be received from the State of Colorado
- Concern Details of the alternative near-term storage proposal were not included in the EA
- Response As stated in the EA, in addition to using the existing storage capacity at RFP, the DOE is in the process of reviewing a proposal for alternate near-term storage for RFP TRU-mixed waste which includes both on-site and off-site options. These options are being evaluated in the event that additional storage space is needed for RFP. Separate NEPA documentation for this proposal is being prepared. Commenters requested the NEPA documentation for storage at alternate sites, and this document will be provided for public review when it is available.
- Storage of RFP wastes at an alternative site was considered as an alternative to supercompacting the wastes. However, this alternative was not considered to be reasonable or substantially different from the no action alternative due to the continued requirements for repackaging of wastes in the Size Reduction Vault using supplied air suits. The original intent and purpose of the SARF was to reduce the external radiation dose to workers during waste handling and repackaging, to enhance safety, and to reduce waste volume and process costs. Storage of RFP wastes at an alternative site instead of supercompacting would not achieve these objectives.

This document contains DOE's response to the public comments. However, the comment and response process did not bring forth new information to indicate that the proposed action will significantly affect the quality of the human environment.

In response to the public comments, the document further explains the proposed action with appropriate clarification of its impacts

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## ACRONYMS

ACGIH	American Conference of Governmental Industrial Hygienists
AIC	Acceptable Intake - Chronic
APCD	Air Pollution Control Division
APEN	Air Pollution Emission Notice
AQCC	Air Quality Control Commission
ASRF	Advanced Size Reduction Facility
BEIR	National Research Councils Committee on the Biological Effects of Ionizing Radiation
CDH	Colorado Department of Health
CFR	Code of Federal Regulations
CO <sub>2</sub>	Carbon Dioxide
CRCPD	Conference of Radiation Control Program Directors
DAC	Derived Air Concentration
DBE	Design Basic Earthquake
DBW	Design Basic Wind
DOE	Department of Energy
DOP	Diocetylphthalate
DOT	Department of Transportation
EA	Environmental Assessment
EDF	Environmental Defense Fund
EDL	Economical Discard Limits
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
FONSI	Finding of No Significant Impact
HEPA	High Efficiency Particulate Air
HI	Hazard Index
ICRP	International Commission on Radiological Protection
INEL	Idaho National Engineering Laboratory
LET	Linear Energy Transfer
NDA	Non-Destructive Assay
NEPA	National Environmental Policy Act
NESHAPS	National Emission Standards for Hazardous Air Pollutants
OSHA	Occupational Safety and Health Administration
RCRA	Resource Conservation and Recovery Act
RFCC	Rocky Flats Cleanup Commission
RFP	Rocky Flats Plant
SAAM	Selective Alpha Air Monitor
SARF	Supercompactor and Repackaging Facility
SEIS	Supplemental Environmental Impact Statement
TLLA	Total Long-Lived Alpha

TLV	Threshold Limit Value
TRU	Transuranic
TRUPACT II	Transuranic Package Transporter
TWS	TRU Waste Shredder
WIPP	Waste Isolation Pilot Plant
WIPP-WAC	Waste Isolation Pilot Plant Waste Acceptance Criteria

## 1 0 INTRODUCTION

A proposed finding of no significant impact (FONSI) on the Environmental Assessment of Supercompactor and Repackaging Facility and TRU Waste Shredder, DOE/EA-0432 (EA) was published on March 30, 1990, in the *Federal Register* (Vol 55, No 62, pp 11997-12000). Copies of the EA and the proposed FONSI were delivered or mailed to the Governors of Colorado and New Mexico, Colorado congressional delegates, local officials, interested organizations, public reading rooms, libraries, etc. during the period of March 26-30, 1990.

The proposed FONSI stated that it and the EA were being made available for public comment for a period of 30 days following the date of *Federal Register* publication of the notice. Comments postmarked within the 30-day public comment period would be considered by the DOE prior to a final determination whether to issue a FONSI or to prepare an environmental impact statement for the proposed SARF and TWS project. The *Federal Register* notice contained addresses for requesting additional information and to obtain a copy of the EA.

On May 16, 1990, a notice was published in the *Federal Register* (Vol 55, No 95, p 20297) that the public comment period on the proposed FONSI was being extended to May 22, 1990.

This document contains responses to the comments received on the proposed FONSI and EA during the March 30 to May 22, 1990, comment period. Comments on the proposed FONSI and EA have been received from the following individuals and their respective organizations:

- |   |  |                     |
|---|--|---------------------|
| 1 | Anonymous Commenter 1  | (A-1)               |
| 2 | Anonymous Commenter 2  | (A-2)               |
| 3 | Eugene J Riordan<br>Vranesh and Raisch<br>for the City of Broomfield               | (A-3 through A-6)   |
| 4 | John G Haggard (two letters)<br>Colorado Department of Health<br>State of Colorado | (A-7 through A-11)  |
| 5 | Paula Elofson-Gardine<br>Concerned Health Technicians for a Cleaner Colorado       | (A-12 through A-16) |

6	Melinda Kassen and Nakisa Serry Environmental Defense Fund	(A-17 through A-22)
7	Barbara A Moore Director of Front Range Affirmative Action Group Director on the Board Rocky Flats Clean-up Commission	(A-23 through A-26)
8	Jason Salzman Greenpeace Action	(A-27 through A-35)
9	Jonathan P Carter Office of the Governor State of Idaho	(A-36 through A-37)
10	Rich Ferdinandsen, Chairman Board of County Commissioners Jefferson County, Colorado	(A-38 through A-40)
11	Garrey Carruthers, Governor State of New Mexico	(A-41)
12	Craig Kish Rocky Flats Cleanup Commission	(A-42 through A-46)
13	Joe Tempel Rocky Flats Cleanup Commission	(A-47 through A-48)
14	George Hovorka, Mayor City of Westminster	(A-49 through A-50)

A copy of each of the letters containing comments is contained in Attachment A to this Response to Comments

After review of the letters containing comments, the comments were sorted into 19 categories of issues and concerns as identified in the Table of Contents. Where more than one comment was the same or very similar, the comments were grouped together and a collective comprehensive response is presented. Commenters can locate their specific comments, responses to their comments, and responses to other comments on the same topic by referring to the respective categories of issues and concerns, and by referring to Attachment A for the comment number associated with their comment.

## 2 0 COMMENT CATEGORIES AND RESPONSES

### 2 1 VOLUME REDUCTION

2 1 1 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *It does not seem feasible that one 55 gallon drum will be able to hold four (4) 35-gallon drums which contain four (4) 55-gallon drums For a total of 16 compacted 55 gallon drums and 4 compacted 35-gallon drums plus the original waste volume inside each of the original 16 55-gallon drums DOE needs to provide a calculation of the total mass of the 20 drums plus the estimated mass of the stored waste to see if that will indeed fit into one 55-gallon drum*

2 1 2 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *The amount of plutonium allowed for each drum of hard or soft waste will have to be less than 7 grams of plutonium for each drum If you are going to achieve the volume reduction anticipated of having 16 pucks inside 1 overpacked 55-gallon drum Knowing this, why would DOE establish the 50 gram limit for each drum? Or lets be more realistic and say we are looking at a 2 to 1 volume reduction*

2 1 3 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 5-61 -- The EA claims the average volume reduction will be 5 1 from the SARF As stated supra, not all the waste is capable of supercompaction Page 3-3 of EA states that 60% of the waste production (70 cubic yards per month) can be processed through the supercompactor Therefore, 42 cubic yards of waste can be supercompacted at a reduction factor of 5 1 This reduces the 42 cubic yards to approximately 8 cubic yards However, 40% of the waste cannot be supercompacted So 28 cubic yards are unaltered The bottom line is that 28 cubic yards (unaltered) plus the 8 cubic yards of supercompacted waste yields approximately 36 cubic yards at the end of the process Thus, 70 cubic yards is reduced to about 36 cubic yards, which is an overall reduction of two to one (2 1) and not five to one (5 1) While the first page of the EA admits this, the remainder of the EA fails to acknowledge it This overall reduction of 2 1 should be stated so that the reader is not led to believe that the SARF will cut the waste at the RFP by 5 1 It is misleading to state otherwise and has the effect of putting the SARF in a better light than it is due*

2 1 4 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *While the EA states that wastes will be reduced 5 to 1 with the SARF and 2 to 1 with the TWS, a statement is made on page 3-31 that "each overpack drum will be limited to a maximum of 16 drums of soft waste " This appears to be a reduction factor of 16 to 1 What is correct?*

Response To Comments 2 1 1-2 1 4

Page 3-3 of the EA states the SARF is expected to provide an average volume reduction of 5 to 1, and page 3-14 states an overall reduction in waste volume of 2 to 1 or better is anticipated from the TWS The 5 to 1 and 2 to 1 ratios are estimates of average volume reduction Actual volume reductions may vary from not more than 16 to 1 for soft combustible wastes (maximum of four pucks which each received the contents of a maximum of four drums of soft waste during precompaction and

collectively do not exceed 100 grams plutonium and 800 pounds) to no reduction (those drums that are approximately equal to or exceed the 100-gram plutonium limit or 800-pound weight limit)

As stated on page 1-1, not all wastes can or will be supercompacted. An overall volume reduction of 2 to 1 will be realized for all TRU-mixed wastes taking into account those wastes that would not otherwise be supercompacted.

2 1 5 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *This document states that current waste production is approximately 70 cubic yards per month. If that volume is reduced 5 to 1 that volume amount would be reduced to 302.4 cubic yards of Supercompacted waste plus 1008 yards of waste that could not be processed by SARF. With this in mind there is little storage space available at the Plant. Why should we continue to pour more money into this Supercompactor when we should be shutting down the plant? For the price I just don't see where we will be able to get our money's worth.*

2 1 6 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Additionally, it appears that the benefits from the proposed action might be distorted because the EA claims that the supercompactor will reduce waste by a factor of five to one (5:1). While the first page of the EA states that the overall reduction is 2:1, other sections of the EA fail to remind the reader of this. Page 3-3 of EA states that 60% of the waste production (70 cubic yards per month) can be processed through the supercompactor. Therefore, 42 cubic yards of waste can be supercompacted at a reduction factor of 5:1. This reduces the 42 cubic yards to approximately 8 cubic yards. However, 40% of the waste cannot be supercompacted. So 28 cubic yards are unaltered. The bottom line is that 28 cubic yards plus the 8 cubic yards of supercompacted waste yields approximately 36 cubic yards at the end of the process. Thus, 70 cubic yards is reduced to about 36 cubic yards, which is an overall reduction of two to one (2:1) and not five to one (5:1). Failure to state the overall waste volume reduction is misleading when the EA claims a 5:1 reduction from supercompacting.*

Response To Comments 2 1 5-2 1 6

Page 3-3 of the EA states that it is difficult to predict the annual quantity of TRU and TRU-mixed waste that will be processed in the SARF. During 1987 and 1988 fiscal years, an average of 33,550 cubic feet (1,243 cubic yards) of TRU and TRU-mixed wastes were produced that could have been supercompacted. Due to the variability in process operations and the concerted waste minimization effort to decrease unnecessary production of TRU and TRU-mixed wastes, these rates have been reduced and should continue to be reduced in the future. During normal operations, waste production is approximately 70 cubic yards per month.

Table 2-1 shows the 1987 and 1988 average TRU and TRU-mixed waste production, and the approximate normal TRU and TRU-mixed waste production, and the resulting waste production rates with supercompaction.

In addition to reducing waste volumes, the proposed action will reduce external radiation dose to workers, will enhance safety, and will reduce process costs.

2 1 7 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *1987 and 1988 fiscal years are quoted as having an average of 33,550 cubic feet of TRU and TRU-mixed wastes generated. Were these typical years? It would be appropriate to give an accounting of quantities of waste generated on a year-by-year basis for the last 10 years of this facility.*

TABLE 2-1

**1987 AND 1988 AVERAGE AND APPROXIMATE NORMAL  
TRU AND TRU-MIXED WASTE PRODUCTION**

	<u>1987 and 1988 Average Production</u>		<u>Approximate Normal Production</u>	
	<u>Cubic Yards per Month</u>	<u>Cubic Yards per Year</u>	<u>Cubic Yards per Month</u>	<u>Cubic Yards per Year</u>
A Average Waste Production	173	2071	70	840
B Average Waste Production to be Supercompacted (60% of A)	104	1243	42	504
C Volume after Supercompaction at 5 to 1 Volume Reduction (20% of B)	20.8	249	8.4	101
D Average Waste Production not Supercompacted (40% of A)	69	828	28	336
E Average Waste Production after Supercompaction (C plus D)	90	1077	36.4	437
F Total Waste Volume Reduction (Ratio of A to E)	1.9	1.9	1.9	1.9

at least Many question exactly how much waste has been generated since the inception of this facility We would make that a request again, that an accounting would be appreciated at this point in time Averages tend to downplay high production years, hidden by curtailed operations or times of inventory, etc

Response

As indicated in response to Comments 2 1 5 - 2 1 6, during normal operations waste production that could be supercompacted is approximately 70 cubic yards per month The 1987 and 1988 fiscal years average waste production that could have been supercompacted does not represent typical current or future annual production operations, considering the concerted waste minimization efforts that have and are continuing to take place The average 1987 and 1988 fiscal years waste production provides a maximum annual waste volume that is expected to be supercompacted during normal routine operations (not including existing stored wastes as discussed in Section 3 1 3 of the EA) Waste generation rates of waste that could have been supercompacted during prior years are not relevant to the proposed action or its impacts considering that these rates have no bearing on the rate of waste production proposed to be supercompacted because waste generation rates are considerably lower than in the past and are anticipated to remain at the lower rates

2 1 8 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment The EA states that selection of the drums for supercompaction will be based on the compactibility of the material contained EA, p 3-7 DOE should explain in the final EA the factors it will use to determine compactibility

Response

Compactibility will be determined based on the weight and mass of waste in the drum Pucks will be selectively placed in the overpack drum so as to minimize void space If necessary, the height of the pucks will be controlled by not compacting to maximum density, thus minimizing void space in the overpack

2 1 9 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment On page 3-20 a statement is made that "during the initial SARF operating period an estimated maximum of approximately 15,000 cubic feet (5,000 cubic yards) of TRU and TRU mixed wastes will be removed from storage, repackaged and supercompacted concurrently with the normal waste production feed to the SARF " On page 3-22 a statement is made that "approximately 80% of the waste to be processed in the SARF and TWS will be TRU mixed " If 80% of the 5,000 cubic yards or 4,000 cubic yards are TRU mixed waste, has the Rocky Flats Plant already exceeded the 1601 yard limit?

Response

There are 27 cubic feet in 1 cubic yard (3 feet by 3 feet by 3 feet) Approximately 15,000 cubic feet equals approximately 555 cubic yards The Rocky Flats Plant has not exceeded the 1601 cubic yard limit

2 2 **OPERATION**

2 2 1 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment DOE claims that one of the values of the SARF is to enhance operational safety by reducing the need for supplied breathing air suits Is this claim related to, or intended to respond to the criticism leveled at DOE by the National Academy of Sciences for allowing a "respirator culture" to have developed

at Rocky Flats? Will the SARF allow those operating it to do so for entire shifts without the need for respirators? If not, how does DOE intend to monitor workers to ensure that they are using respirators properly and that the respirators are maintaining a high level of worker protection? Are there other actions that DOE is undertaking to reduce the need for supplied breathing suits further or is DOE also considering enhancing the suits in a manner that would reduce occupational risk hazards?

#### Response

The SARF is designed to replace a current operation in the Size Reduction Vault that involves repackaging drums of wastes into large open containers. The task routinely creates airborne radioactivity in the Size Reduction Vault. Worker protection is provided by supplied-air suits because the process does not lend itself to engineered controls. Part of the design basis for the SARF was DOE Order 5480 11, Radiation Protection for Occupational Workers, Section 9 J (1)(c) Internal Radiation Exposure, which states

As a design objective, exposure of personnel to inhalation of airborne radioactive materials is to be avoided under normal operating conditions to the extent reasonably achievable. This will normally be accomplished by confinement and ventilation.

Almost all operations associated with either the SARF or the TWS will be performed within their respective gloveboxes, which provide containment of radioactive contamination. Under normal operating conditions, all operations in the glovebox will be performed without respirators or other respiratory protection devices.

The only parts of the SARF and TWS operation for which respiratory protection is required are the opening of boxes or drums of waste to be placed into the gloveboxes and removal of filled drums from the bag ports. Although drums and boxes of waste will be opened on down-draft tables, administrative procedures dictate that respirators be worn whenever a waste drum or other container of waste is opened. Administrative procedures also dictate the use of respirators whenever material is being removed from a glovebox through a bag port. In both operations, the local ventilation is designed to control the potential for creating airborne contamination. The respirators are worn as an additional precautionary measure.

Administrative procedures dictate that two workers be present whenever a waste drum is to be opened. Radiation Protection personnel also must be present whenever a waste drum is opened or a bag port is changed. One of the duties of the Radiation Protection Monitor is to assure that all personnel present are wearing appropriate protective clothing, including respiratory protection devices.

Other actions not related to the proposed action that DOE or Rocky Flats Plant contractors may take to reduce the need for supplied-air suits in other plant operations or to enhance the performance of supplied-air suits would be discussed in the documentation for those operations or enhancement activities.

#### 2 2 2 Melinda Kassen and Nakisa Serry Environmental Defense Fund

Comment The EA asserts that during precompaction photoelectric cells on either side of the precompactor will be connected to safety, shut-off devices that will disable the precompactor ram if personnel have their hands in the gloves during precompaction. EA, p 3-8. Will this mechanism apply when the grapples/hoist is operating?

#### Response

The grapples hoist is located on a monorail system (not associated with the piston movement of the precompactor) and is operated by controls located on a panel outside of the glovebox and, therefore, use of the photoelectric cell system does not apply. The two functions are spatially oriented so that this type of interlock is not appropriate.

2 2 3 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA states that the floor surface and sealant are free of gaps and cracks EA, p 3-6 Provisions should be made for on-going observation of this present commendable status in order to prevent problems that may arise if and when the SARF and TWS are operating*

Response

Standard operating procedures will require routine inspection and maintenance of the SARF and TWS equipment, the floor, etc Any problems that are encountered will be corrected An operational review will be conducted prior to operation Routine inspection and preventive maintenance of the floor surface and the sealant will be a requirement in the Standard Operating Procedures, and verification will be a requirement of the operational review

2 2 4 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *Because safe operations of the SARF and TWS depend in part on the safe condition of the sprinklers and the nuclear criticality controls already in place in building 776 and other storage buildings, the EA should evaluate such systems and indicate whether they are functioning properly*

Response

The sprinklers and the nuclear criticality controls already in place in the existing buildings are subject to the current Operational Safety Requirements (OSR) which

- maintain surveillance to insure that the system is operating properly A surveillance program provides for periodic inspection and confirmation of the proper functioning of safety protection systems and components,
- mandate that the system will not operate if limiting conditions for operation are not met,
- provide for remedial actions if the system becomes non-functional, and
- program a time period for operations to shut down and cease if problems develop

2 2 5 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 5-7 It is inferred from the EA that the impacts of the SARF are compared to other current operations and then assessed as increased or decreased risk This infers that the other current operations are a baseline and are therefore a "safe" level While the SARF can be said to be relatively better or worse than current operations, I would hesitate to say that because the SARF improves upon current operations that the SARF is "safe"*

Response

The scope of the EA is to analyze the SARF and TWS as a proposed action Since the SARF improves upon current operations, it will result in less risk than the no action alternative

2 2 6 **Anonymous Commenter 2**

Comment *The Environmental Assessment should also evaluate the impacts of removing the wastes (in plastic liners) from the metal drums prior to compaction Concerns about gas generation and use of relatively short-lived containers at WIPP may lead to exclusion of metal drums*

## Response

Metal drums are necessary to contain the wastes both during precompaction and supercompaction, although the possibility of using non-corroding metals will be considered as part of the Waste Isolation Pilot Plant (WIPP) Test Phase experimental program. Without containerization, the soft wastes would spread and disperse horizontally during precompaction and after the mold is removed during supercompaction. Also, without containers such as 35-gallon drums during supercompaction, the wastes could not be compressed into a confined contained package such as a puck.

The drums used to ship the waste to WIPP are certified DOT-7A containers as required by the WIPP Waste Acceptance Criteria (WAC). The waste could not be shipped in plastic liners only. As necessary, prior to disposal at WIPP, the supercompacted pucks could be removed from the 55-gallon overpack drums and the drums could be recycled, however, this would increase waste handling and the potential for increased radiation exposure to workers.

With drum piercing prior to supercompaction and the use of carbon composite filters for venting air pressure in the overpack drum, gas generation should not create a greater problem in drummed waste than it would in plastic bagged waste. Also considering that the WIPP-WAC requires DOT-7A containers, it is not a reasonable alternative for the EA to consider exclusion of metal drums at WIPP.

2 2 7 **Paula Elofson - Gardine**  
**Concerned Health Technicians for A Cleaner Colorado**

Comment *It is noted that there are no diagrams of hydraulic systems, drains, glove box details, ducts, or placement of the above. It would be useful in assessing this EA to be able to put into perspective the associated piping, ductwork, and electrical utilities.*

### Response

Diagrams of hydraulic systems, drains, glovebox details, ducts, and their placement in Buildings 776/777, Building 374, etc. were not included in the EA because they contain Unclassified Controlled Nuclear Information subject to Section 143 of the Atomic Energy Act of 1954 as amended (42 USC 2168) and are therefore not available for public dissemination. To the extent possible, DOE has attempted to provide the diagrams necessary for analysis in Figures 3-1 through 3-7 of the EA.

2 2 8 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Photoelectric cells are noted as safety shutoff devices for disabling the precompactor ram to protect operator personnel. These can be over-ridden or malfunction. This has been personally witnessed a number of times, several occasions in fact had disastrous consequences for the operator (at another facility). With this in mind, we would suggest that an aggressive preventative maintenance program be applied to assure that in fact the photoelectrics are operating as intended.*

### Response

The photoelectric cell safety feature has been designed so that it can not be overridden. Operation of the cell will be verified on a Preventive Maintenance Order (PMO) schedule, as are all mechanical devices used at the Rocky Flats Plant. Operation of the photoelectric cell indicator light, located on the Precompactor Control Console, will also be verified on a PMO schedule. This will be accomplished through the use of a lamp test button located on the console to verify that all console indicator lights are operational.

PMO schedules involve the routine inspection and change of materials such as oils, hydraulic fluids, glovebox gloves, etc. The schedules help to ensure worker safety and protection of public health and the environment. They also serve to extend the usable lifetime of mechanical equipment through routine maintenance. PMO schedules are based on, but are more conservative than, manufacturer

recommendations and maintenance specifications because Rocky Flats Plant operating experience is also considered when establishing the schedules

**2 2 9 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado**

Comment *Five different manual steps are noted for the TWS operation, yet operator error is not adequately addressed for the TWS either. An automatic kick-out device is noted that will reject unshreddable materials from the shredding chamber, details of the operation of this device are not given. How exactly will unshreddable materials be identified? What criteria will allow the automatic identification to occur? Would this be subject to photoelectric, pressure-sensitive detectors, etc? What protective devices will prevent the TWS from possible stoppage or breakage should unshreddables get through?*

Response

The automatic kick-out device on the shredder reverses the direction of rotation of the shredder blades when materials are introduced to the shredder that will not pass through the blades. In addition to this automatic device, administrative controls will be in place to ensure that only filters and graphite molds are introduced to the shredder. Visual inspection of materials to be shredded will also take place at the shredder waste entry airlock chamber. In the event that unshreddable material becomes lodged in the shredder, the unit will be cleaned manually via a maintenance access panel.

**2 3 VENTILATION AND FILTRATION**

**2 3 1 Eugene J Riordan  
Vranesh and Raisch for City of Broomfield**

Comment *As a final matter, the City believes that the integrity of the roof top exhaust system must be fully evaluated. Air monitoring of emissions must also be stepped up prior to the implementation of the project and that data as well as subsequently collected data should be made available to the public to ensure that there is no negative impact on the environment.*

**2 3 2 Melinda Kassen Nakisa Serry  
Environmental Defense Fund**

Comment *The condition of the present ventilation system in building 776 has not been assessed in the EA. The EA must show that it is functioning properly upon a complete evaluation before the proposed action can be approved.*

**2 3 3 Rich Ferdinandsen  
Jefferson County, Colorado**

Comment *The Board has two major concerns regarding off-site impacts. The first is a reaction to the statement that "the only potential exposure to the public from routine operations of the SARF and the TWS will be from radioactive particulates emitted from the Building 776 rooftop exhaust vents" (Sec 1.3). Although off-site exposure is projected to be minimal, it would be our request that air monitoring be intensified during the early months of use of this new equipment. The Governor's Scientific Panel on Monitoring Systems will soon release its recommendations. An effort to implement those recommendations dealing with air monitoring should be made before the supercompactor becomes operational. Results of the monitoring should be made public as quickly as possible to assure the public that the SARF and the TWS are in fact not having a negative impact on air quality off-site.*

2 3 4 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *The Supercompactor and TRU Waste Shredder should be constructed so it will have a totally independent filter and ventilation system. There needs to be a separate bank of HEPA filters and vent system. The plan to use the existing ventilation system which holds an extremely large volume of plutonium is careless. It demonstrates a total disregard for safety to the workers and the public. This is not acceptable. It is highly unlikely that the existing system was designed for the added volume of air the Supercompactor and Waste Shredder will discharge into this filter system. The current ventilation system should not be used unless all the plutonium inside is removed.*

2 3 5 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *The methodology of calculating exposure to worker and the Public did not address the added impact from having large amounts of plutonium in the ducts also being released in the event of an accident with the SARF facility. Without this being taken into consideration the existing exposure calculations have no real credibility.*

2 3 6 **Jason Salzman**  
**Greenpeace Action**

Comment *The EA should assess existing ventilation system in Building 776. The SARF would be connected to the ventilation system in building 776. The EA should assure the public that the existing ventilation system in Building 776 is free of plutonium. Before operating the SARF/TWS, DOE should first address the hazard posed by substantial plutonium accumulations in the air duct, accumulation which could increase with the operation of the SARF/TWS.*

2 3 7 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 5-1,2 It is stated that the HEPA filters will be tested to assure efficiency, but can it then be inferred that releases to the atmosphere can be occurring until the filters are checked? Should not the effluent be constantly monitored to assure quality and the operation shut down immediately upon determining any problem?*

2 3 8 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *Our greatest concern is with the plutonium in the existing ductwork at Building 776 where the SARF and TWS are located. Before any more gloveboxes are hooked up to this ductwork, it should be cleaned and further contamination should be prevented. The criticality potential of the plutonium should be assessed to determine if any immediate action should be taken to prevent a criticality.*

*The RFCC is concerned that the supercompactor will cause excessive pressure on the HEPA filters and the glovebox system may not contain the plutonium particles which escape during compaction. This possibility should be thoroughly analyzed before operation.*

2 3 9 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *The RFCC is generally concerned with the quality control throughout the whole process. As a minimum, the State of Colorado's monitoring system should be installed at the stacks before operations begin. How can we be assured that the HEPA filters are installed and changed regularly?*

*What documentation will be prepared to assure the public that proper procedures are being followed? How can the public be assured that the HEPA filters are capturing the smallest plutonium particles generated by the SARF and TWS?*

2 3 10 **Paula Elofson - Gardine**  
**Concerned Health Technicians for A Cleaner Colorado**

Comment *Impacts of construction indicate location of the two units to be in building 776. The main impacts have been listed as the release of radioactive particulates from rooftop exhaust. UNLESS THE 62 POUNDS OF PLUTONIUM IN THE DUCTWORK IS REMOVED prior to construction and addition of ventilation of the SARF/TWS to the existing ductwork system, this is unacceptable proposed action. There will be a considerable volume of particulate matter produced by this operation. If existing holdup of nuclear materials is not addressed, this poses an unacceptable risk to both worker and community, as this will certainly add to the problem.*

Response To Comments 2 3 1-2 3 10

Plutonium has been found in a number of ducts at RFP and a program is underway to remove plutonium from any duct that has 400 grams or more of plutonium. Also, steps will be taken to reduce future accumulation, and a comprehensive monitoring program is being implemented to monitor any further accumulation so that accumulation can be addressed before it becomes a problem. With the exception of one line that feeds into Plenum 250 (which is in no way affected or influenced by operation of the SARF and TWS), the duct assay program has found only small amounts of plutonium in ducts in Building 776. The measurement program is continuing and will provide more details on the status of plutonium in ducts. The SARF and TWS will have completely new ductwork that extends to the second story of Building 776. This ductwork will tie into an elbow just above Plenum 205, which contains four stages of high efficiency particulate air (HEPA) filters. Operation of the SARF and TWS will not impact or be impacted by any current accumulation of plutonium in ducts at Rocky Flats.

The SARF and TWS emissions will be filtered and vented out of Plenum 205. The HEPA filtration system and the plenum are currently operating at 40 percent capacity. With the addition of the SARF and TWS gloveboxes, the plenum will be operating at approximately 67 percent capacity. The existing glovebox ventilation and filtration system in Buildings 776/777 has adequate capacity for the addition of the SARF and TWS gloveboxes.

As discussed on pages 4-5 and 4-6 of the EA, gases and air from processing gloveboxes, down-draft tables, and exhaust hoods are filtered through a minimum of four stages of HEPA filters before being discharged. General room air from process areas passes through a minimum of two stages of HEPA filters prior to discharge. Filtered air is discharged to rooftop ventilation exhausts where flow measurement totalizers record the rate of airflow.

Continuous particulate air samplers operate at a rate of 57 liters (2 cu ft) per minute at each ventilation exhaust. Sample filters are analyzed for total long-lived alpha (TLLA) emitters to indicate the air quality in the work area, the air quality of the emissions, and the efficiency of the air filtration systems. If the TLLA concentration in any sample filter exceeds  $0.02 \text{ pCi/m}^3$ , an investigation is conducted to determine the cause and to implement corrective action.

Process area air and the ventilation exhausts are continuously monitored by selective alpha air monitors (SAAMs) which are sensitive to the alpha radiation of americium and plutonium for immediate detection of abnormal conditions. At preset alarm levels, the SAAMs actuate a signal to alert building personnel of the elevated radiation and the need for corrective action. These monitors are tested and calibrated routinely to maintain sensitivity.

Both the particulate air monitoring and the monitoring by SAAMs are conducted continuously, negating the need for more frequent monitoring. The monitors would indicate if the filters are operating correctly, or if small plutonium particles are bypassing the filters. The results of airborne effluent monitoring are made available to the public in the monthly and annual monitoring reports. The reports describe applicable guides and standards, the quality control program, analytical procedures, and the results of the monitoring.

2 3 11 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment The EA states that workers will operate the SARF through a glove box with an airflow minimum of 150 ft/min directed into it EA, p 3-5 Does this comply with accepted national standards for protection against worker exposure? In addition, will the glove box be equipped with a bypass system? If so, will it be free from the defect in all existing glove boxes at the Plant that has allowed workers to bypass the prefilter on their own initiative? Finally, will there be shielding (to protect workers from the gamma radiation associated with Americium) for glove box workers similar to that in use at commercial reprocessing facilities in Europe, or will this glove box merely have the amount of shielding associated with the old and inadequate glove boxes presently in use elsewhere at the Plant?

Response

The American Conference of Governmental Industrial Hygienists (ACGIH) provides the most definitive guidance for air flow rates at open hoods. The recommendations in the ACGIH publication number 19 are for 125 to 150 feet per minute minimum flows. Their more recent recommendations in publication number 20 are for lower flows but with restrictions on the engineering design of the hood and air supply. The SARF glovebox airlock design is based on the upper limit of the recommended range.

The glovebox ventilation system does not incorporate a bypass around the prefilter. The estimated environmental impacts are not influenced by the performance of the prefilter. All estimates of environmental releases were performed without consideration of any particulate removal by the prefilter.

The SARF glovebox will not be shielded. Since none of the drums to be handled in the SARF have radiation fields high enough, either singly or in combination, to require shielding the glovebox. During the initial design phases of the SARF, a number of European facilities already using supercompaction were contacted to determine their experience with the process and equipment. Included were the following facilities:

- KfK - Karlsruhe Nuclear Research Center, Karlsruhe, West Germany
- KfA - NUKEM Kartstien Facility, Hanau, West Germany
- Energy Center for Netherlands, Petten, Netherlands
- Brunsbütal Power Station, Brunsbütal, West Germany
- General Electric Mobile Supercompactor, Europe

None of these facilities provide a direct comparison of glovebox design because none of them have installed the equipment in gloveboxes.

European commercial reprocessing facilities are not a good comparison for this operation because their operations may include handling material with much higher levels of radioactivity and much higher dose levels than the waste processed to be in the SARF.

The other potential source of radioactivity in the gloveboxes will be accumulated contamination on the inner surfaces of the glovebox and associated equipment. The compacting operation performed in the SARF glovebox will not produce large amounts of dust and contamination buildup will therefore not be a significant source of radiation exposure. Because the shredding that takes place in the TWS operation is a dusty operation, the TWS glovebox will be lead shielded.

2 3 12 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment Section 112 of the Clean Air Act lists certain compounds regulated by NESHAPS. Will the HEPA filters used in the waste management process satisfy the NESHAPS requirements with regard to the beryllium and radionuclides generated and likely to be found in the emissions at Rocky Flats?

## Response

Section 112 of the Clean Air Act lists hazardous materials of concern whereas EPA regulations at 40 CFR 61 describe standards applicable to both beryllium (10 grams/day) and radionuclides (effective dose equivalent 10 millirems/year) HEPA filters used in the waste management process are designed and operated to control the environmental release of these particulate materials to amounts well within these standards

### 2 3 13 **Craig Kish** **Rocky Flats Cleanup Commission**

Comment *Further, the EA states that effluent SAAM's will alarm "if significant increases in airborne alpha activity are detected" What is considered significant? Will the operation cease immediately? What is the contingency plan?*

### 2 3 14 **Craig Kish** **Rocky Flats Cleanup Commission**

Comment *It is stated that an investigation will be conducted to determine the cause of emissions exceeding 0 020 pCi/m<sup>3</sup> What occurs in the mean time? Do operations cease or simply continue while the investigation occurs?*

#### Response To Comments 2 3 12-2 3 13

Page 5-2 of the EA (first partial paragraph fifth line) contains an error which has been corrected on the errata to the EA contained in this document as Attachment B If emissions of non-specific alpha emitters exceed 0 020 pCi/m<sup>3</sup> (not 0 20 pCi/m<sup>3</sup>), an investigation will be conducted to determine the cause(s) and the corrective action that will be taken There is no immediate or long-term health hazard at a release level of 0 02 pCi/m<sup>3</sup> For example, 0 02 pCi/m<sup>3</sup> is more than one hundred times lower than the most restrictive Derived Air Concentration recommended by the International Commission on Radiological Protection (ICRP), without considering the dilution that will occur when the material leaves the vent and is dispersed in the surrounding air If there is a potential health risk, the necessary operations will be shut down until the problems are corrected

### 2 3 15 **Craig Kish** **Rocky Flats Cleanup Commission**

Comment *Finally, I question whether or not the proposed action have as little impact on air and water quality as the EA suggests Are the HEPA filters as effective as claimed for the particle size released during supercompaction?*

### 2 3 16 **Paula Eloffson-Gardine** **Concerned Health Technicians For A Cleaner Colorado**

Comment *Air ventilation is referred to in reference to the TWS as being ducted to 776 glovebox vent systems, filtered through four stages of HEPA filters Again, we would emphasize inefficiency of HEPA's and lack of characterization of the particle size distribution in impact to local environment*

#### Response to Comments 2 3 15-2 3 16

Particles released during supercompaction are expected to be in the same size range as particles released by other routine operations at RFP, which are effectively collected on HEPA filters The most likely source of air contamination is the handling of contaminated waste inside the glovebox This type of air contamination is similar to contamination produced by other operations for which the HEPA filtration system has proven highly effective

The particle sizes of plutonium and plutonium aerosols generated in chemical operations fall within the range of the size of maximum penetration for HEPA filters, 0.07 to 0.3  $\mu\text{m}$  for light scattering mean diameter, the size of maximum penetration for high density particulates such as plutonium is substantially higher. The aerodynamic mean diameter of plutonium particles formed by condensation is thought to be between 0.4 and 0.7  $\mu\text{m}$ . A HEPA filter by definition has a maximum filter efficiency for factor acceptance of 99.97 percent for 0.3- $\mu\text{m}$  particles. This is verified by using a dioctylphthalate (DOP) monodisperse test. Each filter is further tested when installed to an efficiency of 99.9 percent using a cold DOP test to 0.8  $\mu\text{m}$ .

Problems associated with handling and installing these filters, and design characteristics that do not allow post-installation (in-place) testing of some of the older systems have prompted DOE to establish the following performance credit criteria: 0.0010 penetration (99.9 percent efficiency) for in-place testable stages and 0.0020 penetration (99.8 percent efficiency) for stages not testable in-place.

Research indicates that maximum filter penetration by plutonium oxide ( $\text{PuO}_2$ ) aerosol was observed between 0.2 and 0.4  $\mu\text{m}$  with particles of sizes larger and smaller than those having lower penetration (i.e., greater penetration). Hence, the composite filter reduction factor is approximately  $8 \times 10^{-12}$  (99.9 percent for the first stage, and 99.8 percent for the three subsequent stages) for particles falling within the ranges of particles found at RFP (References: ERDA 76-21, "Nuclear Aircleaning Handbook", and LA 6546, "Performance of Multiple HEPA Filters Against Plutonium Aerosols").

2.3.17 John G. Haggard  
Colorado Department of Health

Comment HEPA filter systems are listed as the main control, it was assumed these are the existing systems for buildings 776/777. If they are new systems, that fact should be stated. This also makes a difference in the permitting requirements for the APCD.

Response

The HEPA filter system that would be used to control particulate emissions from Buildings 776/777, are the existing HEPA filtration systems. The SARF liquid collection ring, 4-liter tank, pump and associated filters will be enclosed in the supercompactor glovebox. All emissions will be vented through the glovebox exhaust which is filtered through a glovebox prefilter and then a four-stage existing HEPA filter system at Plenum 205. The annular liquid collection tank is vented through four stages of HEPA filters in Plenum 207, and the fiberglass liquid collection tanks are vented through individual tank HEPA filters and two stages of HEPA filters in Plenum 250. (Refer to response to Comments 2.8.1-2.8.3 for a description of the liquid collection system.)

The TWS glovebox is also vented through the glovebox exhaust which is prefiltered and then through four stages of HEPA filters at Plenum 205.

Only the SARF glovebox and TWS glovebox prefilters are new filtration systems that will be connected to the existing ventilation and filtration systems in Buildings 776/777.

2.3.18 John G. Haggard  
Colorado Department of Health

Comment The TRU Waste Shredder (TWS) which shreds graphite molds and HEPA filters will create high levels of particulate emissions. In this portion of the document, no control is listed. In section 4.2.3, Air Quality, there is a short reference to HEPA filter control. This should be included in the early portion and expanded to provide complete information on the control used for the TWS.

Response

TWS emissions will be filtered by the same HEPA filtration system as used for SARF emissions. The glovebox containing the TWS will tie directly into the existing glovebox ventilation system in Building 776. Configuration and volume modifications will not be required. This ventilation system is routed through four stages of high-efficiency particulate air (HEPA) filters in series. The air pressure inside the

glovebox will always be kept at a negative pressure with respect to areas outside of the gloveboxes so that airflow will always be in the direction of increasing contamination. The areas outside of the glovebox will vent to the two stages of HEPA filtration now existing for these areas. The areas will be kept at a negative pressure with respect to surrounding non-process areas.

2 3 19 **John G Haggard**  
**Colorado Department of Health**

Comment *HEPA filters are excellent for control of particulates, however, they are not an adequate control for gaseous emissions. There will be a number of different gases emitted from this process which appear to be totally uncontrolled.*

Response

The environmental consequences of gaseous emissions of hazardous materials were calculated as part of the EA. The assumptions made for this calculation are very conservative leading to an estimate of the upper limit for environmental effects rather than a realistic evaluation of the likely consequences. The conservative assumptions include the following:

- Releases from the SARF are assumed using the estimated annual throughput of drums containing four categories of TRU mixed waste. The TRU mixed waste categories include combustible waste, metal waste, filter waste, and glass waste.
- Typical drums are assumed to contain all of the hazardous materials known to occur in the identified waste types and at their respective maximum concentrations.
- All organic materials contained in each drum are assumed to be released in vapor form through the ventilation system to the environment during shredding, precompaction, or supercompaction.
- The estimated potential volatile emissions from filter waste shredded in the TWS are included in the SARF calculations.
- All of the mercury is assumed to be released to the SARF glovebox in particulate form. To account for that which may exist as vapor or that which may be vaporized during compaction, it is assumed that the amount passing through the HEPA filters is increased by a factor of ten for mercury.
- Except for the lead contained in glass, almost all other lead being compacted is in the form of lead metal. The calculations assume one percent of the metal becomes airborne inside the glovebox.

The composition of hazardous chemicals expected to be released annually under normal operations is provided in Table 5-10 of the EA. Table 5-10 also provides an estimate of the upperbound quantities of annual chemical releases and a hazard assessment of their significance.

2 3 20 **John G Haggard**  
**Colorado Department of Health**

Comment *Section 1.3, Impacts of Operation – States air quality impacts will be measured by particulate samplers in the stacks. No specifics are provided on sampler type. Later in section 4.1.2 they discuss samplers but they only cover radioactive components and not the broad spectrum of compounds which may be emitted.*

Response

The sample tube is affixed to a particulate filter holder and connected to the central exhaust system. A continuous stream of effluent is drawn through the filter for testing. The filter is changed out twice per week, and each sample is individually analyzed for total long-lived alpha activity. Individual

samples are composited once per month into a single sample for isotopic analysis. Radionuclides and beryllium are the primary contaminants of concern in sampling. The air pollution emission notice and emission permit process under the Colorado Air Quality Control Act will serve to identify any additional monitoring/control needs for other compounds. Table 5-10 of the EA provides the composition of hazardous chemicals expected to be released annually under normal operations.

**2 3 21 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado**

**Comment** *Release of gases, chemicals, and radionuclides on a "routine" basis is not addressed*

Response

On a routine basis, as discussed in response to Comments 2 3 1-2 3 10, total long-lived alpha emissions from the SARF and TWS will be maintained below 0.02 pCi/m<sup>3</sup>, and as discussed in response to Comment 2 3 12, beryllium emissions will be maintained below 10 grams per day and radionuclides will be maintained below the effective dose equivalent 10 millirems per year. As stated on page 1-4 of the EA, the calculated exposure to a hypothetical individual located at the RFP site boundary during all SARF and TWS operating hours will be  $1 \times 10^{-10}$  rem/year, which is approximately one billionth of the applicable DOE limits as well as one billionth that received from natural background radiation.

Table 5-10 of the EA itemizes the maximum annual releases of hazardous chemicals to the environment.

**2 3 22 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado**

**Comment** *Radionuclide air concentrations are broadly stated to be maintained to concentrations less than 0.02 pCi/m<sup>3</sup>. Considering monitoring deficiencies, this appears at best to be a statement of overconfidence, without sufficient current state-of-the-art characterization of emissions data.*

Response

As reported in the annual monitoring reports for RFP, emissions are routinely maintained below 0.020 pCi/m<sup>3</sup>. The annual monitoring reports also define the applicable guides and standards, the analytical procedures and the quality control that is used during monitoring and analysis.

As discussed in response to Comment 2 3 14, there is no immediate or long-term health hazard at a release level of 0.02 pCi/m<sup>3</sup>.

**2 3 23 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado**

**Comment** *The reference to exhaust effluent sampling and alarm systems is not particularly reassuring considering the deficiencies noted by many assessment teams as well as the Scientific Panel on Monitoring Systems. None of the sampling addresses volatilization of particulates or particle size distribution, or gases for that matter. The alarm system has been known to have many failures both in annunciation and in operator "failure" of shutting them off due to constant false alarms.*

Response

The alarms associated with the vent particulate air samplers identified in Section 5.1.5 of the EA, function primarily to warn the building personnel that an unexpected change has occurred in the radioactive particulates being released from the vent. The change may or may not involve the SARF or TWS. The response to the alarm is to determine where the increased activity may have originated and take appropriate steps to correct the situation. The fixed air samplers on the vent provide a redundant sample of vent releases. Although these samplers do not have an alarming function, analysis of the filters provides higher sensitivity monitoring of the releases.

Page 5-2 of the EA (first partial paragraph fifth line) contains an error the 0.20 pCi/m<sup>3</sup> should be 0.02 pCi/m<sup>3</sup> (refer to Attachment B, Errata). Thus, if emissions of non-specific alpha emitters exceed 0.020 pCi/m<sup>3</sup>, an investigation will be conducted to determine the cause(s) and the corrective action that will be taken. There is no immediate or long-term health hazard at a release level of 0.02 pCi/m<sup>3</sup>.

Under operating conditions, volatilization of particulates does not occur with any of the radionuclides known in the wastes. No monitoring of gasses is indicated by releases from the SARF or TWS processing. As demonstrated in Section 5.1.4.3, the risks associated with the potential hazardous chemical releases from SARF and TWS operation are not significant.

2.3.24 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Venting of gases from waste containers has not been adequately addressed. Do storage areas have gas detection devices to monitor concentrations and buildups that are hazardous? What about operator error and gas hazard controls? Dust control measures are not adequately addressed either. The air exchange noted for the glovebox area may not be adequate to handle the dust generated and/or gases and/or volatiles generated by this operation. Resuspension of contaminants is addressed, but actual levels, testings, studies are not cited. The percent of materials that will be the significant cause of airborne contamination appears to be incredibly downplayed. 5% is not a realistic projection. No dispersion is ASSUMED after release from the vents for "no significant impact", but it is well known that in fact RESUSPENSION is a tremendous problem in the immediate environs of the RFP. There needs to be an honest attempt to address this problem taking into account the accumulative state of the problem, along with the generation of sub-micron particles that will be come part of the resuspension from this operation.*

Response

Gas generation issues associated with storage of supercompacted waste are no different than those associated with non-supercompacted waste forms. All drums will be vented via carbon filters and all storage areas will be provided with adequate ventilation, such that gases (particularly hydrogen) are not expected to build up to dangerous levels. The storage areas do not have gas detection devices, but will be RCRA permitted to store the subject waste and undergo periodic inspection. Furthermore, a Waste Drum Gas Sampling Program was completed in March 1989 at Rocky Flats and indicated that hydrogen gas concentrations were well below flammable/explosive levels.

The commenter incorrectly states that the EA concludes there are no significant impacts from routine operation because it assures no dispersion after release from the vents. The EA (p 5-13) estimates maximum exposure to RFP workers at other facilities assuming no dispersion (dilution). This approach will overstate airborne contamination levels and resulting worker exposure. With this conservatism, occupational impacts are predicted to remain insignificant.

Concerns regarding resuspension of plutonium particles are recognized by Rocky Flats. Leaking cutting oil drums were the primary source for soil contamination at the 903 Pad Area. By 1969, contaminated soil was removed and the area was stabilized with an asphalt pad. During this period and continuing today, the air at the 903 Pad and in the Denver area are continuously monitored for airborne Pu/soil particles. At no time since the 1971 completion of the drum storage clean-up, has the Pu concentration exceeded the DOE "Derived Concentration Guide" of  $20 \times 10^{-15}$  Ci/m<sup>3</sup>, even at the source area. The average activity concentration of airborne Pu at the plant boundary is  $0.05 \times 10^{-15}$  Ci/m<sup>3</sup>. This compares with an average radon concentration of  $110,000 \times 10^{-15}$  Ci/m<sup>3</sup> in the United States. Predicted accident impacts to the public from supercompactor and shredder operation, as presented in Tables 5-6 through 5-8, account for resuspension of contaminants due to the postulated accidents. The analysis methodology is summarized in Appendix D (page D-14) of the EA.

Particulate (dust) control measures from operation of the supercompactor and shredder are presented in Section 5.1.1 of the EA. High efficiency particulate air (HEPA) filters are used to control particulate emissions. The resulting impacts are insignificant (A maximum annual individual exposure of  $2 \times 10^{-11}$  rem) and are presented in Section 5.1.4.1. The EA uses the best available information to estimate that five percent of the material becomes airborne within the glovebox during shredding.

operations Use of a higher value will not alter the analyses outcome that the resulting impacts are insignificant. Cited issues by the commenter regarding resuspension also do not alter the EA conclusions regarding the impacts from routine operation of the supercompactor and shredder

## 2 4 REPACKAGING

### 2 4 1 Eugene J. Riordan Vranesh and Raisch for City of Broomfield

Comment *The Environmental Assessment does not fully address the risks associated with the transportation and handling of the existing waste containers This is a significant failing because of past experiences with these old containers (e.g., incorrect labeling, questionable integrity of the inner liners, and leaky containers) At the very least, DOE must develop and implement rigorous procedures to ensure absolute containment of the material during these operations Again, the transportation and handling is important to the City because it will occur within the Walnut Creek watershed Accidents occurring during these operations pose an immediate threat to Great Western Reservoir*

### 2 4 2 Rich Ferdinandsen Jefferson County, Colorado

Comment *The Board of County Commissioners is particularly concerned about the safety of workers during the repackaging of previously packaged waste (Sec 3 1 3) The volume of TRU-waste has accumulated across the plant site under previously inadequate practices and procedures Transporting this waste to Building 776 for compacting and shredding and for repackaging in safer containers appears hazardous old containers have been unreliable, contents labels have at times been erroneous, the integrity of the inner bags used for soft waste has been questionable, and the waste boxes have not always proven adequate Although this part of the SARF project is a non-routine short term repackaging effort, it has the potential for jeopardizing the safety of the workers and the environment A complete plan for this operation including protection for workers and the environment should be formulated*

#### Response To Comments 2 4 1-2 4 2

As discussed on page 3-2 of the EA, during the initial SARF operating period, an estimated maximum of approximately 15,000 cubic feet of TRU and TRU-mixed wastes will be removed from RCRA permitted storage areas, repackaged, and supercompacted concurrently with the normal waste production feed to the SARF These wastes were generated within approximately the last 5 years, and have been continuously stored within buildings at RFP, since generation All of the containers of waste were analyzed by non-destructive assay (NDA) drum counting process after generation prior to storage As explained on page 3-29 of the EA, during the NDA drum counting process, the containers are sealed with a tamper indicating device, and the container is labeled In addition, all waste containers are visually inspected for integrity to ensure absolute containment of the materials Transportation and container handling will be conducted in compliance with established standard operating and safety procedures

In compliance with RCRA (40 CFR 265 15) and Standard Operating Procedures, all RCRA storage areas are inspected on weekly schedules Any potential container problems are routinely resolved before they become significant

Prior to transfer of existing wastes from the RCRA permitted storage areas, the waste containers will be visually examined to detect any leaking material, labeling problems, etc If any waste container is found to have problems, the problems will be corrected prior to movement of the container for repackaging Depending on the problems, corrective action could consist of correctly labeling the container, controlling any container leaks by overpacking into a larger container, and cleaning up any spilled materials The storage areas will be routinely inspected and maintained pursuant to Standard Operating Procedures to maintain compliance with RCRA In addition, Standard Operating Procedures and verification forms will be used to assure proper transfer and repackaging of the wastes and to assure protection of the workers and the environment

Prior to repackaging, the drums that will receive the wastes will be inspected for integrity. If a drum does not pass the quality control inspection, it will be rejected and will not be used for repackaging.

During staging prior to supercompaction or shredding of the wastes, all waste containers will be inspected for damage, leaking contents, correct labeling, etc. Any discrepancies will be recorded, and resolved.

All shredded and supercompacted wastes will be placed in Department of Transportation approved drums. The drums will be visually inspected prior to their use.

2 4 3 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA states that during repackaging the 55-gallon drums of waste will be transferred to the Advanced Size Reduction Facility. EA, p. 3-20. How will the drums be transferred?*

Response

The Advanced Size Reduction Facility is located within the same room and adjacent to the supercompactor. Drums will be transferred manually or by forklift from one process area to the other.

2 4 4 **George Hvoroka**  
**City of Westminster**

Comment *The handling of the wastes necessary for shredding and repackaging also increase the risk to workers and neighboring citizens.*

Response

As discussed on page 3-15 of the EA, all of the TWS equipment except the downdraft table will be located in a single-walled, lead-shielded glovebox. The glovebox will protect the workers from the radiological hazards associated with the shredding of wastes. As discussed on page 4-5 and 4-6 of the EA, gases and air from the processing gloveboxes, downdraft tables and exhaust hoods are filtered through a minimum of four stages of HEPA filters before being discharged. The ventilation exhausts are continuously monitored by particulate air samplers and selective alpha air monitors.

As discussed on page 3-20 and 3-21, stored wastes would be repackaged in the Advanced Size Reduction Facility (ASRF) and the Size Reduction Vault during the initial SARF operating period. Personnel working in the ASRF will be required to wear full-face mask respiratory protection, and as is currently required, personnel working in the Size Reduction Vault will be required to use supplied air suits. Entrances to the ASRF and the Size Reduction Vault are controlled by airlocks. Like gloveboxes, the air pressure inside the ASRF and the Size Reduction Vault is always kept at a negative pressure with respect to areas outside of these facilities so that airflow is always in the direction of increasing contamination. Air vented from the ASRF and the Size Reduction Vault is ducted to the existing glovebox ventilation control system in Buildings 776/777. The air is filtered through four stages of HEPA filters in series prior to release to the atmosphere.

Operation of the TWS and waste repackaging are not predicted to significantly increase the risk to workers or to neighboring citizens.

2 4 5 **John G. Haggard**  
**Colorado Department of Health**

Comment *Page 3-8 – Multiple repackaging increases worker exposures. As already packaged wastes have to be handled again, SARF will increase worker exposure. Only when SARF is handling the newly generated wastes without multiple repackaging will the worker exposure be reduced. The ASR aspects of SARF may reduce worker exposure from the onset.*

## Response

The SARF will provide a net reduction in worker exposure to external radiation as well as a reduction of the potential for internal exposures by eliminating a process that requires the use of supplied-air suits. The waste output of SARF is also more compact, permitting more efficient waste handling, transportation, and use of storage space. To maximize these benefits, it is proposed to process existing wastes. Proposed repackaging efforts are described in Section 3.1.3 (page 3-20) of the EA. Associated occupational impacts are presented in Section 5.1.4 (page 5-13) and are predicted to be small (less than 0.5 person-rem).

### **2.5 WASTE CHARACTERIZATION AND COMPATIBILITY**

#### **2.5.1 Melinda Kassen and Nakisa Serry Environmental Defense Fund**

Comment *DOE intends to process both combustible and non-combustible wastes by supercompaction. The EA states that the waste types will be separated into designated drums at the point of generation, but it is unclear how this will be accomplished and what quality assurance process exists to ensure that such waste separation occurs. EA, p. 3-1. The EA should explain further how DOE intends to ensure that such separation occurs. In addition, the potential risks of mistakenly combining these waste types during the entire waste management process must be considered to provide sufficient contingency planning.*

#### **2.5.2 Melinda Kassen and Nakisa Serry Environmental Defense Fund**

Comment *This EA fails to consider the consequences and risks of incompatible wastes mistakenly supercompacted in the same drum. Such risks may require additional precautions and must be considered to present a complete analysis of the risks associated with the commencement of operations of the SARF/TWS.*

#### **2.5.3 Joe Tempel Rocky Flats Cleanup Commission**

Comment *How can we be assured that incompatible wastes are not mixed?*

### Response To Comments 2.5.1-2.5.3

Waste segregation will be conducted in compliance with Standard Operating Procedures and RCRA which require personnel training, recordkeeping, contingency plans, quality assurance audits, and emergency procedures. Waste identification, segregation, and administrative controls are discussed in Section 3.1.5.2 and in Section 3.1.5.3. As stated in Section 3.1.5.3, waste characterization procedures provide the operator with the information needed to avoid mixing incompatible wastes.

As shown in Table 3-2 of the EA, the TRU-mixed waste forms to be supercompacted in the SARF contain 1,1,1 trichloroethane, carbon tetrachloride, 1,1,2-trichloro-1,2,2-trifluoroethane, methylene chloride, lead and mercury. As shown in the table, TRU glass waste (Waste Form Number 118) contains all six contaminants which are compatible. Therefore, there would be no significant risk if the wastes were to be mistakenly combined during the waste management process.

As discussed on page 3-41 of the EA, the TWS is proposed to shred the TRU graphite waste and filter waste. If these two waste forms were to be mistakenly combined, there would be no potential incompatibility risks. However, any TRU graphite waste that became contaminated with TRU-mixed waste would then itself become TRU-mixed waste and would require appropriate storage and disposal.

2 5 4 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *Figure 3-1 diagrams TRU and TRU-mixed waste process flow EA, p 3-2 From this diagram, it is clear that DOE has assumed a specific economic discard level for the purpose of performing the analysis contained in the EA What effect, if any, will the recent ruling, wherein the federal district court held that so-called residues at Rocky Flats are in fact RCRA-regulated waste if they contain hazardous as well as transuranic waste, in Sierra Club's suit against DOE have on the assumptions DOE has made which assumptions underlie the facts presented in this chart? If residues are supercompacted, what are the increased risks associated with use of the technology at Rocky Flats?*

Response

Residues are not proposed to be treated in the SARF or the TWS, therefore there will be no impacts from the supercompaction of residues Accordingly, the district court decision does not impact the proposed action or affect Figure 3-1 or the EA There will be no increased risk because residues will not be supercompacted pursuant to the proposed action as contained in the EA and the proposed FONSI

2 5 5 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA states that Rocky Flats rates of waste production have been reduced over the past few years EA, p 3-3 However, both DOE and contractor personnel have intimated that such reduction is not actually a gross reduction in generated waste volume but simply a reduction in the amount of TRU and TRU-mixed wastes as compared to Low Level, Low Level-mixed and pure hazardous waste If the latter characterization is correct, does DOE intend to use the SARF to reduce the volumes of these other types of waste as well? Why, or why not? In addition, with expected arms-control agreements, nuclear weapon production will further decrease DOE must consider in the EA the need for the SARF and TWS based on a scenario in which DOE achieves a continued reduction of TRU and TRU-mixed wastes*

2 5 6 **Anonymous Commenter 2**

Comment *The Environmental Assessment should also evaluate the potential use of the Supercompactor and Shredder to reduce the volume of the existing backlog of low level mixed waste prior to initiating its use on TRU waste The Rocky Flats Plant currently has nowhere to dispose of low level mixed waste and could reach its allowed interim RCRA storage limit within the next year, possibly even before TRU mixed if the plutonium operation suspension is extended Compaction of the low level mixed first could provide a couple years grace period before the waste limit is reached and would not prevent subsequent use for TRU mixed, but once used for TRU mixed the machines might not be able to be used for low level*

Response To Comments 2 5 5-2 5 6

The SARF and TWS are proposed to treat only TRU and TRU-mixed wastes as identified in the EA The treatment of other materials is not proposed The SARF and TWS can efficiently reduce the TRU and TRU-mixed waste volumes at the Rocky Flats Plant concurrently with continued reduction in waste production In the future, the DOE may decide to supercompact low-level and/or low-level mixed wastes If this decision is made, appropriate NEPA revisions and/or analysis will be conducted

2 5 7 **Barbara Moore**  
**Front Range Affirmative Action Group**  
**Rocky Flats Clean-Up Commission**

Comment *What procedure will be used to prevent drums which previously held soft TRU-MIXED waste processed in the Supercompactor from being used for TRU waste storage? Procedures should*

be established to prevent TRU waste from being contaminated with other mixed waste hazards through this method

Response

Pursuant to RCRA (40 CFR 261.7), the regulations for residues of hazardous wastes in empty containers will be complied with through the implementation of Standard Operating Procedures. To prevent contamination of the drums, the drums will be lined with not less than two layers of plastic liners. The liners will be treated as TRU-mixed waste. If the liners have leaked, the drum will be adequately decontaminated with wipes moistened with a decontaminating solution. The used wipes will be disposed of as TRU-mixed waste. If the drum cannot be adequately decontaminated, it will be labelled and restricted to only contain TRU-mixed waste, or it will be appropriately disposed.

2 5 8 **Paula Eiofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *The economic discard limits (EDLs) for solids, sludges, slurries, aqueous liquids, and other forms of waste generated at the RFP are not listed. Please provide this information. The waste classification system is notable and appreciated. What quality control/assurance measures will be taken to ensure compliance with IDCs and compatibilities? If there is heavy reliance on visual inspection for this phase of operation, what QA will be followed? Will actual testing of materials occur from time to time to confirm content, and what frequency?*

Response

In reference to economic discard limits (EDLs) as discussed on page 3-29, EDLs are based on the economics of treating various solids, sludges, slurries, liquids and other forms of materials generated at RFP to recover plutonium. The treatment costs which establish the various EDLs vary considerably depending on the form of material (i.e., solid, sludge, or liquid), the applicable treatment method, and other factors. Therefore, there are numerous EDLs for the various materials generated at RFP, and these EDLs change in response to new plutonium recovery technologies and plutonium supply and demand economics. When the plutonium concentration is determined to be below the EDL, the material is considered to be a waste.

The maximum plutonium limits for compacting in the SARF (50 grams per drum) and the maximum plutonium limits for shredding in the TWS (100 grams per drum) are well below the economic discard levels for these materials. Therefore, an indepth analysis and discussion of EDLs are not relevant to the proposed action and its impacts.

As discussed in response to Comments 2 5 1-2 5 3, waste segregation will be conducted in compliance with Standard Operating Procedures and RCRA which require personnel training, recordkeeping, and quality assurance audits. Specifically, 40 CFR 265.15 establishes general inspection requirements. Due to the nature of the materials, it is not feasible to actually test the materials to confirm content.

2 6 **GAS GENERATION**

2 6 1 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *DOE has expressed its intent on innumerable occasions that it expects to emplace in WIPP for permanent disposal the waste now proposed for compaction in the SARF. In DOE's Final Supplemental Environmental Impact Statement for WIPP (the SEIS), the authors state that supercompaction "may increase" radiolytic gas generation due to the compaction form and that corrosion gas generation will increase if drums are compacted whole, due to the increased metal content of the waste. SEIS, p. 6-23. On the other hand, the EA claims that "supercompaction of TRU wastes has no impact on the maximum rate of gas generation from radiolytic decay," notwithstanding the fact that the total gas generated per drum may increase. EA, p. 5-3 through 5-7. DOE must explain*

*in the EA the apparent inconsistency between these statements and the derivation of each We must know the actual effects of the proposed supercompaction on gas generation prior to implementing the proposed action, otherwise, DOE could be "stuck" with supercompacted waste which is not acceptable for emplacement at WIPP*

Response

The Environmental Assessment (page 5-4) states that the maximum rate of gas generation from radiolytic degradation, evaluated per curie of radionuclide, will not be increased by supercompaction, however, the rate of gas generation may remain constant for a longer period of time than for non-supercompacted waste forms. Because there is no increase in the amount of plutonium in the waste, the total theoretical gas generation potential from radiolytic degradation will not increase, although the gas generation under dry conditions may increase slightly. The WIPP SEIS (page 6-22) states that compaction "might increase corrosion-generated gases if drums are compacted whole". It should be noted that the DOE is preparing to enter the Test Phase at WIPP, the principal focus of which is to characterize gas generation potential as a result of corrosion, radiolysis, and bacterial action. The Test Phase (approximately five years) is designed to determine the need for future TRU waste processing and/or engineering requirements, including modification of existing practices, if necessary. The volume of supercompacted waste that could be produced at RFP over the next five years (i.e., prior to decisions regarding potential alternative processing requirements for wastes to be emplaced in WIPP) would be approximately one percent to two percent of WIPP's total waste disposal capacity. In the event that the Test Phase results indicate that supercompacted wastes would require further treatment prior to disposal, the waste could be retrieved for such treatment. In general, gas generation in supercompacted wastes would not have a significant impact on overall gas generation due to the limited quantity of supercompacted waste. Furthermore, the small volume of supercompacted waste scheduled to be placed in the WIPP repository during the Test Phase will be fully retrievable, as addressed in the WIPP Waste Retrieval Plan. In summary, the DOE believes that the amount of waste that could be supercompacted at RFP during the Test Phase is not significant in terms of the total performance of the WIPP and, if necessary, additional treatment measures could be implemented.

2 6 2 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The fact that total gas generation per drum will increase as a result of supercompaction means that a resulting explosion would be more severe. The EA fails to consider the effects of increased gas per drum. DOE must consider the environmental consequences of such an accident as well as any increased environmental impacts that could result from testing conducted with supercompacted barrels, particularly as such experiments reveal the adequacy of the proposed vents for the drums.*

Response

As summarized in Table 5-4 of the Environmental Assessment, a screening analysis was performed of potential accidents which may occur during the operation of the SARF and TWS. It was determined that impacts from a potential explosion would be bounded by other accidents considered in the analysis. As discussed in the response to Comment 2 6 10, supercompacted waste gas generation rates will be well within the maximum values for non-compacted waste. Consequently, the standard carbon filters which are used for non-compacted wastes will have adequate flow capacity to vent supercompacted wastes. It is also noted that the supercompaction process will tend to rupture any bags or containers within the waste matrix. This will enhance venting of the waste matrix and minimize the accumulation of gases within the drum of supercompacted waste.

2 6 3 **Jason Salzman**  
**Greenpeace Action**

Comment *The EA should provide more details about carbon filtering*

*The EA states that drums of supercompacted waste will be equipped with carbon filters. This plan raises a number of questions. If the drums are submerged in water, will water flow into the drums? If yes, how will this affect the waste? If a filter malfunctioned, what kinds of releases would result from a typical drum? Is the likelihood of a release from a drum with a filter greater than that from an existing drum? Would a drum with a filter be more susceptible to damage from fire?*

2 6 4 **John G. Haggard**  
**Colorado Department of Health**

Comment *Section 3 1 4, transport portion -- filters for vents on drums and SWBs are mentioned, however, the filter media is not listed. It may assume the carbon composite filter mentioned in section 5 1 3 2 is used for this control. The information should be included in all references to assure acceptable control.*

2 6 5 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Filtered vents are referred to for drums and SWBs, yet rad releases due to release of waste gases is not extrapolated.*

Response To Comments 2 6 3-2 6 5

The TRU Waste Compliance Program requires each drum of waste to be equipped with a carbon composite filter to permit venting of gases while retaining radioactive materials. This requirement is not unique to drums of supercompacted waste. The stainless steel filter housing will be screwed into the bung hole located on the lid of each DOT-7A drum. The filter housing will be similar in durability to a standard bung hole plug. The drum lid will be placed on the overpack drum immediately after it is loaded with supercompacted waste. The drum lid will be sealed to the drum by a gasket to assure that all gas pressure will be vented through the filter.

The filter materials to be used are carbon-carbon composite high efficiency particulate air (HEPA) filters. These filters trap radionuclides while allowing gases such as hydrogen to pass through. The filter element is 90 percent porous by volume. Due to the nature of this fibrous material, the filter element can withstand greater particle loading without an increase in air flow resistance than either paper or sintered metal filter media. This carbon composite is resistant to radiation and acid damage and continues to function when exposed to moisture. The filters exhibit a filtering efficiency of greater than 99.97 percent when tested with a 0.3 micron dioctylphthalate smoke particle (NFT Incorporated, undated brochure, "Nuclear Filters," Golden, Colorado). Each filter is individually tested and certified prior to use.

In tests conducted by Mound Laboratory, the filters were approved for use in DOT-7A containers. DOT-7A containers must meet the requirements of 49 CFR 173.465, 173.466, and 178.350, which require the containers to pass a water spray test, a free drop test and other tests. The DOT has approved the filters that are to be used on RFP waste containers for waste containers that are to be disposed at WIPP.

Since each filter will be tested and certified prior to use, considering that the filters will be contained in a steel housing and there are no moving parts, and considering that the filters have been approved for use in DOT-7A containers, filter malfunctions are not anticipated.

If a filter were to malfunction, the releases are expected to be approximately the same as that created by the malfunctioning of a standard bung hole cap. The likelihood of an uncontrolled release from a drum with a filter is expected to be no greater than that from a drum without a filter, except the filter would allow the release of gas pressure. A drum with a filter and containing supercompacted waste would not be more susceptible to water leaching constituents or damage from a fire, due to the minimal void space for oxygen or water in the puck, and due to the barriers of the compressed puck.

and the overpack drum. Considering the steel housing encasing the filter, the drum would not be more susceptible to damage from a fire. The filters can be equipped to contain a Gore-Tex membrane to prevent the inflow of water, however, the filters to be used at RFP are not proposed to be equipped with such membranes, because there is minimal potential for the drums to be immersed in water, and the membranes are not a requirement of the WIPP-WAC or the TRU Waste Compliance Program.

266 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment Page 5-5 – *Bacterial degradation is said not to have any impact because the mechanism is slow. However, what if the WIPP does not open or the opening of WIPP is delayed for some time? The waste will then be stored at the RFP until a home is found. Query: If the waste is stored at the RFP for some time, then would not bacterial degradation begin to become a concern? If so, then what are the consequences?*

Response

Several different types of microorganisms have the potential to cause gas production from bacterial degradation of organic material. Aerobic bacteria, which are the most likely microorganisms to be present, will deplete oxygen and produce CO<sub>2</sub>. The production of CO<sub>2</sub> does not constitute an explosive/flammable hazard, therefore the relative speed of the process is not a concern either at WIPP or at RFP. The waste containers will be provided with carbon filter vents to preclude any significant pressure differentials within the containers and ambient conditions.

267 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *The RFCC is concerned that sparks will be generated during the piercing process to release gases from the drums before compaction. These sparks could ignite the gases in the drum and increase the risk of fire in the glovebox and release plutonium particles to the environment.*

268 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Another opportunity for possible explosive consequences is the application of drum-piercing operations with the hard waste drums.*

Response To Comments 267-268

Sparks will rarely be generated due to the drum piercing design. If a spark is generated, several factors preclude potential ignition of any gases. Prior to drum piercing, soft wastes will be manually sorted in a glovebox and placed into a 35-gallon drum located on the precompactor. This operation will vent off any accumulation of gases that would be affected by the piercing process. Hard waste will not be sorted prior to piercing, however, they will have recently been placed into 35-gallon drums, minimizing the period of time for any gases to accumulate. Furthermore, a waste drum gas sampling program was completed in March 1989 for both soft and hard waste forms. It indicated that hydrogen gas concentrations were well below flammable/explosive levels. As summarized in Table 5-4 of the Environmental Assessment, a screening analysis of potential accidents determined that the impacts from an explosion would be bounded by other accidents considered in the analysis.

Comment Section 5.1.3.1, Gas Generation Mechanisms – While removal of liquids will decrease chemical reactions, it will not eliminate them as inferred in the document. The high pressures caused by compaction and higher temperatures generated will create additional breakdowns leading to additional reactions. Also in this section, reference is made to a KfK study but it fails to name the type of material used, i.e., was it the same material used at Rocky Flats or was it totally different? This lack of information makes the referenced results questionable.

Response

The SARF unit will not be operated under elevated temperatures or pressure. Waste compacted in the SARF will be punctured to allow gas pressure to remain at approximately atmospheric throughout compaction. In addition, the compaction occurs over approximately a two-minute period, preventing any rapid pressure increases in the drum. It is not expected that any chemical reaction will occur during the compaction process.

The compaction process will generate very little heat. In addition, the system has been designed to manage any heat generated from the operation of the equipment. Heat exchangers will be provided to cool the hydraulic fluid in both the precompactor and the supercompactor. These heat exchangers will be located outside the SARF glovebox and will tie into an existing process cooling water line. Heat dissipation in the glovebox will be provided by the ventilation system, which has been designed for 30 air changes per hour. The glovebox exhaust will be vented through an existing HEPA-filtered ventilation exhaust system. The exhaust filter plenums are protected with automatic and manual deluge sprinkler systems.

Furthermore, the system is designed to safeguard against fires. Reviews for fire safety were part of the SARF design process. Fire safety mechanisms include:

- The SARF glovebox will be fully equipped with a sprinkler system connected to the plant fire alarm system.
- The hydraulic fluid to be used in the supercompactor will have a high flash point (500°F).
- Compaction will take place within a 5.5 inch thick hardened steel compaction chamber.
- The processes external to the glovebox will be protected by an automatic wet-pipe suppression system in addition to manual fire fighting equipment.
- Glovebox overheat detectors will be provided inside the SARF glovebox, spaced at 10 foot intervals. These detectors will be connected to the plant alarm system and will be set at 190°F.

The material supercompacted at KfK (Kernforschungszentrum Karlsruhe) was radioactively contaminated wastes which contained copper, iron, and chlorinated hydrocarbons. As stated on pages 5-4 and 5-5 of the EA, there are several differences between the waste management program at KfK and the program at RFP. Wastes to be supercompacted at RFP will be segregated by waste form numbers to avoid mixing of incompatible wastes. Copper and iron will not be supercompacted together, therefore, bi-metallic effects will be minimized. All drums of waste which are to be supercompacted will be scanned for the presence of free liquids by the real time radiography unit prior to being transported to the SARF. If free liquids are detected, the waste will not be supercompacted. At RFP, there will be strict segregation of combustible (soft) wastes and non-combustible (hard) wastes.

The waste segregation and management program at RFP will decrease chemical reactions that could potentially generate gas. The rates of gas generation from a given weight of waste by all chemical mechanisms will be expected to decrease in proportion to decreases in concentration among the reactants. Also, if supercompaction expels absorbed liquids (water and organic solvents) from the waste, both the rate and total potential of gas generation by chemical mechanisms are expected to be reduced. Waste forms will be processed through the SARF in batches chosen in accordance with the EPA's compatibility chart (40 CFR 264) to ensure that gas generation by chemical reactions will be minimal. This is, in fact, expected to be a small factor. Overall, waste segregation is recognized as

having little or no effect on gas generation by means of corrosion, microbial activity, and/or radiolysis. The process of segregation will, however, make experimental evaluation of gas generation easier. Such evaluation is a central aspect of experiments planned for the 5-year WIPP test phase.

With the waste management controls (segregation of soft and hard wastes, segregation of incompatible wastes and absence of free liquids, etc.), the excessive gas generation problems that have been observed in less than 1 percent of the supercompacted waste at KfK are not expected to occur at RFP.

2 6 10 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Radiolytic gas generation is stated to be a function only of the fissile material content and target material depletion, indirectly controlled by controls on fissile material content. NDA testing has been shown to not be 100% accurate, with significant discrepancies noted at least with barrel sampling as evidenced by Appendix D of the Criticality Safety Assessment report from 1989. The statements of confidence and reliance on this as mostly infallible seem to exaggerate the "safety envelope" concept applied to fissile materials contents claims. Supercompaction is stated to have no impact on the maximum rate of gas generation, yet it is known that supercompaction will increase fissile content overall, which will increase gas generation. So, which is it?*

Response

As stated on page 5-4 of the Environmental Assessment, the maximum rate of gas generation from radiolytic degradation per curie of radionuclide will not be increased by supercompaction, however, the rate of gas generation may remain constant for a longer period of time than for non-supercompacted waste forms. The reason for this is simply that compaction will result in a more dense matrix. As a result, it may take longer for gas generation rates to decay. The initial "G" value of the waste material represents the number of molecules of gas generated per unit of ionizing radiation and will not be altered by supercompaction. The commenter is, in part, correct. The total gas generation rate per 55-gallon drum will increase, because of the increased radionuclide content. However, supercompacted waste has a 100-gram plutonium limit per drum compared to a 200 gram limit for noncompacted waste. Consequently, supercompacted gas generation rates will be well within maximum values for noncompacted waste. The initial "G" value should not increase. Fissile material limits have been established primarily for nuclear criticality safety and take into account the accuracy of the assay equipment.

2 7 CRITICALITY

2 7 1 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *How can we be assured that only 100 grams of plutonium are in each barrel?*

Response

As discussed on pages 3-30 through 3-32 of the EA, during staging, prior to the respective compacting of wastes in the SARF or shredding of wastes in the TWS, a verification form will be used to plan and record the upcoming batch run to be processed. An operator will verify that the information contained on the nuclear materials accountability system computer printout corresponds to the information contained on the container label and the container count sheet. The verified container number, plutonium content, and other information will be recorded on the verification form. If all of the necessary data cannot be appropriately verified in duplicate, the container will be returned to Nuclear Materials Control for accountability and re-assay. For wastes to be processed in the SARF, the batches will be segregated by cumulative plutonium content and verified to assure that each drum to be processed in the SARF does not contain over 50 grams plutonium and the batch to be contained in one 55-gallon overpack drum does not contain over 100 grams plutonium.

For wastes to be processed in the TWS, the containers of filter materials will be verified to contain not more than 50 grams of plutonium each, and will be batched and verified to assure that any drum of shredded filter material also will not exceed the 50 gram plutonium limit for such material exiting the TWS and to be fed into the SARF. Likewise, drums of graphite molds to be shredded in the TWS will be verified to contain not more than 100 grams of plutonium. The containers will be batched and verified to assure that any drum receiving shredded graphite molds will also not exceed the 100-gram plutonium limit for such material exiting the TWS and to be sent to storage or disposal.

All verified information for the batches to be processed in the SARF or the TWS will respectively be recorded by an operator on the verification form. A second operator will also independently verify the recorded data, and both operators will sign the verification form.

Following shredding, all drums of shredded filter materials are sent through a non-destructive assay (NDA) drum counter to confirm that each drum does not contain more than 50 grams of plutonium, and all drums of shredded graphite molds are sent through an NDA drum counter to confirm that each drum of graphite molds does not contain more than 100 grams of plutonium prior to being placed in storage or shipped off-site for disposal.

Following supercompaction, all drums of supercompacted waste materials are also sent through an NDA drum counter to verify that each drum does also not contain more than 100 grams of plutonium prior to being placed in storage or shipped off-site for disposal. Following NDA drum counting, the verified plutonium content and the respective drum number are recorded on appropriate verification forms.

The NDA unit and its calibration are discussed on page 3-29 of the EA. The NDA is a shielded counter that uses sodium iodide and/or germanium gamma-ray detection systems. The gamma rays that are emitted by Pu-239 are recorded and the data is correlated with standards to derive the plutonium content in the container. Counting standards are prepared using techniques traceable to the National Bureau of Standards. The NDA counter is routinely calibrated to limit error to  $\pm 10$  percent of the assay.

Standard Operating Procedure, operator training and quality assurance audits will assure compliance with the above-described procedures to assure that not more than 100 grams of plutonium will be placed in each drum.

2 7 2 Eugene J Riordan  
Vranesh and Raisch for the City of Broomfield

Comment *The criticality analysis in the Environmental Assessment is very sketchy. After admitting what appears to be an enormous uncertainty, see, e.g., Environmental Assessment at C-5, the writers simply conclude that there is enough of a safety factor built into the system. The City is not particularly comfortable with this claim, especially in light of the dramatic consequences if it is incorrect.*

2 7 3 Barbara Moore  
Front Range Affirmative Action Group  
Rocky Flats Clean-Up Commission

Comment *My concern is that the Supercompaction could conceivably smash the TRU or TRU-mixed waste into a shape or type of geometric figure that would cause a criticality. This environmental assessment does not mention if each of the pucks would be examined for its geometrical shape. I would like to know how these issues were addressed when this plan was studied.*

Response To Comments 2 7 2-2 7 3

Extremely conservative plutonium limits have been established for wastes entering the supercompactor and these limits will be strictly enforced. The 50 gram plutonium limit for processing drums of waste in the SARF is well below the minimum quantity of plutonium required for a criticality. In the very unlikely event that a drum contains a minimum critical mass, worst case conditions are required for a criticality to occur. These worst case conditions were assumed to be present only for

the purposes of accident impact evaluations but have an extremely low probability of occurrence. As discussed on page 3-28 of the EA, these assumptions include potential changes in shape and volume caused by equipment failure, changes in mass density, form, temperature, spacing and operation, the addition of moderators, reflectors, etc. Also refer to response to Comment 2.7.1 regarding the controls to assure that not more than 100 grams of plutonium are placed in each drum.

2.7.4 **John G. Haggard**  
**Colorado Department of Health**

Comment Page 3-34 – Statement raises the question of anticipated changes in the 100 gram limit per drum

2.7.5 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment The EA states that the criticality limits are based on preliminary analyses of the processes and may be revised upon review of actual operating data. What effect would revisions have? Would revisions be consistent with a finding of no significant impact?

Response To Comments 2.7.4-2.7.5

Prior to operation of the SARF and TWS, Criticality Engineering will conduct a final criticality review to confirm operating procedures, equipment placement, and the proximity of other plutonium sources, etc. prior to establishing final criticality limits. Revisions would be made to further maintain or further reduce the probability of a criticality as analyzed in the EA. The revisions would be consistent with a FONSI.

2.7.6 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment The nuclear criticality safety limits during storage at Rocky Flats allow, *inter alia*, stacks of a maximum of four drums. This limit should be reconsidered and risks should be assessed due to the increase of concentration of transuranic elements, as well as due to the higher potential for gas generation in each drum.

Response

Nuclear criticality controls and limits for the SARF and TWS operations and subsequent storage are discussed in Section 3.1.5.2 of the Environmental Assessment and take into consideration applicable supercompacted waste characteristics and operational/storage configurations. Administrative controls, Standard Operating Procedures, operator training and quality assurance audits will assure compliance with the criticality limits, as discussed in the response to Comment 2.7.1. The criticality limit analysis utilized the worst case material matrix and fissile material distribution for a storage array of drums stacked four drums high. It was assumed that the NDA drum counter would make a 10 percent error resulting in all drums containing 110 percent of the plutonium limit, except that one in every eight drums would be doubled-batched (220 percent of plutonium limit). Under these conditions, a 100-gram plutonium limit per drum of supercompacted waste was determined to be safe. Drums of supercompacted waste will be vented by carbon filters, as done for noncompacted waste forms. As discussed in the response to Comment 2.6.10, supercompacted waste gas generation rates will be well within the maximum value for noncompacted waste. Consequently, use of standard venting requirements for supercompacted waste forms is both adequate and conforms to WIPP-WAC gas generation criteria.

277 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment Page 3-28 *Along the same lines, an alarm sounds if criticality is detected. However, what effect is there beyond an alarm sounding? Is there any system to stop the procedure or avoid any aggravation of the criticality situation? Are workers trained adequately to react to such a situation? What is the contingency plan and how can we be assured that the plan is fool-proof?*

Response

Training on recognition of and response to criticality alarms is part of the indoctrination of all personnel assigned to work in any building in which plutonium is handled or stored. The training includes recognition of the alarm and uniform response to the alarm. The required response is very simple and uniform throughout the plant: immediately leave the area and building when the criticality alarm sounds in any area.

As described in Appendix C of the EA, postulating a criticality event in the operation of the SARF is very difficult. Any such criticality would be self-terminating, as explained in the Appendix. The postulated criticality requires, among other things, the creation of a sphere of plastic during compaction of a drum to act as a reflector. The excursion will be terminated by a combination of a formation of microbubbles in the plastic and by geometric rearrangement of the plastic sphere caused by the ongoing compaction process. No action by any operator would be required to terminate the criticality event, and no contingency plan is required.

278 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment Page 5-28 *Criticality is not expected to breach the glovebox. I would question the accuracy of this statement. The EA should assess the result of criticality breaching the glovebox, even if the EA assumes that it will not occur.*

*The EA claims that criticality has never occurred at the RFP. Was not the 1957 and 1969 fires the result of a criticality situation or at least aggravated by criticality as a result of the fire fighting operation?*

Response

The postulated criticality occurs during supercompaction while the waste drum is being compacted within the steel mold which is designed to retain the drum under the 2,200 ton pressure used during supercompaction. The hypothetical criticality was estimated as  $10^{18}$  fissions. This could be expected to damage some equipment in the immediate area of the criticality but that would be minimized by the supercompactor mold holding the drum. It is not expected that the glovebox would be breached under these circumstances.

The most serious consequence of the postulated criticality to the workers is the radiation exposure from the criticality. The doses from such an exposure would not be modified by breach of the glovebox. For other site workers and the general public, the major risks are due to the subsequent release of noble gases and halogens. The estimates of risk to these two populations were based on no removal of either noble gases or halogens by the filtration system. Whether the glovebox is breached or not will not change the quantity of noble gases or halogens assumed to be released.

Neither the 1957 fire nor the 1969 fire was the result of a criticality situation, and even though water was used on burning plutonium for the first time in the 1969 fire, its use did not create a nuclear criticality. The September 11, 1957, fire started in a can of plutonium casting residue in processing Building 771. The May 11, 1969, fire reportedly was a result of spontaneous ignition of a 1.5 kilogram briquette of scrap plutonium alloy in an open metal can.

Standard Operating Procedures, operator training and quality assurance audits will assure compliance with the above-described procedures to assure that not more than 100 grams of plutonium will be placed in each drum.

2 7 9 **John G. Haggard**  
**Colorado Department of Health**

Comment *Page 3-17, second paragraph – This refers to TWS fissile material limits but does not identify the values or where they may be found in the EA (see page 3-32 – 100 grams/drum in and 100 grams/drum out maximum)*

Response

As stated on page 3-32 of the EA, all incoming 55-gallon drums of process filters to be shredded in the TWS will be limited to 50 grams of plutonium, and incoming boxes of HEPA filters will be limited to 50 grams of plutonium. Shredded filter wastes will be packaged in 55-gallon drums for SARF precompaction as soft wastes or in 35-gallon drums for direct supercompaction as hard wastes. The preliminary criticality limit for outgoing drums of shredded filter media will be 50 grams of plutonium.

All incoming 55-gallon drums of graphite molds to be shredded in the TWS will be limited to 100 grams of plutonium and a weight of 200 pounds. Exiting 55-gallon drums of shredded graphite molds will also be limited to 100 grams of plutonium and 200 pounds net weight. Drums of shredded graphite will not be stacked in storage until the plutonium content has been verified by an NDA drum count and the weight has been verified.

2 7 10 **Paula Elofson-Gardine**  
**Concerned Health Technicians for a Cleaner Colorado**

Comment *Is there an accurate representation of plutonium content from process filters and HEPA filters?*

Response

As stated on page 3-32 of the EA, and in response to Comment 2 7 9, all 55-gallon drums of process filters to be shredded in the TWS will be limited to 50 grams of plutonium, and incoming boxes of HEPA filters will be limited to 50 grams of plutonium. As discussed in response to Comment 2 7 1 containers of wastes to be processed in the SARF will be limited to 50 grams of plutonium. Therefore, for the purposes of the proposed action, an accurate representation of the plutonium content is not more than 50 grams of plutonium per drum of process filters and 50 grams of plutonium per box of HEPA filters.

2 7 11 **Paula Elofson-Gardine**  
**Concerned Health Technicians for a Cleaner Colorado**

Comment *Possible radiation counts are not referred to in regards to the graphite molds that will be crushed in the TWS. Filter waste is identified to be HEPA filters and process filters. There appears to be an unavailability of accurate information regarding dust loading and total radiation content from these two waste forms. Danger of criticality from the accumulation of the contents from the filter media in the shredder/hopper is not addressed.*

Response

As discussed in response to Comment 2 7 9 and as stated on page 3-32 of the EA, all incoming 55-gallon drums of graphite molds to be shredded in the TWS will be limited to 100 grams of plutonium and a weight of 200 pounds. Response to Comment 2 7 9 and 2 7 10 reiterates the plutonium content of the HEPA filters and the process filters. As stated in response to Comment 2 3 11, because the shredding that takes place in the TWS operation is a dusty operation, the TWS glovebox is lead shielded. The dust generated during shredding will be vented to the glovebox ventilation and four-stage HEPA filtration system. There will not be a significant accumulation of dust in the TWS glovebox.

As discussed in the response above, drums of process filters and boxes of HEPA filters will be limited to 50 grams. These limits were established to limit the quantity of fissile materials that could be placed in the TWS hopper and in the shredder unit at any one time. Extremely conservative plutonium limits have also been established for wastes entering the TWS, and these limits will also be strictly enforced.

2 7 12 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *The nuclear materials safety limits noted for the TRUPACT-II versus the 100 gm barrel limit imposed for 14 barrels per TRUPACT II are not consistent. The safety limits noted are 325 fissile gram equivalents for the TRUPACT II.*

Response

The preliminary plutonium limits of 100 grams per 55-gallon drum of supercompacted waste and 100 grams per 55-gallon drum of shredded waste are in compliance with the WIPP Waste Acceptance Criteria (WAC) which have a plutonium limit of 200 grams per 55-gallon drum. It is anticipated a high proportion of the 55-gallon drums of supercompacted and shredded wastes will contain significantly less than 100 grams of plutonium. The transport of less than 14 drums per TRUPACT II may be required in order to maintain compliance with the 325 gram limit.

2 7 13 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Appendix C discusses criticality event with the supercompactor, citing the Los Alamos report (Stratton 1967) regarding fuel in particulate form embedded in plastic. Please provide this report for review. Plastic is noted as being a better moderator than water sources under pressure with fissile materials, yet possible excursion in parallel situation re RFP waste is not adequately addressed. Most certainly, polyethylene wastes are included with RFP waste, so the possibility is a credible criticality concern. The possibility of multiple violations exists in terms of the application of the SARF and TWS with old wastes and residues, as a fair degree of uncertainty exists as to content of those barrels/containers.*

Response

A copy of the Los Alamos Scientific Laboratory report, A Review of Criticality Accidents, by William R. Stratton (Stratton, 1967) is available for public review at the Rocky Flats Public Reading Room, Front Range Community College.

Polyethylene is expected to be present in the soft wastes to be supercompacted. Appendix C of the EA analyzes a postulated criticality resulting from a series of operating procedure violations in a 35-gallon drum containing scrap chunks of plastic (polyethylene).

As discussed in response to Comments 2 7 2 - 2 7 3, extremely conservative plutonium limits have been established for wastes entering the supercompactor and these limits will be strictly enforced. The 50 gram plutonium limit for processing drums of waste in the SARF is well below the minimum quantity of plutonium required for a criticality. In the very unlikely event that a drum contains a minimum critical mass, worst case conditions are required for a criticality to occur. These worst case conditions were assumed to be present only for the purposes of accident impact evaluations but have an extremely low probability of occurrence. As discussed on page 3-28 of the EA, these assumptions include potential changes in shape and volume caused by equipment failure, changes in mass density, form, temperature, spacing and operation, the addition of moderators, reflectors, etc.

As discussed in response to Comment 2 5 4, residues are not proposed to be treated in the SARF or TWS. As stated in response to Comments 2 4 1-2 4 2, the wastes proposed to be repackaged and supercompacted were generated within approximately the last 5 years, and have been continuously

stored in buildings at RFP since generation. All of the containers of waste were analyzed by non-destructive assay (NDA) drum counting process after generation prior to storage. The fissile material contents of the containers of wastes to be repackaged are known.

2 7 14 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Criticality possibility with the SARF/TWS process is a concern. Is NDA testing adequate to ensure compliance with SNM criteria?*

Response

Non-destructive assay (NDA) drum counting is very adequate to ensure compliance with special nuclear material control and accountability criteria. NDA is routinely used to assay and regulate the quantity of plutonium to be processed in facilities such as the SARF and TWS.

2 8 **LIQUIDS MANAGEMENT AND PROCESSING**

2 8 1 **Eugene J. Riordan**  
**Vranesh and Raisch for City of Broomfield**

Comment *The Environmental Assessment fails to provide sufficient information with regard to the management of liquids. Even though the projected production of liquids is not great, the Environmental Assessment must evaluate and discuss how these liquids will be managed (e.g., containment systems for pumps, piping, and storage, control systems for air emissions from the surface of the ponded liquid in the liquid collection ring and collecting tank, and handling of the waste after the collecting tank).*

2 8 2 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA describes how free liquids present during supercompaction will be collected and transferred, but there is no diagram of the collection ring and collection tank. Please clarify this process.*

2 8 3 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *There is no mention of exactly how the liquid produced will be transferred to existing liquid processing systems. There was deficiency noted by the Tiger Team report of 9/89 regarding tanks, vents and transfer of materials in the aqueous phase. Not only did the 4000 tanks and vents lack APENS, there were serious deficiencies noted in releases, noted in transfer of volatiles. Would liquids produced by this operation be categorized as residue, TRU, or TRU-mixed waste? Will the "residue" category of waste still be utilized in light of the Sierra Club lawsuit findings? Has there now been acknowledgement that in fact there is no recovery process for residues, and in fact is TRU waste itself?*

Response To Comments 2 8 1-2 8 3

Liquid waste which may be pressed out of drums during the supercompaction cycle is gravity drained through a one-inch line from the Supercompactor Liquid Collection Ring to a 4-liter collection tank. The collection tank is constructed of stainless steel and is located in the supercompactor glovebox. When approximately 2 liters of liquid waste collects in the collection tank, the transfer pump, pumps the liquid waste at the average rate of one gallon per minute through one of two full-flow filters to an annular tank. The annular tank is part of the existing Advanced Size Reduction Facility liquid waste collection system.

From the annular tank, the liquid waste is pumped to two fiberglass tanks in Room 127 of Buildings 776/777. These are fiberglass tanks with capacities of 1300 gallons each. They are used to collect aqueous wastes from various tanks and ancillary sumps in Buildings 776/777. From the fiberglass tanks, liquid wastes are transferred via the Valve Vault system to Building 374 for treatment. Building 374 can accept all wastes that will be generated in the SARF. The liquid wastes, which are not classified as residue or TRU or TRU-mixed waste, are treated by an evaporator. The condensate from the evaporator is used as a makeup water in the plant cooling water system.

The SARF liquid collection ring, 4-liter collection tank transfer pump, and associated filters and piping are enclosed in the supercompactor glovebox. All emissions are vented through the glovebox exhaust, which is filtered through a glovebox prefilter and then four stages of HEPA filters in the Buildings 776/777 exhaust plenum. The annular tank is vented through four stages of HEPA filters in another exhaust plenum. The fiberglass tanks vent through individual tank HEPA filters into Room 127, which is vented through two stages of HEPA filters in an additional plenum.

As stated in response to Comment 2.16.5, the Rocky Flats Plant has filed Air Pollution Emission Notices (APENS) with the State of Colorado, Department of Health, for regulated emission sources on site as required. New APENS are currently being filed for roof penetrations on plant site per "Agreement in Principle" signed on June 28, 1989, between the State of Colorado and the Department of Energy. The APENS are technical information documents whereby the State of Colorado will determine which air sources on plant site will require permits.

As stated in response to Comment 2.5.4, the Sierra Club lawsuit settlement will not change the proposed action and therefore does not affect the EA.

2.8.4 **John G. Haggard**  
**Colorado Department of Health**

Comment Page 3-12, first paragraph – A fill level detection system should be available for the annular liquid waste tank.

Response

Liquid from the 4-liter SARF collection tank will be pumped to an existing 480-liter annular tank. This tank is located near the SARF unit in Room 134, and is primarily used to collect steam cleaning effluent from the Advanced Size Reduction Facility (ASRF). The annular tank has a sonic probe level gage, with a level readout on the side of the tank. The tank is also equipped with high and low level sensors, which activate the alarms in the ASRF control room. The high level sensor also activates a sonic horn in Room 134.

2.8.5 **Paula Eloffson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment An 8-liter capacity liquid collection ring with a 4-liter collecting tank would seem to be insufficient. The over-reliance on automation is a concern. Visual inspection should be the "norm" rather than the exception, both in filling capacity and transfer to annular tanks.

Response

The SARF liquid collection system was designed to handle four times the amount of liquid anticipated in a given drum. Based on knowledge of waste forms, the maximum quantity of liquid anticipated per drum of moist soft waste is one liter. The collection system is designed to contain up to eight liters in the collection ring and four liters in the collection tank, prior to transferring the waste to the annular tank. The collection tank is equipped with an automatic pump which transfers liquids to the annular tank at an average rate of one gallon per minute.

Visual inspection of the liquid collection system and tanks will also occur on a daily basis, as required by RCRA (6 CCR 1007-3, Parts 264 195 and 265 195) This inspection will include

- Proper functioning of pumps, alarms, level and pressure gauges, and overflow control equipment,
- Signs of corrosion or other deterioration of the liquid collection system, and
- Signs of leaks in the area surrounding the tanks and liquid collection system

2 8 6 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA assumes that any liquids contained in the drums will ooze out of the compacted waste during supercompaction EA, p 3-10 On what basis has DOE made, and has DOE done any testing to support, this assumption? DOE should consider in its analysis of the potential environmental, health and safety impacts of using the SARF the risks associated with the compacted waste retaining some liquids during storage, transportation and disposal*

Response

All wastes to be treated by the SARF will be screened for the presence of free liquids by real time radiography Containers with free liquids will not be processed in the SARF Any free liquids in the drums will be compressed out and collected during supercompaction The pucks in their overpack drum will comply with the stringent WIPP-WAC No free liquids will be retained in the wastes during storage, transportation and disposal Considering that residual liquids may be compressed from the water during supercompaction, supercompacted waste would potentially contain less liquids and thus create less risk during storage, transportation and disposal than would the same wastes (not supercompacted) in the no action alternative

2 8 7 **Jason Salzman**  
**Greenpeace Action**

Comment *The EA should consider the impacts of liquid effluent The EA states that no "significant" quantities of liquid wastes will be produced by the SARF and TWS and thus water quality will not be affected by operation of these facilities However, DOE may not have assessed all liquid effluent The EA states, "In order to prevent TRU waste from becoming contaminated by TRU mixed-waste, cleaning procedures would be used to decontaminate both the SARF and the TWS treatment equipment whenever a batch of TRU waste was to be treated after a batch of TRU-mixed waste " Would this treatment involve water or other cleaning fluids? If so, what volume of fluid would be used? What does DOE plan to do to collect and dispose of this effluent, which will contain both radioactive and toxic materials?*

Response

The SARF and accessible portions of the TWS will be cleaned with wipes and squeegees that have been moistened with a minimal quantity of aqueous cleaning solution After use, the cleaning materials will be disposed as TRU-mixed waste As explained on page 3-42, of the EA, the interior portions of the TWS can not be manually cleaned In order to purge any shredded TRU-mixed waste from these areas, one hopper full of inert material, such as cardboard will be processed through the TWS This inert material will also be treated as TRU-mixed waste In addition, whenever a batch of TRU waste is to be treated after a batch of TRU-mixed waste, the batches will be spaced at least eight hours apart to allow the purging of dusts and vapors

2 8 8 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment Page 3-12 – Liquid collects in a storage tank and a high level alarm will signal the workers when the 4 liter storage tank is at an upper level. What would happen if the 4 liter storage tank overflowed before the workers could stop the operation? First, should you not have some supplemental safety feature that would automatically stop the supercompactor once a limit is reached? Second, what would be the result of a spill? Would the liquid be contained or would the liquid spill over the floor or seep into the foundation? What are the dangers associated with this scenario?

Response

Based on knowledge of waste forms, the maximum quantity of liquid anticipated per drum of moist soft waste is one liter. The SARF liquid collection system was designed to handle four times the amount of liquid in a given drum, or four liters. When liquid wastes reach approximately two liters during supercompaction, a pump automatically transfers the material at an average rate of one gallon per minute to an adjacent 480-liter tank. If the pump fails to operate or the liquid levels reach the upper storage limit, workers can readily stop operations given that the supercompactor piston moves slowly. If operations were not discontinued, liquids would easily be contained within the glovebox and would not be deep enough to reach the criticality drains and the floor.

2 8 9 **George Hovorka**  
**City of Westminster**

Comment The City of Westminster is also opposed to the proposed means of disposing of liquid wastes generated during the handling process. The plan calls for such wastes to be treated and disposed of by spray irrigation. This is unacceptable to Westminster in the absence of an interceptor canal around Standley Lake. Rocky Flats has not used proper engineering judgment in the land application of effluent in the past, which has resulted in surface water runoff reaching Pond C-2. Even when properly applied, it appears the ground water surfaces and flows into Woman Creek. This is unsatisfactory to the City of Westminster unless an interceptor canal is in place to carry all waters from the Rocky Flats Plant around Standley Lake.

2 8 10 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment Section Five lists no significant impacts, but previous sections listed liquid and air emissions from this operation, the liquid effluent being spray-irrigated to the immediate environs of the RFP. This, over time, will have an accumulative effect, and becomes part of surface water run-off. Permeability problems were noted re land application in the Tiger Team Environmental Assessment.

Response To Comments 2 8 9-2 8 10

The proposed action will not produce liquid wastes that will be spray irrigated and that could potentially impact water quality. As discussed on page 3-10 and 3-12 of the EA, all drums of waste to be supercompacted will be scanned for free liquids by real time radiography. Any drums found to contain free liquids will be returned to the generator. However, there is a possibility some liquid may be generated when moisture is compressed from waste materials during compaction. As discussed in response to Comments 2 8 1 - 2 8 3, the supercompactor will be equipped with a liquid collection ring with a capacity of 8 liters, located at the base of the supercompactor. Liquids will accumulate in the collection ring and drain through a line to a 4-liter collecting tank. Level controls in the collecting tank will start and stop a liquid waste transfer pump during normal operation, and the liquids will be transferred to an existing annular tank in the nearby Advanced Size Reduction Facility. A high level alarm will also signal the operators when the collecting tank is at an upper limit.

As discussed in response to Comments 2 8 1 and 2 8 2, liquid wastes are transferred to Building 374 for waste treatment. The liquid wastes are treated by an evaporator. The condensate from the evaporator is used as makeup water in the plant cooling water system. Condensate solids from this process do not introduce any new waste streams, and will be treated in the same manner as other condensate solids (mixing with concrete for disposal as low level mixed waste)

## 2 9 IMPACTS TO GREAT WESTERN RESERVOIR

### 2 9 1 Eugene J Riordan Vranesh and Raisch for City of Broomfield

Comment *The City does not, however, support the project insofar as it is used to increase the hazardous and radioactive materials loading within the Walnut Creek drainage. Indeed, the City strongly objects to the claim made in the Environmental Assessment that the project "will allow greater quantities (through volume reduction) of TRU-mixed waste to be stored in RCRA permitted areas prior to shipment for off-site disposal." Environmental Assessment at 5-62. Again, waste volume reduction is a splendid idea and should be implemented in an environmentally sound manner, but it cannot be used as an answer to the waste generation and storage problems at the RFP. By doing so, DOE is violating the spirit, if not the plain intent, of the RCRA Part B permit applications that it has filed with the state. Moreover, the City cannot tolerate the increased risk that the additional quantities of waste impose. The City is already substantially impacted by the continued existence of extensive contamination within the Walnut Creek drainage. Because the City's Great Western Reservoir acts as the sink for the Walnut Creek drainage, action to remediate these waste sites must be given a high priority or, at the very least, the reservoir must be isolated from them. Until this is accomplished, the City cannot accept yet a further buildup of hazardous and radioactive material within the watershed. This is particularly true in this case where the increase in radioactive waste storage can be up to ten times greater if the supercompactor project is implemented. See *Id.* at A-10. As such, the project should not commence until there is a permanent off-site storage facility identified and ready to accept the wastes.*

### 2 9 2 Eugene J Riordan Vranesh and Raisch for City of Broomfield

Comment *The Environmental Assessment does not address the risks of property damage (e.g., contamination of Great Western Reservoir) and, therefore, cannot account for the potential costs associated with those risks.*

#### Response To Comments 2 9 1-2 9 2

Planning for the SARF began in 1985 in order to reduce the external radiation dose to workers during waste handling and repackaging, to enhance safety, and to reduce waste volume and process costs. Initial funding for the SARF was received in Fiscal Year 1987. The planning and funding for the SARF were initiated prior to the implementation of the 1601 cubic yard volumetric storage limit for TRU-mixed waste that is contained in a letter dated December 15, 1988 from Thomas P. Looby, Assistant Director for Health and Environmental Protection, Colorado Department of Health. As proposed, the SARF and TWS will reduce the volume of TRU-mixed wastes to be generated at RFP, will reduce the volume of wastes currently being stored, and will help ensure continued compliance with the 1601-cubic yard volumetric storage limitation until alternate storage and/or disposal sites are approved. Supercompacted wastes are proposed to be stored in the five RCRA storage units identified in Table 3-1. As stated on page 5-2, the supercompacted and shredded wastes will be stored in buildings on-site and monitored to prevent any contamination or impacts to surface water or ground-water. Operation and storage will be conducted in compliance with RCRA, which requires personnel training (40 CFR 265.16), facility maintenance (40 CFR 265.31), contingency plans and emergency procedures (40 CFR 265.50), and recordkeeping (40 CFR 265.73). The proposed action is not predicted to cause impact to the Great Western Reservoir.

2 10 BEIR V

2 10 1 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA indicates that DOE is still considering the BEIR V Report. The EA states that in the context of the SARF and the TWS the resulting increases in risk estimates are likely to be small, such that evaluation in light of earlier standards is adequate. We urge that the DOE require all analyses to be based on new limits in the BEIR V report as there may be significant differences in the risk estimates.*

2 10 2 **Jason Salzman**  
**Greenpeace Action**

Comment *Final decision on the EA should be delayed until DOE finishes evaluating the BEIR V Report.*

Response To Comments 2 10 1-2 10 2

As explained on page 5-19 of the EA, a risk factor of  $2.8 \times 10^{-4}$  excess latent fatal cancers per person-rem of exposure was used to estimate health effects. On December 20, 1989, the National Research Council's Committee on the Biological Effects of Ionizing Radiations (BEIR) issued its fifth report, the Health Effects of Exposure to Low Levels of Ionizing Radiation (BEIR V, 1989). This report incorporates results of the latest dosimetry estimates of the Japanese atomic bombings survivors. The major changes concern low linear energy transfer (low LET) radiation (x-rays and gamma). The radiation health effects estimates in the SARF and TWS EA, however, are primarily for high LET radiation, such as alpha particles from decay of transuranic elements. For the high LET radiation, the BEIR V report largely incorporates the conclusions of the BEIR IV report (BEIR, 1988).

The adequacy of this risk factor in light of BEIR IV was evaluated in Appendix N of the recently issued WIPP SEIS (DOE, 1990) and was found to "overstate estimates obtainable from the latest available recommendations for assessing human health effects" (DOE 1990). The DOE is continuing to review the BEIR V report to determine any warranted changes in risk estimation methods including the generally low dose/low dose rate circumstances encountered in situations such as the proposed action. For the dose calculations presented in the SARF and TWS EA, which primarily involves alpha radiation (high LET) exposure, BEIR V is not significant because the new risk estimates involve low LET radiation and resulting risks from any anticipated changes in low LET health effect factors would remain low and would not alter the conclusions regarding the environmental impacts of the proposed action.

2 11 RADIOLOGICAL IMPACT ANALYSES

2 11 1 **Eugene J Riordan**  
**Vranesh and Raisch for City of Broomfield**

Comment *The Environmental Assessment appears to document the structural vulnerability of Building 776, see, e.g., Environmental Assessment at 5-32 through 5-35, but never suggests that the project ought to be constructed in a safer place or that the building should be retrofitted/upgraded.*

2 11 2 **Jason Salzman**  
**Greenpeace Action**

Comment *The EA should consider other buildings for placement of the proposed facilities. The EA should consider the construction of a new building to house the SARF and TWS facilities or the placement of the facilities in buildings that meet all current standards.*

*DOE is sufficiently concerned about the very real threat of natural catastrophe to emphasize to the public its plans to move waste out of Buildings 776/777. Why, then, is the Department proposing to site the SARF and TWS in these same unsafe buildings?*

*DOE is currently upgrading Buildings 776/777 so that they will withstand an design basis earthquake. The department plans to complete this project "in the early 1990's". This should be completed PRIOR to final approval of the EA.*

*The EA does not explain how DOE arrived at its assumption that only five percent of the SARF and TWS and 25 percent of five waste drums could be damaged in a DBW or DBE event. This assumption seems quite low given the extensive damage that the buildings could sustain, especially in a DBW event.*

*It is also unclear why the off-site exposures would be the same for DBE and DBW event. DOE states, "Although the amount of material released in the initial damage will be the same for a DBE, worker exposure will be less because the wind (assumed to be fifty mph after the initial gust) blowing through the building will disperse that release quickly."*

*Overall, it simply does not make sense to build new facilities in buildings that do not meet current safety standards. Such an action, the consequences of which are not adequately addressed in the EA, would not only perpetuate ongoing safety problems at the plant, but further erode the public's confidence that DOE will, indeed, place health and safety ahead of warhead production goals.*

2 11 3 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment Page 4-6 *The EA indicates that building 776 was not designed to withstand certain natural catastrophes. The EA fails to suggest alternate buildings to house the SARF and TWS that might be safer than building 776. The EA is to examine potential environmental damage from the proposed action, but should also suggest and examine alternatives. Alternatives should include those which would make the proposed action safer and more environmentally sound.*

2 11 4 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *The supercompacted wastes should not be stored in buildings which do not meet design basis criteria for wind and earthquakes. Building 776 is designed for wind loads of 135 mph and the design basis wind load is 161 mph.*

Response To Comments 2 11 1-2 11 4

In the long range plan for Rocky Flats, Building 776 was identified as the place to put the SARF and TWS because Building 776 had the space to put this equipment and it was close to the size reduction facilities and other waste handling equipment. It is planned that waste handling should become a self-contained operation. This reduced handling of waste and allows for more efficient operations. As stated in the EA (pages 5-32 to 5-35), the level of building damage associated with the design basis earthquake (DBE) and design basis wind (DBW) accidents and the location of the SARF and TWS within the building were utilized to estimate the amount of waste potentially available for release. The risks identified in the EA come from the storage of waste and not from operations associated with the SARF and TWS themselves. Only small amounts of waste will be staged in the vicinity of the SARF and TWS for processing. Very little if any improvement in safety would result from housing the SARF and TWS in another building.

As stated on page 1-5 of the EA, although the EA demonstrates that the risks associated with the proposed storage of supercompacted wastes at the Rocky Flats Plant (RFP) are low, the DOE is

continuing to evaluate all possible options to reduce the risks to the lowest possible levels. For example, efforts will be implemented over the next two-to-three-year period to reduce the risk of storing supercompacted wastes to levels lower than those associated with the status quo by transferring wastes into buildings designed to withstand severe natural phenomena, e.g., earthquakes and extreme winds.

As stated on page 5-34, the exterior containment of Building 776/777 is being upgraded to withstand a design basis earthquake (DBE), this upgrade is scheduled for completion in the early 1990s. As stated in Attachment B, Errata, the exterior containment of Building 776/777 is also being upgraded to withstand a design basis wind (DBW), this upgrade is also scheduled for completion in the early 1990s.

2 1 1 5 Eugene J Riordan  
Vranesh and Raisch for City of Broomfield

Comment *The Environmental Assessment does not address the risks associated with a fire or a drum breach (single or multiple) at the on-site storage pads. The City is concerned, for example, that a fire at the storage pad may impact more than the 20 drums postulated in the "Fire on the Dock" scenario, with a concomitant increase in radiation exposure.*

Response

Drums of supercompacted and/or shredded wastes will only be stored in the storage units, the rooms and the buildings that are RCRA permitted for this purpose as shown in Table 3-1, page 3-24 of the EA. Drums of supercompacted and/or shredded wastes will not be stored at on-site storage pads, therefore, an associated fire and release of radiation from supercompacted and/or shredded wastes on the storage pad is not feasible.

2 1 1 6 Melinda Kassen and Nakisa Serry  
Environmental Defense Fund

Comment *The concrete foundation for SARF is isolated from the floor slab, and according to the EA is designed to withstand a seismic event with a maximum horizontal of 1.8 and maximum vertical of 1.2. EA, p. 3-5. Is this consistent with the maximum credible accident? Any analysis in the EA of potential impacts from operating the SARF and TWS in building 776/777, including the impacts and potential effects of an earthquake, should be consistent with the updated maximum credible accident. If the SARF cannot withstand damage under such scenario, the proposed action should be moved to a building that can withstand the updated maximum credible accident.*

Response

As discussed on Pages 5-32 through 5-34 of the Environmental Assessment, the SARF is designed to withstand a design basis earthquake (DBE), which is the most severe seismic event applicable to Rocky Flats. The DBE for the plant is 0.14 g horizontal acceleration at bedrock and is equivalent to a magnitude of 6.0 on the Richter scale, with the epicenter 16 miles away. The cited loadings in the comment correspond to DBE conditions. While the SARF meets the design requirements for a DBE, it is located within Buildings 776/777, which were built prior to specification of the DBE criteria. Consequently, some damage to the SARF may result from Buildings 776/777 debris during a DBE. An estimate of human health impacts is summarized in Table 5-6 and discussed on pages 5-33 and 5-34 of the Environmental Assessment. The exterior containment of Buildings 776/777 is scheduled in the early 1990's to be structurally upgraded to withstand a DBE. The maximum credible accident is caused by the crash of an aircraft. The environmental assessment evaluates the impacts of an aircraft accident involving the supercompacted waste storage areas since they will have greater impacts than the SARF or TWS processes due to the greater amount of plutonium present and potentially available for release.

2 11 7 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *In considering impacts to the environment, the EA considers the event of a bag rupture at the airlock EA, p 5-30 However, this is the only place the EA considers such event The impacts associated with bag and liner breaks should be reviewed during other stages of the process as well, i.e., precompaction*

Response

The potential accident involving a rupture of a bag at the airlock of the SARF was selected as the most serious of the plausible accidents of its type Most parts of the operation that involve handling bags occur inside a glovebox Any releases from a bag rupture occurring inside a glovebox will pass through four stages of HEPA filtration before release to the environment The glovebox will also provide protection to the worker from any releases If the accident occurs at the airlock, the accident is assumed to lead to a release to the room air which leads to a potential exposure to workers Air from the room is vented to the atmosphere through two stages of HEPA filtration Each stage of HEPA filtration has an efficiency rating of 99.97 percent Because the potential impacts from the rupture of a bag at the airlock are greater for both the worker and the public, the rupture of a bag of waste during other stages was not analyzed at other parts of the operation

2 11 8 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA should describe the status of Rocky Flats fire department With higher concentrations of waste stored on-site, potential accidents will have even more serious effects that could require expansion of the fire department's facilities Given the historic, and continuing, deficiencies in fire protection at the Plant, the EA should indicate what steps DOE and its contractor intend to take to ensure adequate protection that Building 776 and the storage areas for compacted waste*

Response

The requirements for the RFP fire department are periodically reviewed However, due to decreased void spaces in the puck to contain oxygen, due to compacted waste density and due to the barriers of the compressed puck and the overpack drum the risk of fire burning compacted waste would be reduced Therefore, supercompacted waste by itself would not require expansion of the Rocky Flats Plant fire department

2 11 9 **John G. Haggard**  
**Colorado Department of Health**

Comment *Page 5-20 -- The use of the 1980 RFP FEIS release fractions is identified here, which will overestimate the impact*

Response

The commenter has apparently inferred that the environmental analysis has utilized the 1980 RFP FEIS release fractions Page 5-20 of the EA states that no credit was taken for the potential reduction in radioactive material release fractions due to supercompaction Release fractions utilized in the analysis are developed in Appendix A of the EA and are specific to the accidents evaluated and their associated release mechanisms The Appendix A analysis is based on prior experimental work which also served as the basis for the 1980 RFP FEIS release fractions The DOE concurs that the accident analysis is conservative and overstates associated impacts

2 11 10 **John G. Haggard**  
**Colorado Department of Health**

Comment Page D-12, Appendix D, Table D-8 Footnote (a) – There is no reference DOE (1989c) listed It is apparently the 1988 EPA document

Response

The cited footnote at the bottom of Table D-8 is in error and should be "DOE, 1988b" rather than "DOE, 1988c" (This correction is shown in Attachment B, Errata) Reference DOE, 1988b is a tabulation of external dose rate conversion factors for calculation of doses to the public Effective dose-rate factors taken from the report and utilized in this study are based on the weighting factors for specific body organs recommended by the International Commission on Radiological Protection (ICRP)

2 11 11 **John G. Haggard**  
**Colorado Department of Health**

Comment Page E-1, Appendix E – Such probability statements have no meaning in light of the plane crash/suicide scenario that actually occurred in Boulder on April 1, 1990

Response

The cited event does not alter the validity or meaningfulness of the calculations presented in Appendix E for probabilities of aircraft accidents leading to potential releases of radioactive material It is self-evident that the analyses address unintentional human actions The severe accident analyses presented in the EA bounds the potential impacts associated with an intentional action, such as the small aircraft accident which occurred in Boulder

2 11 12 **John G. Haggard**  
**Colorado Department of Health**

Comment Page 15 – The 1980 RFP FEIS's MCA is a 100 gram RF plutonium release with a probability of  $> 1 \text{ E-}7/\text{year}$  Over a lifetime (70 years) the Design Basis Wind (DBW) has a probability of  $1 \text{ E-}2/\text{lifetime}$  It also appears that a 100-gram release has already occurred at the Rocky Flats Plant (903 Pad)

Response

In the EA, probabilities for potential accidents were estimated as an aid in determining whether the potential consequences of the accident are significant Probabilities and associated risks for different types of accidents are not additive and should not be combined Records of previous accidents may be utilized in estimating the frequency of occurrence of a particular type of accident Other than that, neither previous accidents nor prior operational occurrences, such as those that led to the present 903 Pad conditions, have any direct relationship to the probabilities of an accident occurring or a release of hazardous or radioactive material as a result of the proposed action

The Severe Accident Case analyzed in the EA involved the crash of an aircraft into a waste storage area The probability of occurrence was estimated for each area in which supercompacted TRU-mixed waste was to be stored, and the sum of all the probabilities was calculated to be  $1.2 \times 10^{-7}$  The amount of material potentially released from each area was determined from the amount stored and a conservative (overestimated) release fraction The maximum potential release from any storage area was calculated to be 83 grams

While the estimated probability of occurrence for the DBW ( $7 \times 10^{-3}$  per lifetime) is greater than the probability of the MCA analyzed in the FEIS ( $1.3 \times 10^{-7}$  per year) or the Severe Accident Case analyzed in the EA ( $1.2 \times 10^{-7}$  per year), the estimated release for DBW (11 grams of plutonium) is substantially less than the estimated 100 grams of plutonium released by an MCA

2 11 13 John G. Haggard  
Colorado Department of Health

Comment Page 5-11 -- The dose conversion term used by DOE does not consider the presence of AM-241 in all RFPs

Response

As described in Appendix B, Dose Conversion Factor (DCF) used in the calculations in the EA is a weighted DCF. The calculation of DCF, the weighted Dose Conversion Factor, included AM-241, as shown in Table B-1 of the EA.

2 11 14 John G. Haggard  
Colorado Department of Health

Comment Page B-2, Appendix B -- The dose conversion terms (DCF) referenced (EPA 1988) are the least conservative of all such data reviewed by CDH. Summing the alpha and beta activity into the weighted DCF lowers the perceived impact and is out of context to practical dose calculation procedures.

Response

The referenced document, also known as Federal Guidance Report No. 11, was used because it is a current document accepted by the Federal Agency which was charged by the President of the United States with providing such guidance. The following text is quoted from the Preface of the referenced document:

On January 20, 1987, the President approved recommendations by the Administrator of EPA for the new "Radiation Protection Guidance to Federal Agencies for Occupational Exposure." This guidance, which is consistent with (but in several ways is an extension of) current recommendations of the International Commission on Radiological Protection (ICRP), constituted a major revision of those parts of the 1960 guidance that pertained to the protection of workers.

This Federal Guidance Report No. 11, which supersedes Report No. 10, presents values for derived guides that make use of contemporary metabolic modeling and dosimetric methods and that are based upon the limits on committed dose equivalent stipulated in Recommendation 4 of the 1987 guidance. The Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) tabulated herein are numerically identical, in most cases, to those recommended by the ICRP in their Publication 30. Exceptions include values for plutonium and related elements, which are based upon information presented in ICRP Publication 48, and a few radionuclides not considered in Publication 30, for which nuclear decay data were presented in ICRP Publication 38. We plan to publish future editions of this Report on a regular basis to reflect information, as it becomes available and is accepted by the radiation protection community. The document used, EPA-520/1-88-020, which is dated September 1988, is the most current version of the document.

2 11 15 John G. Haggard  
Colorado Department of Health

Comment Page D-11, Appendix D, Table D-7 -- The established breathing rate for the DOE RCGs is 8400 m<sup>3</sup>/year (not 8030)

Response

The value used in the EA analysis is comparable to the default value for the breathing rate used in the AIRDOS code (CAP-88). CAP-88 is approved by EPA for evaluating radiological releases for compliance with National Emission Standards for Hazardous Air Pollutants (NESHAPS) for radionuclides. The basis for this value was taken from A Statistical Analysis of Selected Parameters for

Predicting Food Chain Transport and Internal Dose of Radionuclides. Final Report (Rupp, E M , 1979, ORNL/NUREG/TM-282) This reference is listed in the original AIRDOS-EPA manual distributed by the ORNL Radiation Shielding Information Center (ORNL RSIC package CCC-357)

The annual breathing rate of 8400 m<sup>3</sup> per year may be supported from the breathing rate for an adult male (23,000 liters per day), as specified in ICRP Publication No. 23, Reference Man (ICRP 23), and is often used in establishing inhalation limits for individuals exposed both occupationally and non-occupationally. When considering exposure of the general population, it is appropriate to account for the fact that approximately half of the general population is female. The daily breathing rate for the adult woman specified in ICRP 23 is 21,000 liters per day. Using a breathing rate averaged from rates for males and females, the annual average breathing rate is 8030 m<sup>3</sup>.

2 11 16 John G Haggard  
Colorado Department of Health

Comment Page 5-16 -- The DOE limit of 0.1 rem/year must be met considering all materials in combination. The 0.02 pCi Pu-239/m<sup>3</sup> over a year is equal to 595 rem/μCi inhaled. The RFP uses a value of 800 rem/μCi RFPu in their annual environmental surveillance summary, based on the same assumptions.

Response

The reference on page 5-16 of the DOE guideline of 100 mrem per year was intended only to place the estimated dose to a member of the public in perspective, not to demonstrate compliance with that guideline. It should be noted that the dose estimate is based on exposure to the mixture of plutonium and americium expected in an average shipment of waste from Rocky Flats (see response to Comment 2 11 17).

The source of the other numbers in the comment is not clear. The value of 0.02 pCi/m<sup>3</sup> mentioned in other parts of the document pertains to gross, long-lived alpha, not Pu-239. The values of 595 and 800 rem/μCi do not appear on the page cited or on any other page in the section. The derivation of the numbers is not clear from the comment. As stated in Appendix B, the weighted average DCF for the average isotopic mixture in the RFP waste is 8.76 x 10<sup>7</sup> rem/Ci. The calculation of the weighted average DCF was performed using the weight fractions from Table 21 of the *Rocky Flats Plant Site Environmental Report of 1988, January through December 1988*, (RFP-ENV-88), yielding a weighted average DCF of 4.27 x 10<sup>7</sup> rem/g.

2 11 17 John G Haggard  
Colorado Department of Health

Comment Table B-1 -- The first Pu-239 should be Pu-238 and its half life is 3.20 E + 4 days and the DCF (CEDE) is in what units (rem/Ci)? The RFP published mass fractions are somewhat different than those presented here. The AM-241 level is unrealistically low, particularly in light of the recognition of Am-241 at the 903 area.

Response

As noted in the comments, the first line of Table B-1 contains two typographical errors. All calculations were performed using the correct values for T<sub>1/2</sub>, MF, and DCF for Pu-238. The table should have indicated that the DCF values listed are in rem/Ci. These corrections are shown in Attachment B, Errata.

The mass fractions shown in Table B-1 were calculated from the RFP site-specific data in Table B 2 6, Average Radioactivity in a Shipment of CH TRU Waste, found in reference DOE, 1990, of the EA. The table lists the average amount of radioactive material in a low-level TRU-mixed waste shipment from Rocky Flats. The values listed in Table B 2 6 are based on data for the average radionuclide composition in Rocky Flats waste from *Radionuclide Source Term for the WIPP* (U.S. Department of Energy, 1989, 88-005, Carlsbad, New Mexico). The values listed in Table B 2 6 were used because they are representative of the isotopic mixture in waste generated at Rocky Flats.

2 11 18 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Automatic and manual deluge sprinkler systems are referred to for the exhaust filter plenums, yet provision for drainage of water used for fire suppression that could potentially have contact with plutonium in ductwork and gloveboxes is not addressed. The presentation to the Ahearn commission made sweeping statements regarding the safety envelope. Yet, flow capability and criteria were not adequately addressed regarding criticality drains. Physical observation and preventative maintenance is a must, as past overflows and fires have been or gotten out of control and not discovered for days. Reliance on alarms and automatic systems is not adequate nor acceptable.*

Response

The designated plenum for the SARF is Plenum 205. In the event of a fire the plenum will be deluged with water at a rate of 25 to 50 gallons per minute. The water will automatically flow to a drain located at the bottom of the plenum and into a critically safe tank designated for plenum deluge water only. The tank is connected to the process waste collection system (RCRA Unit 40). There are sprinkler systems in the ducts themselves, but only in the plenum. Water from the plenum can not return to any of the ducts or gloveboxes due to configuration of the plenum. The plenum fire suppression system is tested on an annual basis.

The SARF and TWS units, like all other mechanical systems at Rocky Flats, will be on a Preventive Maintenance Order (PMO) schedule. These schedules involve the routine inspection and change of materials such as oils, hydraulic fluids, glovebox gloves, etc. The schedules help to ensure worker safety and protection of public health and the environment. They also serve to extend the usable lifetime of mechanical equipment through routine maintenance. PMO schedules are based on but are more conservative than, manufacturer recommendations and maintenance specifications because Rocky Flats Plant operating experience is also considered when establishing the schedules.

Operators of the SARF and TWS units will rely on alarms, monitoring equipment and automatic systems, as well as routine inspections, to ensure protection of employees, public health and the environment.

Historically, inspections and oversight of unit operations were the only means for ensuring worker safety and protection of public health and the environment from potential operational accidents. Technological advances have allowed the additional utilization of alarms and automatic systems for further ensuring safety at Rocky Flats. Such systems are used to assist unit operators in providing more rapid responses to potential problems than were previously possible. Mechanical devices can also provide continuous surveillance of the most intricate details within a mechanical operation.

However, since machines have the potential for malfunction, Rocky Flats uses a conservative plantwide approach to safety by using a combination of mechanical monitoring and alarm devices as well as routine equipment inspections.

2 11 19 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *The old MCA scenario is a JOKE! When are you going to give up on this old tired argument that is so "incredible?" Reality is that MCA is more credible from internal causation than the old aircraft crash scenario. The threat posed by natural phenomena such as high winds and earthquake are more credible possibilities.*

Response

The postulated MCA was selected not because it is more likely to happen than other accidents, but because it has the most severe consequences of any accident that could reasonably occur. Other accidents with a higher probability of occurrence were also analyzed in Section 5.1.4.2 of the EA. Table 5-4 of the EA lists the accidents, other than the Severe Accident, that were analyzed.

2 11 20 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Accident controls are cited with reliance on physical controls, yet the bulk of unplanned incidents and violations cited in the Criticality Safety report noted repeated failures in ability to comply with these "routine" physical controls of fixed spacings, safe geometry, mass violations, etc Neutron criticality detectors and alarms were noted in the Tyree report to have 143 failures over 10 years This does not include the practice of shutting the alarms off deliberately due to frustration of personnel with false alarming going on*

Response

As noted in Section 3 1 4 2 of the EA, drum labeling, records, data, and calculations for each drum proposed for a SARF batch run will be verified independently by a second operator before being loaded into the SARF glovebox Multiple large errors would have to be committed before there was any change to accumulate enough plutonium in a barrel to reach criticality The nondestructive analysis (NDA) of the output drum will also allow an independent comparison of the actual drum plutonium content with the total plutonium calculated before supercompacting was commenced

The 143 criticality monitoring system failures cited in the Tyree report included such items as malfunctioning beacon lights, audible alarm signals not meeting design or operational criteria, and single criticality detector failures None of the reported failures compromised the detection and warning capability of any of the criticality systems For example, single detector failures are offset by other, redundant detectors Local annunciation failures are offset by the fact that all criticality alarms annunciate not only locally, but also in at least two remote locations

As for deliberately turning of the equipment to prevent the alarms, the criticality monitors do not have local power switches, they must be turned off at a remote control panel Spurious alarms are minimized by the instrument design which requires at least two detectors to simultaneously detect the criticality event Criticality monitor operation is verified at least daily by instrument technicians As with the SAAMs, the discovery of any sabotage or unauthorized deactivation would require a formal investigation and written report of the incident

2 11 21 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Bag rupture at SARF airlock discourse notes protection factors of 0 01 with use of full face respirators, yet does not take into consideration possibility of poor fit, or operator inability to don the equipment rapidly or properly*

Response

Before an operator may be issued a full-face respirator, they must complete both training and respirator fitting Both the training and the fit testing must be repeated annually thereafter The training includes both classroom and "hands-on" training As part of the respirator fit testing, each person is given instruction on the proper methods to don and wear the respirator and must demonstrate the capability before entering the test booth The fit of the respirator is then tested to assure that the respirator provides at least a minimum protection factor during testing For a full-face respirator, that minimum protection factor is 1000 That is, if the respirator does not fit well enough that testing shows less than 0 001 leakage, the individual is not authorized to be issued that brand or type of respirator The calculations in the EA assumed the full-face respirators to be ten times less effective than the minimum the wearer must demonstrate during fit testing, thus presenting an upper bound of the risk

2 11 22 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Operator error is not addressed in this EA. In manually removing drum lids, there is potential of exposure as well as gas build-up release and/or explosion if prime conditions are available such as sparks, reckless handling, etc. The possible discrepancy of accumulations of plutonium due to additions of bags and liners should be noted. Do you really have a handle on how much plutonium and/or other nuclear materials will be present? Overzealous operators could continue to add to drums until they are "really full!"*

Response

Standard Operating Procedures, administrative controls, quality assurance audits, operator training, etc., will be designed and implemented to minimize the possibility of operator error.

The possibility of explosion, whether initiated by operator error or other causes, was considered and, as noted in Table 5-4 of the EA, is bounded by the fire on the dock because there would be less material at risk in an explosion.

Section 3 1 5 2 of the EA describes the controls on SARF operation to limit the amount of plutonium in any single drum. In summary, the operation of the SARF (as well as the TWS) will be a batch process where all of the drums to be included in the supercompacting process will be selected before processing of the first drum is started. This will be done to assure that both weight and fissile material limits will be met in the finished product. All records used and calculations performed in selecting the drums to compact will be verified independently by a second operator. The plutonium in each input drum will first be measured by equipment that is routinely calibrated to an accuracy better than  $\pm 10$  percent and must contain no more than 50 grams of plutonium. Output drums will be analyzed by the same equipment to assure they do not exceed 100 grams of plutonium prior to being placed in storage.

2 11 23 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *There appear to be numerous handling and transfer steps noted that require physical handling of waste, yet common problems that are possible in these steps are not noted, such as forklift accidents, loading jams or other hitches in the transfer process. It is important that the SARF/TWS process not have similar "production" requirements applied to it such that the operators and handlers are or would be encouraged to become "to automatic" in their duties, or too hurried.*

Response

The "forklift accident" suggested in the comment is bounded by the breach of a drum in storage, the breach of a drum on the dock, and the glovebox breach accidents. Standard Operating Procedures, administrative controls, and training will ensure that the operators will maintain appropriate attention to the requirements of SARF and TWS operation.

2 11 24 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *The potential for fires and explosions (as have occurred in the past) are very real possibilities, and represents a far greater impact to both worker and community than the criticality scenarios depicted.*

Response

Section 3 1 5 1 of the EA discusses the systems and controls that will be implemented to prevent or mitigate the impacts of a fire or explosion.

As shown in Table 5-4 of the EA, both fires and explosions were analyzed as potential accidents in addition to the criticality scenario. Fires were considered both inside and outside the glovebox as well as on the loading dock. Explosion was also considered but the effects of an explosion would be less than (or bound by) a fire occurring on the loading dock.

2 11 25 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado

Comment *The meteorological parameters listed state that a conservative approach has been employed, but a comprehensive climatology study has not been done. Past data has been flawed, with faulty assumptions arising from it.*

Response

Potential radiological impacts to the public were calculated using two sets of meteorological conditions defined as representative and unfavorable. The unfavorable analysis utilized conservative meteorological parameters which provided an upper estimate of population impacts. These impacts are independent of current plans to complete a comprehensive climatology study at Rocky Flats within the next couple of years.

2 11 26 Paula Elofson-Gardine  
Concerned Health Technicians For A Cleaner Colorado

Comment *The reference section, Appendix B, refers to worker doses. The dose estimates fail to take into consideration the change in worker status to 12-hour shifts and exposures rather than 8-hour shifts and exposures. Radiation releases and quantities in the waste, which is an uncertain proposition at best, does not take as conservative an approach as could be taken. The release durations and exposure times listed in Table B-3 therefore do not appear to be realistic. The notation of respirators being utilized when SAAM's alarm is of concern when repeated reports of the SAAM's being deliberately sabotaged or shut down continue to filter out of the RFP. How can the workers rely on this "fail-safe" mechanism of early warning of exposure?*

Response

The reference to a "change in worker status to 12-hour shifts" is not defined. No reference was found in Appendix B to an 8-hour work day. Appendix B presents the data and methods used in calculating exposures and doses during various accidents or incidents rather than routine operations.

Nevertheless, it is not expected that routine operations of the SARF and TWS will require more than one shift per day, five days per week. As shown on Table 5-1 of the EA, the SARF is estimated to require operation approximately 142 hours per month and the TWS, as shown on Table 5-3, 13 hours per month for a total of 155 hours per month. The average working month for eight hours per day, five days per week, is slightly over 173 hours. If the workload were to require greater operating time, a second shift of workers would be added, rather than extending the workday to twelve hours.

The release duration and exposure times used in the accident analysis are not determined from or affected by the radiation releases or quantities in the waste. The release durations and exposure times are based on conservative assumptions about the type of accident and typical worker responses in similar accidents.

The operation of each SAAM is checked at least daily by instrument technicians. Authorization may be given to disconnect or disable a SAAM temporarily for authorized activities such as calibration or other servicing. If the SAAM is turned off or disabled electrically without prior authorization, an alarm is immediately initiated in the Radiation Protection Technician's (RPT) office. The RPTs are required to respond to the alarm as if it were a high airborne incident and take the appropriate actions. In addition, if any SAAM is found by any individual to have been sabotaged or disabled, a formal critique is held resulting in a written report of the incident and the results of the investigation.

2 11 27 **Paula Elofson-Gardine**  
**Concerned Health Technicians For A Cleaner Colorado**

Comment *Appendix D, off-site dispersion and exposure modeling, continues to utilize old topographical and population data. This must be corrected to indicate the proximity and availability of populace, food chain impacts, etc. Plutonium is noted in Golden Peaks Dairy milk, which is sold to local schools. These cattle are subjected to inhalation and ingestion of the contaminants in the immediate environs of the plant, as evidenced by higher concentrations in the milk, than is found in the monthly water testing. It is obvious that there is biomass concentration that is still not addressed. Assumptions regarding groundshine, plumeshine, and water immersion are not realistic in terms of internal dose pathways in light of the above. Potential radiological releases due to an accident is noted to be of limited duration, yet "routine" releases are not taken into account as potentially significant.*

Response

Appendix D of the Environmental Assessment summarizes the radiological model used to evaluate impacts to the population from potential accidents associated with the supercompactor and shredder. The analysis considers both internal (e.g., ingestion of vegetables, meat, and milk as well as inhalation of contaminants) and external (groundshine, plumeshine, water immersion) dose pathways. The analysis takes into consideration the proximity of beef and dairy cattle and vegetable crop production areas around the Rocky Flats Plant. Inhalation is the primary exposure pathway. Public health effects are based on the projected population within a 50-mile radius of the plant site for the year 2000 and thus, overstate current demographic impacts. Routine impacts to the public from operation of the supercompactor and shredder are addressed on pages 5-7 through 5-11 and pages 5-14 through 5-16, respectively, of the EA, the maximum increased annual dose (committed effective dose equivalent) to a member of the public was calculated to be  $2 \times 10^{-11}$  rem, which is one billionth the dose permitted by DOE guidelines (100 mrem).

2 12 **HAZARDOUS CHEMICAL IMPACT ANALYSES**

2 12 1 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *In assessing accidental exposures to hazardous chemicals, the EA used Threshold Limit Values (TLV), established by the American Conference of Governmental Industrial Hygienists in the 1960s, as comparison criteria. Haven't other analyses done in the past two decades determined that these values should be substantially reduced in terms of the accepted limits for what constitute toxic exposures? Please explain why DOE is relying in a 1990 EA on such an old health-based risk evaluation.*

Response

The Threshold Limit Values used in the analysis were based on a 1989 publication. The correct reference is (ACGIH, 1989). Current analysis (WIPP SEIS, 1990), use TLV-based hazard indices to assess the impact to both public and workers from accidental acute exposures. As stated on page 5-40 of the EA, TLVs establish acceptable time weighted average concentrations of various contaminants to which workers can be exposed during a normal 8-hour shift, 40-hour work week schedule without receiving any adverse effects after a lifetime of exposure. If exposures are maintained below the TLVs, during short-term incidents and routine operation, there should be no affects to workers or the public. This type of analysis is adequate for assessing impacts to the public considering the conservatisms used in dispersion modeling and in the release fractions, and considering the shorter duration of exposure (not 40 hours a week for a lifetime).

2 12 2 **Melinda Kassen and Nakisa Serry**  
**Environmental Defense Fund**

Comment *The EA states that because of the relatively short-term duration of accidental chemical releases and subsequent exposures, Acceptable Intake-Chronic (AIC) values suggested by EPA were not appropriate for comparison EA, p 5-40 In the EA, AIC values should also be applied to accidental chemical releases in order to determine the results of long-term releases and provide a complete consideration of potential impacts of the operations of the SARF and TWS*

Response

AIC values are only defined for chronic, long-term exposures They are not appropriate for very short, acute exposures because they are based on animal dose/effect laboratory data involving chronic intake Extrapolation of health effects from an acute exposure using chronic lab-based indices is not appropriate The TLV-based Hazard Indices are the current methodology used to assess potential health effects from short-term accident exposures (WIPP SEIS, 1990)

2 12 3 **John G. Haggard**  
**Colorado Department of Health**

Comment *Exposures for the Public from TWS Operation – Discusses only the exposure from radioactive particles While this is the highest potential, the report should also cover other hazardous emissions, e g , lead, mercury, beryllium, VOCs, etc*

Response

The hazardous chemical impacts during normal operation of the TWS and during accidental exposures are discussed and analyzed in Sections 5 1 4 3 and 5 1 4 4 of the EA, respectively As stated on page 5-39, the calculated intakes (of hazardous chemicals by the public during normal operations) at the site boundary resulting from the maximum potential pollutant emissions are well below the AIC (Acceptable Intake-Chronic) values used for comparison (at least six orders of magnitude below the AIC values) In addition, the release amounts used in the calculations are upper bound estimates The total HI (Hazard Index) for all emissions is  $6.3 \times 10^{-6}$ , indicating that expected emissions will not cause any significant adverse effects to public health

The highest calculated cancer risk for an individual at the site boundary for any one carcinogen in the SARF and TWS emissions is  $3.6 \times 10^{-7}$ , or less than one chance in one million, calculated for carbon tetrachloride The cumulative predicted cancer risk for all of the suspected carcinogens in the emissions for a maximally exposed member of the public is  $4.0 \times 10^{-7}$ , or 0.4 chance in one million The predicted cumulative cancer risk is such that less than one additional cancer in a population of one million people (all assumed to be at the site boundary) will occur due to the assumed hazardous waste/carcinogen effluents from the SARF and TWS operations

As discussed on page 5-41, the cumulative HI for all released hazardous materials for an RFP worker (at a distance of 100 meters) is  $2.5 \times 10^{-2}$  This HI is less than one, indicating that the potential on-site nonradiological impacts from a severe accident at the SARF and TWS are minimal Additional dispersion of released hazardous materials during transport to the site boundary, or to a more distant location where a member of the public may be located, will result in HI values lower than the already low occupational values

The HI values in the assessment of accidental releases of hazardous materials are based on TLVs (Threshold Limit Values) and because TLVs are developed using a normal, healthy worker as their basis, concerns associated with applying TLVs to members of the public may arise For example, things such as body weight or poor health may result in increased sensitivity of the very young or elderly However, these concerns are mitigated by the very low HI values expected at the site boundary (lower than the HI for 100 meters, due to the greater dilution of any releases), and, additionally, by the overall conservative nature of the calculations Therefore the assumption of acceptably low HI values for members of the public is valid

The assumptions made for the hazardous chemical impact assessment calculations are very conservative leading to an estimate of the upper limit for environmental effects rather than a realistic evaluation of the likely consequences. The conservative assumptions include the following:

- Releases from the SARF are assumed using the estimated annual throughput of drums containing four categories of TRU mixed waste. The TRU mixed waste categories included combustible waste, metal waste, filter waste, and glass waste.
- Typical drums are assumed to contain all of the hazardous materials known to occur in the identified waste types and at their respective maximum concentrations.
- All organic materials contained in each drum are assumed to be released in vapor form through the ventilation system to the environment during shredding, precompaction, or supercompaction.
- The estimated potential volatile emissions from filter waste shredded in the TWS are included in the SARF calculations.
- All of the mercury is assumed to be released to the SARF glovebox in particulate form. To account for that which may exist as vapor or that which may be vaporized during compaction, it is assumed that the amount passing through the HEPA filters was increased by a factor of ten for mercury.
- Except for the lead contained in glass, almost all other lead to be compacted is in the form of lead metal. The calculations assume one percent of the metal will become airborne inside the glovebox.

The composition of the hazardous chemicals expected to be released annually under normal conditions is provided in Table 5-10 of the EA. Table 5-10 also provides an estimate of the upperbound quantities of annual chemical releases and a hazard assessment of their significance.

## 2.13 STORAGE AND STORAGE LIMIT

### 2.13.1 Jason Salzman Greenpeace Action

Comment DOE should not subvert the intent of the 1601-cubic-yard storage limit for mixed transuranic waste.

### 2.13.2 Rich Ferdinandsen Jefferson County, Colorado

Comment A second on-site concern is with the potential for increasing near-term storage capacity beyond the 1601 cubic yards (SEC 3.1.4). An increase in storage capacity even on a temporary basis should not be considered until all formal permitting procedures are met, including public hearings. Additional storage should only be deemed temporary and off-site alternatives (WIPP and others) should be actively and seriously pursued.

### 2.13.3 Craig Kish Rocky Flats Cleanup Commission

Comment The Department of Energy (DOE) and EG&G certainly feel that the proposed action is necessary for the continuation of plutonium operations at Rocky Flats given the 1601 cubic yard limit imposed by the Colorado Department of Health (CDH) in the RCRA permit. However, this proposed action appears to only be a short term solution at this point. The WIPP is still not open and no assurance is available that the WIPP will be certified and ever able to accept waste from Rocky Flats. Therefore, supercompacting the waste only reduces the quantity of waste and helps EG&G avoid the waste limit imposed by CDH for a short time.

*We must be concerned with the long term storage of waste produced at Rocky Flats Compacting the waste does nothing to reduce the waste, only the physical dimensions Thus, supercompacting will allow more waste to be stored at Rocky Flats But query what if WIPP does not open? The supercompacted waste will remain at Rocky Flats until a home is found Query again what if the supercompacted waste is rejected at other sites due to the fact that the waste has been supercompacted? Could supercompacting potentially prejudice the reception of that waste at other facilities?*

*The EA must look at this contingency and dispel this fear The EA is to look at potential environmental hazards and assess the result The potential of the WIPP never opening is a possibility and the storage of the waste at Rocky Flats as well as the possibility of the waste not being in acceptable form for deposit at another facility must be addressed*

*In summary, the proposed action seems to be a knee-jerk reaction to the waste storage limit in the RCRA permit The EA must address the implications of long term storage of waste and include contingencies such as the WIPP not opening*

**2 13 4 Craig Kish  
Rocky Flats Cleanup Commission**

Comment *The EA fails to adequately address the honest benefits of the proposed action The real benefits from the proposed action are short term, the benefit is that EG&G can resume and possibly increase production and thus increase waste since the volume of waste will be reduced DOE will therefore be able to resume plutonium operations without exceeding the 1601 cubic yard volume waste limitation imposed by CDH, at least for a while*

*DOE might be able to claim the benefit of reduced waste volume to be stored at the WIPP if the WIPP were guaranteed to open on a specific date However, no assurances are present that the WIPP will open Therefore, the benefits from this proposed action are questionable at this point The EA does not address the potential detriment from the proposed action if the WIPP fails to open and the waste is stored at the RFP*

**2 13 5 George Hororka  
City of Westminster**

Comment *Westminster is opposed to the use of the Supercompactor and Repackaging Facility and TRU Waste Shredder (SARF/TWS) Westminster cannot support any operation which will increase the amount of waste which can be stored at the Rocky Flats Plant Because there is yet no solution to the hazardous waste disposal problem at Rocky Flats, the SARF/TWS will merely increase the amount of wastes stored at Rocky Flats It will not be solving the problem Westminster is concerned that this will open the door to making Rocky Flats a waste repository, for both its own wastes and possibly those from other facilities Wastes should not be generated if there is no means of disposal and staying within the limits set by the State of Colorado The handling of the wastes necessary for shredding and repackaging also increases the risk to the workers and neighboring citizens*

**2 13 6 Paula Eloffson-Gardine  
Concerned Health Technicians for a Cleaner Colorado**

Comment *Section one summary/overview states that this is needed to maintain compliance with RCRA requirements I challenge this as a temporary stop-gap measure only Mr Burlingame stated at the Ahearne commission meeting last held in Denver that WITH the supercompactor the production time available at most would be 12-18 months The only way that this supercompactor will achieve and maintain compliance with RCRA regulations is if it is used for volume reduction of what has already been generated, and used for waste generated by CURTAILED operations and D & D activities It is crucial that this SARF and TWS not be seen as the salvation for further production activities The end of the line will come soon enough Advance planning must take into consideration that the end of the production line at the RFP is here now Cleanup activities and reduction of existing waste must take priority*

Response To Comments 2 13 1-2 13 6

Planning for the SARF began in 1985 in order to reduce the external radiation dose to workers during waste handling and repackaging, to enhance safety, and to reduce waste volume and process costs. Initial funding for the SARF was received in Fiscal Year 1987. The planning and funding for the SARF were initiated prior to the implementation of the 1601 cubic yard volumetric storage limit for TRU-mixed waste that is contained in a letter dated December 15, 1988 from Thomas P. Looby, Assistant Director for Health and Environmental Protection, Colorado Department of Health. As proposed, the SARF and TWS will reduce the volume of TRU-mixed wastes to be generated at RFP, will reduce the volume of wastes currently being stored, and will help ensure continued compliance with the 1601-cubic yard volumetric storage limitation until alternate storage and/or disposal sites are approved. The proposed action does not include making Rocky Flats a waste repository for its own wastes or wastes from other facilities. The Department of Energy will continue to comply with both the spirit and the intent of the volumetric storage limit.

**2 13 7 Melinda Kassen and Nakisa Serry  
Environmental Defense Fund**

Comment *The separate NEPA documentation concerning the proposal to DOE for alternate storage for RFP TRU-mixed waste on-site and off-site should be taken into account prior to approval of this EA. This EA should, but fails to consider sending the waste elsewhere as an alternative. Given that the heart of NEPA is a comparison of alternatives, DOE must consider all reasonable alternatives to its proposed action prior to issuing a Finding of No Significant Impact.*

**2 13 8 Paula Elofson-Gardine  
Concerned Health Technicians for a Cleaner Colorado**

Comment *Details of the alternate-near-term storage proposal were not included in this EA. Please provide this document for review. Details regarding privately held storage facilities is also desired. Please provide documentation regarding this as well.*

Response to Comments 2 13 7-2 13 8

The only currently reasonable alternative is to send the waste to WIPP. As stated on page 3-22 of the EA, other sites are being considered and have been used for non-compacted waste storage and disposal in the past. In addition to using the existing storage capacity at RFP, the DOE is in the process of reviewing a proposal for alternate near-term storage for RFP TRU-mixed waste, which includes both on-site and off-site options. These options are being evaluated in the event that additional storage space (in excess of the RCRA permitted capacity of 1601 cubic yards) is needed for RFP. Separate NEPA documentation for this proposal is being prepared, and will be provided for public review when available.

Storage of RFP wastes at an alternative site was considered as an alternative to supercompacting the wastes. The no action alternative and the no treatment alternative both consider shipment of the wastes offsite for storage and/or disposal without supercompaction. However, shipping the wastes to another site for storage or disposal does not meet the goals of supercompaction which are (1) reduction of worker exposure, (2) volume reduction to satisfy waste minimization objectives, and (3) more efficient waste handling methods during storage and transportation. Also refer to response to Comment 2 19 3.

**2 13 9 Jonathan P. Carter  
Office of the Governor of Idaho**

Comment *On March 30, 1990 the Department of Energy (DOE) issued an Environmental Assessment (EA) of the Supercompactor and Repackaging Facility (SARF) and Transuranic Waste Shredder (TWS) and proposed Finding of No Significant Impact (FONSI). Because of Idaho's continued interest in timely and appropriate resolution of the transuranic (TRU) waste disposal issue, we have*

*reviewed these documents to determine what, if any, impact the construction of these facilities at the Rocky Flats Plant would have on Idaho, and more particularly on the storage of TRU waste at the Idaho National Engineering Laboratory (INEL)*

*The state of Idaho supports DOE activities that will result in reduction of waste volumes, waste processing costs and radiation exposure to workers, and for these reasons believes the construction of the SARF and TWS is in the public interest. It must be acknowledged, however, that the EA and the proposed FONSI do not resolve the problem that created the immediate need for the SARF and TWS facilities, i.e., insufficient storage capacity for TRU-mixed waste at Rocky Flats. This is an issue of extreme importance to Idaho, and one which the state will closely monitor because historically DOE has sent TRU-mixed waste to the INEL for indefinite storage until Governor Andrus instituted his ban on the INEL's importation of this waste last year.*

*The EA states, at page 3-22, that DOE is in the process of reviewing a proposal for alternate near-term storage for Rocky Flats Plant TRU-mixed waste which considers both on site and off site options. The offsite options include the INEL. The EA also states, at page 3-23, that DOE is considering the need for longer-term storage of the waste. It appears from the EA that separate NEPA documentation is being prepared for the near-term and longer-term storage proposals.*

*Because near-term and longer-term storage of TRU-mixed waste, and impacts associated with transporting and storing the waste, are so closely related as to be in effect, a single course of action, they must be evaluated in a single NEPA evaluation. 40 C.F.R. §1502.4. Connected actions are considered closely related where they (1) automatically trigger other actions which may require preparation of an EIS, (2) cannot or will not proceed unless other actions are taken previously or simultaneously, or (3) are interdependent parts of a larger action and depend on the larger action for their justification. Based on these criteria, the storage proposals should be considered together in one comprehensive NEPA analysis.*

*Realistically, the waste storage problems presented by TRU-mixed waste will only begin to be resolved after the Waste Isolation Pilot Plant (WIPP) opens in New Mexico. DOE's discussion of near-term and longer-term storage solutions detracts from what DOE's primary focus should be: the opening of WIPP. DOE's shell game approach of TRU-mixed waste storage can only be resolved by WIPP, and we urge DOE to focus all of its efforts in this direction. Finally, it should be clear by now that any study of storage alternatives for TRU-mixed waste should not include Idaho as a potential storage site.*

#### Response

The DOE concurs that waste storage problems presented by TRU-mixed waste will be fully resolved only with the opening of the WIPP facility. Towards this objective, the DOE has recently issued Revision 1 to the No-Migration Variance Petition for the WIPP as well as a Record of Decision (June 13, 1990) to proceed with the test phase of the WIPP facility. The purpose of the WIPP No-Migration Petition is to demonstrate, according to the requirements of RCRA 3004 (d) and 40 CFR 268.6, that to a reasonable degree of certainty, there will be no migration of hazardous constituents from the facility for as long as the wastes remain hazardous. In order to provide continued assurance that the DOE meets its responsibilities towards national defense, the DOE is investigating options for interim storage of TRU-mixed waste.

As discussed in response to Comments 2.13.7-2.13.8, NEPA documentation for alternate near term storage for RFP TRU-mixed wastes, which includes both on-site and off-site options, is being prepared and is not currently available for public review.

## 2 14 TRANSPORTATION

### 2 14 1 **Barbara Moore** **Front Range Affirmative Action Group** **Rocky Flats Clean-Up Commission**

Comment *This Environmental Assessment does not mention if the Manufacturer of the TRUPACT-II containers has corrected the problems it had with the welds. The DOE should offer an assessment for an alternative storage container in the event that the TRUPACT-II were not available. What other containers would be acceptable to WIPP?*

#### Response

The TRUPACT-II container has been designed and constructed to meet the NRC regulations for a Type B packaging as specified in 10 CFR Part 71. As part of the application to the NRC for certification of the TRUPACT-II design, DOE provided a description of the quality assurance program for the design, fabrication, assembly, testing, maintenance, and use of the package. The NRC certified the TRUPACT-II design on August 30, 1989, thereby concluding that the TRUPACT-II meets acceptable package performance criteria and that the quality assurance program conforms to the requirements of 10 CFR Part 71, Subpart H. The quality assurance program will detect and require the correction of any defects. With the TRUPACT-II available as a shipping package for contact-handled transuranic waste, no alternative containers currently need to be assessed.

### 2 14 2 **Jason Salzman** **Greenpeace Action**

Comment *The EA should consider the risks of transporting compacted waste. Supercompaction will increase the weight and average plutonium content of waste drums. The EA should analyze the impact that these increases may have on the safety of transporting waste.*

#### Response

Section 5.1.6 of the EA discusses transportation impacts. More specifically, page 5-51 states that low level external radiation exposure will occur during routine transportation activities. While supercompaction could result in waste drums with a higher surface dose rate, the number of shipments will decrease, resulting in comparable overall impacts to the public, as discussed in Section 5.2.2.1 of the WIPP SEIS. It is noted that supercompacted waste forms will also have some additional self-shielding benefits from increased waste density and the introduction of one additional steel containment layer, contributing to a lower dose rate. It is concluded that the collective doses to the affected population will not exceed the values associated with the transporting of non-supercompacted waste forms.

### 2 14 3 **Rich Ferdinandsen** **Jefferson County, Colorado**

Comment *Transport of the waste (Sec 3.1.4 and 5.1.6) to WIPP is of great concern to Jefferson County. As stated in Jefferson County's comments on the WIPP Supplemental Environmental Impact Statement, the County believes that rail transport needs to be evaluated further. The Board would also urge that emergency preparedness programs be continued, and that DOE assume responsibility for funding emergency equipment needed by jurisdictions along the transportation routes. Further, assurances must be made and kept that the trucking contractors, their equipment and employees meet the highest standards of preparation and performance in order to protect the public as the supercompacted waste is transported off the plant site.*

## Response

As indicated in the response to comments for the WIPP SEIS, the DOE is committed to using truck transportation for the first five years of TRU waste shipments to WIPP. The DOE believes that having a commercial trucking carrier available at the WIPP, with a dispatcher on call 24 hours a day, would allow greater and more immediate control over shipping schedules, transportation planning, emergency response, and quality control. Rail transportation during the disposal phase of operations at the WIPP is being considered.

In regard to the availability and adequacy of emergency equipment, the number of resources available to state and local authorities depends on the types of industry located within their boundaries. All states have functionally oriented radiological health and emergency management organizations, with trained staff and varying equipment resources. The DOE has developed a program that offers to train state, local, and Indian Tribal police and emergency personnel in proper procedures in the event of a transportation accident. The Conference of Radiation Control Program Directors (CRCPD) has taken the position that a radiation detection instrument is not necessary to respond safely to a transportation accident. Because, first responders to an accident are sufficiently protected by standard turnout gear and dust or surgical masks (which have been issued to most ambulance, rescue, and law-enforcement personnel). As discussed in Appendix M of the WIPP SEIS, the trucking contractor will have detailed procedures related to safety, equipment maintenance, quality assurance, driver qualification and training, and operational responsibilities. As applicable, the procedures will be based on the regulations issued by the DOT, RCRA (40 CFR Part 263) requirements for mixed waste transportation, and the experience of the Federal Government. Additionally, there will be a rigorous overview and inspection program to provide independent verification of the trucking contractor's practices and equipment.

### 2 15 THIRD PARTY OVERSIGHT

2 15 1 Eugene J Riordan  
Vranesh and Raisch for City of Broomfield

Comment *And, of course, there must be third party oversight and monitoring of the project operations. Presumably, this will be done by the Colorado Department of Health through its RCRA permitting and enforcement authorities.*

2 15 2 Rich Ferdinandsen  
Jefferson County, Colorado

Comment *Finally, the Board of County Commissioners suggests that as this new equipment becomes operational, increased third party monitoring would be appropriate. The Environmental Protection Agency, the Colorado Department of Health, the Advisory Committee on Nuclear Facility Safety, and the Defense Nuclear Facilities Safety Board should all be encouraged to evaluate the operation. This action would assure safety for the workers and the public, guarantee protection of the environment, and increase credibility for the plant operators.*

#### Response To Comments 2 15 1-2 15 2

As stated on page 4-8 of the EA, a RCRA request for change to interim status for SARF and TWS treatment and storage of hazardous wastes was submitted to the Colorado Department of Health. The SARF, TWS and the storage units will be operated in compliance with the RCRA permit. The Colorado Department of Health and the Environmental Protection Agency will provide oversight, monitor, and audit the proposed action for compliance with RCRA and the RCRA permit. In addition, the proposed action will be required to comply with OSHA, DOE guidelines, and internal Rocky Flats Plant audits, quality assurance programs, and Standard Operating Procedures.

## 2 16 STATUTORY COMPLIANCE

### 2 16 1 **Melinda Kassen and Nakisa Serry** **Environmental Defense Fund**

Comment *The EA fails to specify how TRU, TRU-mixed, and other wastes will be stored in Unit 11 and other locations at RFP. DOE must comply with RCRA regulations and separate incompatible wastes. Please address specifically what types of waste will be stored in the same units and how DOE intends to achieve compliance with RCRA storage regulations (40 C F R Part 265)*

#### Response

The SARF and TWS process will treat plutonium-contaminated, solid transuranic (TRU) and TRU-mixed wastes. TRU-mixed waste is TRU waste that also contains hazardous constituents as identified and regulated pursuant to the Resource Conservation and Recovery Act (RCRA). As detailed in Section 3.1.5.3 of the Environmental Assessment, waste characterization procedures provide the information required to avoid mixing incompatible wastes. Rocky Flats uses item description codes (IDC's) which identify the physical and chemical form of TRU-contaminated material to provide accountability throughout the plant. Chemical compatibility of waste forms is based on the EPA compatibility chart provided in 40 CFR Part 261, Appendix V. A request for changes under interim status (RCRA, Part A) for the operation of the SARF and TWS was submitted to the Colorado Department of Health on October 16, 1989.

### 2 16 2 **Melinda Kassen and Nakisa Serry** **Environmental Defense Fund**

Comment *EDF questions the appropriateness of including these two new to Rocky Flats machines in the Plant's application for interim status under RCRA. Although it is arguably permissible under RCRA for DOE to seek interim status for a new operation that did not exist and was not contemplated in 1980, EDF urges DOE to obtain a full RCRA permit prior to beginning use of the SARF/TWS.*

#### Response

As stated on page 4-8 of the EA, a request for change to interim status has been submitted to the Colorado Department of Health (CDH). The Rocky Flats Plant was generating hazardous wastes at the time RCRA regulations were promulgated in 1980 and, therefore, is regulated by the interim status standards (40 CFR 265) and the interim status provisions of 40 CFR 270.70 et seq. Pursuant to 40 CFR 270.72, changes in the processes for the treatment, storage, or disposal of hazardous waste may be made at a facility or additional processes may be added.

### 2 16 3 **Craig Kish** **Rocky Flats Cleanup Commission**

Comment *Page 2-3 All of the SARF equipment and the glovebox have been purchased and delivered and some of the equipment has been assembled. This indicates that the EA is simply a formality and therefore a sham because DOE obviously believes that the proposed action will be permitted or the DOE would not have purchased the equipment prior to the authorization. It seems that the wagon has gotten ahead of the horses. This supports the contention that the EA and corresponding FONSI are simply a rubber stamping process.*

#### Response

It is DOE's policy to comply fully with the statutory requirement and intent of NEPA. In August 1989, an internal DOE audit determined that an EA should be prepared for the SARF and TWS. The EA and the proposed FONSI were prepared in compliance with NEPA.

2 16 4 **Joe Tempel**  
**Rocky Flats Cleanup Commission**

Comment *On page 5-65 a statement is made that "if one of these alternatives were to be implemented, a RCRA permit will be obtained as required and compliance with the requirements of the permit will be maintained." We assume a permit will be issued and it will be subjected to a public hearing and full public review. Is this correct?*

Response

As stated on page 4-8 of the EA, a request for change to interim status has been submitted to the Colorado Department of Health (CDH) for the SARF and TWS. The CDH Hazardous Materials and Waste Management Division stated in a letter to the DOE dated April 13, 1990 that "if a tentative decision is made to approve the change to interim status, the Division has committed to a public review and comment period in consideration of the intense public interest in this proposed action. If the request for a change to interim status is denied, the Division will review the Part B application submitted by the facility as part of the State RCRA permitting process for Rocky Flats."

When a draft RCRA permit is issued, it will be subject to full public review and comment. Pursuant to 6 CCR 100 506, the Director of CDH must allow at least 45 days for public comment, and will schedule a public hearing, if requested or at his initiative.

2 16 5 **John G. Haggard**  
**Colorado Department of Health**

Comment *Section 4 2 3, Air Quality – Should include the facts that the Supercompactor is subject to the requirements of the Colorado Clean Air Act and the Air Quality Control Commission's (AQCC) regulations. Additionally, lead and mercury are missing from the NESHAPS reference and both are listed as contaminants in table 3-2. Also listed in the table are VOCs which are subject to the AQCC's Regulation No. 7. These additional compounds and their control need to be addressed.*

Response

The SARF and TWS are subject to the requirements of the Colorado Clean Air Act and the Air Quality Control Commission (AQCC) regulations. Of the substances that have been designated as hazardous air pollutants under NESHAPS (40 CFR Part 61) and state regulations, those used at Rocky Flats include lead, beryllium, mercury, and radionuclides. These substances exist primarily in particulate form and are therefore collected by the HEPA filters. Additionally, VOCs are subject to the AQCC Regulation No. 7.

The Rocky Flats Plant has filed Air Pollution Emission Notices (APENS) with the State of Colorado, Department of Health for regulated emission sources on site as required. New APENS are currently being filed for roof penetrations on plant site per the "Agreement in Principle" signed on June 28, 1989, between the State of Colorado and the Department of Energy. The APENS are technical information documents whereby the State of Colorado will determine which air sources on plant site will require permits.

Emissions estimates for hazardous compounds are discussed in the response to Comment 2 12 3.

**2 17 COMMENT PERIOD**

**2 17 1 John G Haggard  
Colorado Department of Health**

Comment *Due to the large number of activities at the Rocky Flats Plant, the issues raised by the use of the "Supercompactor" and intense public interest, the Colorado Department of Health would like to request a 30-day extension to the official public comment period for the Environmental Assessment (EA) of the Supercompactor and Repacking Facility and TRU Waste Shredder*

**2 17 2 Barbara Moore  
Front Range Affirmative Action Group  
Rocky Flats Clean-Up Commission**

Comment *The DOE should at least afforded the Rocky Flats Clean Up Commission the courtesy of a timely response to our request for additional response time for written comments. The TAG group did not receive copies for 2 weeks after its release. With our limited response time it has been difficult to provide a meaningful, informed written comment on the Supercompactor Repackaging Facility and TRU waste shredder. The DOE continues to receive below average score in the improved cooperation with the public department. It would be greatly appreciated if each Director would have these documents mailed directly to them at their residence.*

**2 17 3 Joe Tempel  
Rocky Flats Cleanup Commission**

Comment *Finally, the comment period should be extended another two weeks to allow a full 30 day review. We did not receive the EA until two weeks after its availability was published in the Federal Register. This does not give the public adequate time for a proper review. A public hearing should be held to obtain additional public input.*

Response To Comments 2 17 1-2 17 3

The DOE acknowledges that the commenters may have experienced delays in receiving the proposed FONSI and the EA. The DOE has extended the public comment period on the proposed FONSI to May 22, 1990.

**2 18 FONSI**

**2 18 1 Craig Kish  
Rocky Flats Cleanup Commission**

Comment *Page 3 of the FONSI confirms suspicions that the SARF is simply a short term emergency solution to avoid surpassing the 1601 cubic yard limitation imposed by CDH. The FONSI admits to needing the SARF to continued operations while complying with RCRA.*

Response

Planning for the SARF began in 1985 in order to reduce the external radiation dose to workers during waste handling and repackaging, to enhance safety, and to reduce waste volume and process costs. Initial funding for the SARF was received in Fiscal Year 1987. The planning and funding for the SARF were initiated prior to the implementation of the 1601 cubic yard volumetric storage limit for TRU-mixed waste that is contained in a letter dated December 15, 1988, from Thomas P. Looby, Assistant Director for Health and Environmental Protection, Colorado Department of Health. As proposed, the SARF and TWS will reduce the volume of TRU-mixed wastes to be generated at RFP, will reduce the volume of wastes currently being stored, and will help ensure continued compliance with the 1601-cubic yard volumetric storage limitation until alternate storage and/or disposal sites are approved.

2 18 2 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 6 of the FONSI states that effluent from the gloveboxes would be filtered and then discharged to the atmosphere. The FONSI fails to address the composition of the effluent and the amount of that effluent. A finding of no significant impact should assess exactly what is being discharged and why that discharge has no significant impact. As stated in my comments on the EA, an alarm will sound if alpha radiation is detected above a limit, but the FONSI fails to state what the contingency plan is during the time between the sounding of the alarm and the implementation of the corrective action. Specifically, does the operation cease until the cause is found?*

Response

As stated on page 5-2 of the EA, High Efficiently Particulate Air (HEPA) filters will be operated to reduce particulate emissions to not more than 0.02 pCi/m<sup>3</sup>. The assessment of the risk of these emissions is found on pages 5-11 and 5-16 of the EA and mentioned under "Routine Operations" in the FONSI. Continuous monitoring will confirm the safe concentrations of particulates including americium and plutonium.

If emissions of non-specific alpha emitters exceed 0.02 pCi/m<sup>3</sup>, an investigation will be conducted to determine the cause(s) and the corrective action that will be taken. If there is a potential health risk, the necessary operations will be shut down until the problems are corrected. There is no immediate or long-term health hazard at a release level of 0.02 pCi/m<sup>3</sup>. For example, this concentration is one hundred times lower than the most restrictive Derived Air Concentration (DAC) for workers, as presented by the U.S. Environmental Protection Agency Federal Guidance Report #11 (EPA-520/1-88-020) which is based on recommendations from the International Commission on Radiological Protection (ICRP). Additionally, this concentration level does not consider the dilution that will occur when the material leaves the discharge point and is dispersed in the surrounding air.

The composition of the hazardous chemicals expected to be released annually under normal operations, is provided in Table 5-10. Table 5-10 also provides an estimate of the upperbound quantities of annual chemical releases and a hazard assessment of their significance.

2 18 3 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 6 also states that drums of supercompacted waste will have carbon composite filters for venting of gas. Will the filtered effluent gas cause any significant impact? What is the composition of the effluent filtered gas?*

Response

The effluent filtered gas is expected to be composed of carbon dioxide and hydrogen. The carbon composite filter would retain particulate radioactive material and allow generated gas to diffuse out of the drum into the surrounding area. However, there is not expected to be sufficient carbon dioxide or hydrogen gas generation from supercompacted waste to cause any significant impact.

2 18 4 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 8 of the FONSI states that the SARF and TWS would create no detectable increases in emissions to the environment. The EA did assess the risks to the public and the workers, so there must be some increase in emissions for the public and workers to be at some increased risk. In fact, pages 7 & 8 of the FONSI admit that there is some increased exposure from the routine operation of the proposed action.*

## Response

Page 8 of the proposed FONSI states that routine operation of SARF and TWS was estimated to result in a combined maximum radiation dose to a member of the public of approximately one billionth of that permitted under applicable limits. This radiation dose is not detectable. Page 7 does not discuss risk from routine operations, but from postulated accidents.

### 2 18 5 **Craig Kish** **Rocky Flats Cleanup Commission**

Comment Page 11 goes to great lengths to point out that criticality is unlikely and that it has never occurred at the RFP. As stated in my comments *supra*, was not the 1957 and 1969 fires the result of criticality or aggravated by criticality as a result of the fire fighting efforts? Criticality does not seem as unlikely as the FONSI would have us believe.

## Response

Neither fire was the result of a criticality situation, and even though water was used on burning plutonium for the first time in the 1969 fire, its use did not create a nuclear criticality. The September 11, 1957, fire started in a can of plutonium casting residue in processing Building 771. The May 11, 1969, fire was reported as a result of spontaneous ignition of a 1.5 kilogram briquette of scrap plutonium alloy in an open metal can.

## 2 19 OTHER ISSUES AND CONCERNS

### 2 19 1 **Anonymous - Commenter 1**

Comment On page 3-1 of the Supercompactor Environmental Assessment the term "transuranic waste" is defined as including waste materials containing more than 100 nanocuries of transuranic elements per gram. The Atomic Energy Act [42 USC 2014 (ee)], on the other hand, defines transuranic waste as having more than 10 nanocuries of transuranic elements per gram. Why has DOE used a definition different than the statutory one? Does this definitional difference modify the Environmental Assessment or DOE's proposed FONSI?

## Response

The definition for transuranic waste used in the Supercompactor EA is taken from DOE Order 5820 2A, Radioactive Waste Management, of September 28, 1988. This definition is consistent with the one established by the United States Environmental Protection Agency under Title 40 CFR Part 191, of 9-19-85, Environmental Radioactive Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Waste, which establishes radiation protection standards governing the management and storage of spent nuclear fuel or high-level or transuranic wastes at any disposal facility operated by DOE. The addition of a definition of transuranic waste in the Price-Anderson Act relates to the question of the extent of coverage of the Price-Anderson Nuclear Hazards Indemnity, and was not intended to establish any substantive requirements relating to the storage, treatment or disposal of transuranic waste. For these reasons, the definition of TRU waste in DOE Order 5820 2A is not inconsistent with the Price-Anderson Act and remains appropriate for use in waste management.

2 19 2 **Jason Salzman**  
**Greenpeace Action**

Comment The EA should consider the "No Production" Alternative. *The EA for the SARF and TWS should consider whether the proposed facilities would be necessary if all warhead production at Rocky Flats were halted or drastically reduced as a result of arms control agreements or shifting budget priorities. As an alternative to the proposed action, DOE should consider halting all warhead production at Rocky Flats. This could certainly be one way for DOE to meet its own directives for reducing radioactive exposure to workers.*

Response

Although the Department of Energy produces nuclear weapons components at the Rocky Flats Plant, it is the President of the United States that annually authorizes the country's nuclear weapons production program. An assessment to halt the production of nuclear weapons components at Rocky Flats is beyond the scope of the EA. Even if production of nuclear weapons components were halted, decontamination and decommissioning of the plant site would produce TRU and TRU mixed wastes that could be supercompacted for volume reduction and worker safety.

2 19 3 **Jason Salzman**  
**Greenpeace Action**

Comment *The EA should consider the alternative of operating the proposed facilities elsewhere.*

Response

If the proposed action were to be located and operated at WIPP, the Rocky Flats Plant site impacts and the transportation impacts would be the same as for the no action alternative. There would not be a significant change in environmental impacts as a result of this relocation.

2 19 4 **Craig Kish**  
**Rocky Flats Cleanup Commission**

Comment *Page 5-60 The average level of plutonium in soils is claimed to be 0.14 pCi/m<sup>2</sup>. Is this a world-wide average or an average taken from areas near similar facilities where the average might escalate? I have heard much lower estimates than this.*

Response

The cited average level of plutonium in soils was taken from Section 5.2.3.5 of the WIPP SEIS and represents an average environmental radioactivity level (nonspecific to nuclear facilities). A study by Merrill Eisenbud (Environmental Radioactivity from Natural, Industrial, and Military Sources, Harcourt Brace Jovanovich, New York, 1987) was the source for this estimate.

2 19 5 **John G. Haggard**  
**Colorado Department of Health**

Comment *Page 5-1&2 - Statement infers that there will be no non-radioactive emissions, when they are known to exist. Are "detectable" and "significant" used synonymously? VOC monitoring must be required.*

Response

Section 5.1.1 addresses the effects of SARF operations on air quality. The first paragraph does not specify or imply either radioactive or other hazardous material. Because the release of plutonium presents the greatest (although not significant) potential hazard, it was specifically discussed in the second paragraph. The third paragraph specifically addresses both radioactive and hazardous

chemicals The statements in these three paragraphs are further supported by the discussions in Section 5.1.4.1 (Radiological Exposures from Routine Operations) and Section 5.1.4.3 (Hazardous Chemical Impacts - Normal Operations)

The words "detectable" and "significant" are not synonymous. Sampling programs for hazardous materials are designed to detect compounds at levels lower than those that would lead to a significant health hazard. If, therefore, releases are not detectable, they would also not involve health hazards of any significance.

2.19.6 **Paula Eloffson-Gardine**  
**Concerned Health Technicians for a Cleaner Colorado**

Comment *Section two continues to propagate the downplaying of proximity of surrounding communities. We would request you to insert into future studies done on or by DOE or EG&G to reflect not only do approximately 2 million people live within a 50 mile radius, 5 suburban communities laying directly around the plant within a 10 mile radius represent a large proportion of affected populace. There are schools, bus stops for children, houses and farms located within 5 miles.*

Response

The DOE concurs that the communities of Arvada, Broomfield, Golden, Leyden, Louisville, Superior and Westminster are located within a 10-mile radius of the Rocky Flats Plant, and contain a significant population.

**APPENDIX A**  
**LETTERS FROM COMMENTERS**

Anonymous Commenter 1

RECEIVED  
U.S.D.O.E.  
R.F.A.O

April 29, 1990

1990 MAY -1 A 7 51

Mr Patrick Etchart  
United States Dept. Of Energy  
Rocky Flats Office  
P.O. Box 928  
Golden, CO 80402-0928

Dear Mr Etchart

Comment No

Please accept the following comment regarding DOE's proposed Finding Of No Significant Impact (FONSI) for the Supercompactor.

2 19 1

On page 3-1 of the Supercompactor Environmental Assessment the term "transuranic waste" is defined as including waste materials containing more than 100 nanocuries of transuranic elements per gram. The Atomic Energy Act (42 USC 2014 (ee)), on the other hand, defines transuranic waste as having more than 10 nanocuries of transuranic elements per gram. Why has DOE used a definition different than the statutory one? Does this definitional difference modify the Environmental Assessment or DOE's proposed FONSI?

May 22, 1990

Anonymous Commenter 2

Mr. Patrick J. Elchart  
U.S. Department of Energy  
Rocky Flats Plant  
P. O. Box 928  
Golden, CO 80402-2054

Dear Mr. Elchart

Please accept the following comments on the Environmental Assessment for the Supercompactor and Shredder:

Comment No

1. The Environmental Assessment should also evaluate the impacts of removing the wastes (in plastic liners) from the metal drums prior to compaction. Concerns about gas generation and use of relatively short lived containers at WIPP may lead to exclusion of metal drums

2 2 6

2. The Environmental Assessment should also evaluate the potential use of the Supercompactor and Shredder to reduce the volume of the existing backlog of low level mixed waste prior to initiating its use on TRU waste. The Rocky Flats Plant currently has nowhere to dispose of low level mixed waste and could reach its allowed interim HCRB storage limit within the next year, possibly even before TRU mixed if the plutonium operation suspension is extended. Compaction of the low level mixed first could provide a couple years grace period before that waste limit is reached and would not prevent subsequent use for TRU mixed, but once used for TRU mixed the machines might not be able to be used for low level

2 5 6

VRANESH AND RAISCH

ATTORNEYS AT LAW

1720 14<sup>th</sup> STREET SUITE 200

P O BOX 871

BOULDER COLORADO 80306

TELEPHONE 303/443 8151  
TELECOPIER 303/ 443 9588

GEORGE VRANESH (RETIRED)

BRIAN M NAZARENUS  
DOUGLAS A GOULDING

ERRY W RAISCH  
JOHN R HENDERSON  
MICHAEL D SHIMMIN  
EUGENE J RIORDAN  
PAUL J ZILIS

April 30, 1990

HAND DELIVERED

Patrick J Etchart  
U.S Department of Energy  
Rocky Flats Plant  
P O Box 928  
Golden, CO 80402-0908

Re Comments on "Environmental Assessment of Supercompactor  
and Repackaging Facility and TRU Waste Shredder"

Comment No

Dear Mr Etchart

The City of Broomfield has reviewed the Environmental Assessment of Supercompactor and Repackaging Facility and TRU Waste Shredder dated March 22, 1990 ("Environmental Assessment"). The City believes that, in concept, the supercompactor project is a positive step in waste management at the Rocky Flats Plant ("RFP"). It appears from the Environmental Assessment that the project will effectively reduce the volume of the RFP wastes that are generated and such reduction ought to be beneficial for the subsequent handling, transportation, and permanent storage of the wastes. Additionally, the project appears to improve worker safety conditions. The City is encouraged by and supports such efforts.

The City does not, however, support the project insofar as it is used to increase the hazardous and radioactive materials loading within the Walnut Creek drainage. Indeed, the City strongly objects to the claim made in the Environmental Assessment that the project "will allow greater quantities (through volume reduction) of TRU-mixed waste to be stored in RCRA permitted areas prior to shipment for off-site disposal." Environmental Assessment at 5-62. Again, waste volume reduction is a splendid idea and should be implemented in an environmentally sound manner, but it cannot be used as an answer to the waste generation and storage problems at the RFP. By doing so, DOE is violating the spirit, if not the plain intent, of the RCRA Part B permit applications that it has filed with the

2 9 1

state. Moreover, the City cannot tolerate the increased risk that the additional quantities of waste impose. The City is already substantially impacted by the continued existence of extensive contamination within the Walnut Creek drainage. Because the City's Great Western Reservoir acts as the sink for the Walnut Creek drainage, action to remediate these waste sites must be given a high priority or, at the very least, the reservoir must be isolated from them. Until this is accomplished, the City cannot accept yet a further buildup of hazardous and radioactive materials within the watershed. This is particularly true in this case where the increase in radioactive waste storage can be up to ten times greater if the supercompactor project is implemented. See Id at A-10. As such, the project should not commence until there is a permanent off-site storage facility identified and ready to accept the wastes.

Comment No

2 9 1

The potential for increased storage of hazardous and radioactive wastes in the Walnut Creek drainage is by far the City's main objection to the project. There are, however, additional uncertainties about the project that must be addressed before the Environmental Assessment is complete and before the "Finding of No Significant Impact" can be finalized. In particular

- 1 The Environmental Assessment does not address the risks of property damage (e.g., contamination of Great Western Reservoir) and, therefore, cannot account for the potential costs associated with those risks
  
- 2 The Environmental Assessment does not fully address the risks associated with the transportation and handling of the existing waste containers. This is a significant failing because of past experiences with these old containers (e.g., incorrect labeling, questionable integrity of the innerliners, and leaky containers). At the very least, DOE must develop and implement rigorous procedures to ensure absolute containment of the material during these operations. Again, the transportation and handling is important to the City because it will occur within the Walnut Creek watershed. Accidents occurring during these operations pose an immediate threat to Great Western Reservoir.

2 9 2

2 4 1

Comment No

- 3 The Environmental Assessment does not address the risks associated with a fire or a drum breach (single or multiple) at the on-site storage pads. The City is concerned, for example, that a fire at the storage pad may impact more than the 20 drums postulated in the "Fire on the Dock" scenario, with a concomitant increase in radiation exposure. 2 11 5
- 4 The criticality analysis in the Environmental Assessment is very sketchy. After admitting what appears to be an enormous uncertainty, see, e.g., Environmental Assessment at C-5, the writers simply conclude that there is enough of a safety factor built into the system. The City is not particularly comfortable with this claim, especially in light of the dramatic consequences if it is incorrect. 2 7 2
- 5 The Environmental Assessment appears to document the structural vulnerability of Building 776, see, e.g., Environmental Assessment at 5-32 through 5-35, but never suggests that the project ought to be constructed in a safer place or that the building should be retrofitted/upgraded. 2 11 -
- 6 The Environmental Assessment fails to provide sufficient information with regard to the management of liquids. Even though the projected production of liquids is not great, the Environmental Assessment must evaluate and discuss how these liquids will be managed (e.g., containment systems for pumps, piping, and storage, control systems for air emissions from the surface of the ponded liquid in the liquid collection ring and collecting tank, and handling of the waste after the collecting tank). 2 3 1

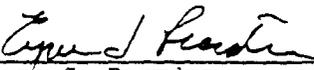
As a final matter, the City believes that the integrity of the roof top exhaust system must be fully evaluated. Air monitoring of emissions must also be stepped up prior to the implementation of the project and that data as well as subsequently collected data should be made available to the public to ensure that there is no negative impact on the environment. And, of course, there must be third party oversight and monitoring of the project operations. Presumably, this will be done by the Colorado Department of Health through its RCRA permitting and enforcement authorities. 2 3 1  
2 15 1

Patrick J Etchart  
April 30, 1990  
Page 4

Thank you for this opportunity to comment. I look forward to your timely response. If you have any questions or require additional information, please call.

Sincerely,

VRANESH AND RAISCH

By   
Eugene J. Riordan

FOR THE CITY OF BROOMFIELD

EJR jey  
cc: George Di Clero  
Matt Glasser  
Charles Ozaki  
Marvin Thurber

# STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue  
Denver Colorado 80220  
Phone (303) 320-8333

RECEIVED  
U.S.J.O.E.  
R.F.A.O.

MAY -3 A 9 22



Roy Romer  
Governor

Thomas M. Veman, M.D.  
Executive Director

April 27, 1990

Carol M Borgstrom  
Director  
Office of NEPA Project Assistance  
U S Department of Energy  
1000 Independent Ave , SW  
Washington, DC 20585

Dear Ms Borgstrom

Comment No:

Due to the large number of activities at the Rocky Flats Plant, the issues raised by the use of the "Supercompactor" and intense public interest, the Colorado Department of Health would like to request a 30-day extension to the official public comment period for the Environmental Assessment (EA) of the Supercompactor and Repacking Facility and TRU Waste Shredder.

2.17.1

Based on our concurrent review of the request for a change to the RCRA Interim Status, we do not believe that an additional 30-day comment period on the EA would adversely affect the project schedule.

If you have any concerns with this request, please contact me at (303) 355-6252

Sincerely,

Jonn G Haggard  
Interim Program Manager  
Rocky Flats Program Unit

k/jhl/cor

c. Bob Nelson, DOE/RFO  
Nat Miullo, EPA  
Tom Rauch  
Dave Waltz  
Tim Holeman

# STATE OF COLORADO

## COLORADO DEPARTMENT OF HEALTH

4210 East 111th Avenue  
Denver Colorado 80120  
Phone (303) 320-6333



Roy Romo  
Governor

Thomas M. Vernon, M.D.  
Executive Director

May 21, 1990

David P. Simonson  
Rocky Flats Area Office  
U S Department of Energy  
P O Box 928  
Golden, CO 80402-0928

Dear Mr. Simonson

As we have discussed find enclosed comments from the Colorado Department of Health on the Supercompactor Environmental Assessment as part of the request for a change to RCZA interim status. As you know we have already submitted comments on the Supercompactor project.

If you have questions, please contact me at 355-6252.

Sincerely,

A handwritten signature in cursive script that reads "John G. Haggard".

John G. Haggard  
Interim Program Manager  
Rocky Flats Program Unit

k/jhl/cor  
c Tom Looby  
Tim Holeman  
Dave Waltz

MHS  
27

COLORADO DEPARTMENT OF HEALTH

Supplemental Comments on the Supercompactor EA

Comment No:

- o Section 1 3 -- Impacts of Operation -- states air quality impacts will be measured by particulate samplers in the stacks. No specifics are provided on sampler type. Later in section 4 1 2 they discuss samplers but they only cover radioactive components and not the broad spectrum of compounds which may be emitted. 2 3.20
- o Page 1 5 -- The 1980 RFP FEIS's MCA is a 100 gram RF plutonium release with a probability of >1E-7/year. Over a lifetime (70 years) the Design Basis Wind (DBW) has a probability of 1E-2/lifetime. It also appears that a 100-gram release has already occurred at the Rocky Flats Plant (903 Pad). 2.11.12
- o HEPA filter systems are listed as the main control. It was assumed these are the existing systems for buildings 776/777. If they are new systems, that fact should be stated. This also makes a difference in the permitting requirements for the APCD. 2 3 17
- o HEPA filters are excellent for control of particulates, however, they are not an adequate control for gaseous emissions. There will be a number of different gases emitted from this process which appear to be totally uncontrolled. 2 3 19
- o The TRU Waste Shredder (TWS) which shreds graphite molds and HEPA filters will create high levels of particulate emissions. In this portion of the document, no control is listed. In section 4 2 3 Air Quality, there is a short reference to HEPA filter control. This should be included in the early portion and expanded to provide complete information on the control used for the TWS. 2 3 18
- o Section 3 1 4, transport portion -- filters for vents on drums and SWBs are mentioned, however, the filter media is not listed. It may assume the carbon composite filter mentioned in section 5 1 3 2 is used for this control. The information should be included in all references to assure acceptable control. 2.6.4
- o Page 3-8 -- Multiple repackaging increases worker exposures. As already packaged wastes have to be handled again, SARF will increase worker exposure. Only when SARF is handling the newly generated wastes without multiple repackaging will the worker exposure be reduced. The ASR aspects of SARF may reduce worker exposure from the onset. 2-4.5
- o Page 3 12 first paragraph -- A fill level detection system should be available for the annular liquid waste tank. 2.8.4
- o Page 3 17, second paragraph -- This refers to TWS fissile material limits but does not identify the values or where they may be found in the EA (see page 3-32 - 100 grams/drum in and 100 grams/drum out maximums). 2.7 9
- o Page 3-34 -- Statement raises the question of anticipated change in the 100 gram limit per drum. 2 7 4

Comment No:

- o Section 4 2 3, Air Quality -- Should include the fact that the Supercompactor is subject to the requirements of the Colorado Clean Air Act and the Air Quality Control Commission's (AQCC) regulations. Additionally, lead and mercury are missing from the NESHAPS reference and both are listed as contaminants in table 3-2. Also listed in the table are VOCs which are subject to the AQCC's Regulation No. 7. These additional compounds and their control need to be addressed. 2.16.5
- o Section 5 1 3 1 Gas Generation Mechanisms -- While removal of liquids will decrease chemical reactions, it will not eliminate them as inferred in the document. The high pressures caused by compaction and higher temperatures generated will create additional break downs leading to additional reactions. Also in this section, reference is made to a KFK study but it fails to name the type of material used, i.e., was it the same material used at Rocky Flats or was it totally different? This lack of information makes the referenced results questionable. 2.6.9
- o Exposures for the Public from TWS Operation - Discusses only the exposure from radioactive particles. While this is the highest potential, the report should also cover other hazardous emissions, e.g., lead, mercury, barium, VOCs, etc. 2.12.3
- o Page 5-162 -- Statement infers that there will be no non-radioactive emissions, when they are known to exist. Are "detectable" and "significant" used synonymously? VOC monitoring must be required. 2.19.5
- o Page 5-11 -- The dose conversion term used by DOE does not consider the presence of AM-241 in all RFPu. 2.11.13
- o Page 5-16 -- The DOE limit of 0.1 rem/year must be met considering all materials in combination. The 0.02 pCi Pu-239/m<sup>3</sup> over a year is equal to 595 rem/uCi inhaled. The RFP uses a value of 800 rem/uCi RFPu in their annual environmental surveillance summary, based on the same assumptions. 2.11.16
- o Page 5-20 - The use of the 1980 RFP FEIS release fraction is identified here, which will overestimate the impact. 2.11.9
- o Page B-2 Appendix B -- The dose conversion terms (DCF) referenced (EPA 1988) are the least conservative of all such data reviewed by CDH. Summing the alpha and beta activity into the weighted DCF lowers the perceived impact and is out of context to practical dose calculation procedures. 2.11.14

page 3  
Supercompact  
comments  
5/15/90

Comment No:

- o Table B-1 -- The first Pu-239 should be Pu-238 and its half-life is  $3 \times 10^4$  days and the DCF (CEDE) is in what units (rem/CI)? The RFP published mass fractions are somewhat different than those presented here. The Am-241 level is unrealistically low, particularly in light of the recognition of Am-241 at the 903 area. 2.11.17
- o Page D-11, Appendix D, Table D-7 -- The established breathing rate for the DOE RCGs is 8400 m<sup>3</sup>/year (not 8030) 2.11.15
- o Page D-12 Appendix D Table D-8 -- Footnote (a) -- there is no reference DOE (1988c) listed. It is apparently the 1988 EPA document. 2.11.10
- o Page E-1, Appendix E -- Such probability statements have no meaning in light of the plane crash/suicide scenario that actually occurred in Boulder on April 1, 1990. 2.11.11

# Concerned Health Technicians For A Cleaner Colorado

6183 HOLLAND ST., ARVADA, CO 80004/(303) 420-2967

May 10, 1990

RECEIVED  
USDOE  
RIAD  
1990 JUN 21 11 01

USDOE Rocky Flats Office  
c/o Patricia Eberhart, Public Affairs  
P.O. Box 928  
Golden, CO 80402-0928

Comment No:

## RE ENVIRONMENTAL ASSESSMENT OF SARF AND TWS

Section one summary/overview states that this is needed to maintain compliance with PCRA requirements. I challenge this as a temporary stop-gap measure on. Mr. Burlingame stated at the Aearme commission meeting last held in Denver that with the superconductor the prior action time available at most would be 12-18 months. The only way that this superconductor will achieve and maintain compliance with PCRA regulations is if it is used for volume reduction of what has already been generated, and used for waste generated by CURTAILED operations and D & D activities. It is crucial that this SARF and TWS not be seen as the salvation for further production activities. The end of the line will come soon enough. Advance planning must take into consideration that the end of the production line at the RF is here now. Cleanup activities and reduction of existing waste must take priority.

2.13.6

Impacts of construction indicate location of the two units to be in blig 75. The main impacts have been listed as the release of radioactive particulates from rooftop exhaust. UNLESS THE 62 POUNDS OF PLUTONIUM IN THE DUCTWORK IS REMOVED prior to construction and addition of ventilation of the SARF/TWS to the existing ductwork system, this is an unacceptable proposed action. There will be a considerable volume of particulate matter produced by this operation. If existing holdup of nuclear materials is not addressed, this poses an unacceptable risk to both worker and community, as this will certainly add to the problem.

2.3.10

There is no mention of exactly how the liquid produced will be transferred to existing liquid processing systems. There was deficiency noted by the Tiger Team report of 9/89 regarding tanks, vents and transfer of materials in the aqueous phase. Not only did the 4000 tanks and vents lack APENS, there were serious deficiencies noted in releases noted in transfer of 'slatiles' 'solid liquids produced by this operation be categorized as residue, TRU, or TRU-mixed waste' and the 'residue' category of waste still be utilized in light of the Sierra Club lawsuit findings' as there has been acknowledgement that in fact there is no recovery process for residues, and in fact is TRU waste itself?

2.8.3

The reference to exhaust efficient sampling and alarm systems is not particularly reassuring considering the deficiencies noted by many assessment teams as well as the Scientific Panel on Monitoring Systems. None of the sampling address/waterization of particulates or particle size distribution, or gases for that matter. The alarm system has been known to have many failures both in announcement and in operator "failure" of shutting them off due to constant false alarms.

2.3.23

The old YCA scenario is a JOKE! When are you going to give up on this outdated argument that is so "credible"? Reality is that YCA is more credible from internal causation than the old aircraft crash scenario. The threat posed by natural phenomena such as high winds and earthquake are more credible possibilities.

2.11.18

# Concerned Health Technicians For A Cleaner Colorado

6183 HOLLAND ST., ARVADA, CO 80004/(303) 420-2967

RE ENVIRONMENTAL ASSESSMENT OF SARF AND T/S, p. 2

Comment No:

Section two continues to propagate the downplaying of proximity of surrounding communities. We would request you to insert into future studies done or by DOE or EG&G to reflect not only do approximately 2 million people live within a 50 mile radius, 5 suburban communities laying directly around the plant within a 10 mile radius represent a large proportion of affected populace. There are schools, bus stops for children, houses and farms located within 5 miles.

2.19.6

Many questions arise in respect to section three. Is there an accurate representation of plutonium content from process filters and HEPA filters? 1987 and 1988 fiscal years are quoted as having an average of 33,550 cubic feet of TRU and TRL-mixed wastes generated. Were these typical years? It would be appropriate to give an accounting of quantities of waste generated on a year-by-year basis for the last 10 years of this facility, at least. Many question exactly how much waste has been generated since the inception of this facility. We would make that request again, that an accounting would be appreciated at this point in time. Averages tend to downplay high production years, ridden by curtailed operations or times of "inventory", etc.

2.7.10

2.1.7

It is noted that there are no diagrams of hydraulic systems, cranes, glove box details, ducts, or placement of the above. It would be useful in assessing this EA to be able to put into perspective the associated piping, ductwork, and electrical activities.

2.2.7

Operator error is not addressed in this EA. In manually removing cover lids, there is potential of exposure as well as gas build-up release and/or explosion if prime conditions are available such as sparks, reckless handling, etc. The possible discrepancy of accumulations of plutonium due to accumulations of bags and liners should be noted. Do you really have a handle on how much plutonium and/or other nuclear materials will be present? Overzealous operators could continue to add to crans until they are "really full"!

2.11.21

Photoelectric cells are noted as safety shutoff devices for disabling the precompactors to protect operator personnel. These can be over-riden or malfunction. This has been personally witnessed a number of times, several occasions in fact had disastrous consequences for the operator (at another facility). With this in mind, we would suggest that an aggressive preventative maintenance program be applied to assure that in fact the photoelectrics are operating as intended.

2.2.8

Another opportunity for possible explosive consequences is the application of crane-piercing operations with the hard waste crans. An 8-liter capacity liquid collector ring with a 4-liter collecting tank would seem to be insufficient. The over-reliance on automation is a concern. Visual inspection should be the "norm" rather than the exception, both in filling capacity and transfer to annular tanks.

2.6.8

2.8.5

There appear to be numerous handling and transfer steps noted that require physical handling of waste, yet error problems that are possible in these steps are not noted, such as forklift accidents, loading jams or other mishaps in the transfer process. It is important that the SARF/T/S process not have similar "production" requirements applied to it such that the operators and handlers are or would be encouraged to become "too automatic" in their duties, or too hurried.

2.11.22

# Concerned Health Technicians For A Cleaner Colorado

6183 HOLLAND ST., ARVADA, CO 80004/(303) 420-2967

Comment No:

RE ENVIRONMENTAL ASSESSMENT OF SARF AND TWS, p. 2

Possible radiation counts are not referred to in regards to the granulate molds that will be crushed in the TWS. Filter waste is identified to be HEPA filters and process filters. There appears to be an unavailability of accurate information regarding dust loading and total radiation content from these two waste forms. Danger of criticality from the accumulation of the contents from the filter media in the shredder/ropper is not addressed. 2.7.11

Five different manual steps are noted for the TWS operation, yet operator error is not adequately addressed for the TWS either. An automatic knock-out device is noted that will reject unretractable materials from the shredding chamber, details of the operation of this device are not given. How exactly will unretractable materials be identified? What criteria will allow the automatic identification to occur? Would this be subject to photoelectric, pressure-sensitive detectors, etc.? What protective devices will prevent the TWS from possible stoppage or breakage should unretractables get through? 2.2.9

HEPA filtration is referred to in reference to the TWS as being ducted to the glovebox vent systems, filtered through four stages of HEPA filters. Again, we would emphasize inefficiency of HEPA's and lack of characterization of the particulate size distribution in impact to local environment. Details of the alternate near-term storage proposal were not included in this EA. Please provide this document for review. Details regarding privately held storage facilities is also desired. Please provide documentation regarding this as well. Filtered vents are referred to for crabs and SWBs, yet rad releases due to release of waste gases is not extrapolated. 2.3.16  
2.13.8  
2.6.5

Automatic and manual ceiling sprinkler systems are referred to for the exhaust filter plenums, yet provision for drainage of water used for fire suppression that could potentially have contact with plutonium in ductwork and gloveboxes is not addressed. The presentation to the Aneutronic Commission made sweeping statements regarding the safety envelope. Yet, flow capability and criteria were not adequately addressed regarding criticality drains. Physical observation and preventative maintenance is a must, as past c ariflow and fires have been or gotten out of control and not discovered for days. Reliance on alarms and automatic systems is not adequate nor acceptable. 2.11.17

Accident controls are cited with reliance on physical controls, at the time of unplanned incidents and violations cited in the Criticality Safety report noted repeated failures in ability to comply with these 'routine' physical controls of filter spacings, safe geometry, no violations, etc. Further criticality detectors and alarms were noted in the Tyree report to have 1-3 failures over 10 years. This does not preclude the practice of crushing the alarms off deliberately due to frustration of personnel with false alarming going on. 2.11.19

Criticality possibility with the SARF/TWS process is a concern. Is NDA testing adequate to ensure compliance with SM criteria? Criticality is not the only concern in regards to environmental impacts. Release of gases, chemicals, and radionuclides on a 'routine' basis is not addressed. The potential for fires and explosions (as have occurred in the past) are very real possibilities, and represents a far greater impact to both order and continuity than the criticality scenarios depicted. 2.7.14  
2.3.21  
2.11.23

# Concerned Health Technicians For A Cleaner Colorado

6183 HOLLAND ST., ARVADA, CO 80004/(303) 420-2967

RE ENVIRONMENTAL ASSESSMENT OF SARF AND TWS, D-4

Comment No:

The nuclear materials safety limits noted for the TRUPACT-II versus the 100 gm barrel limit imposed for 14 barrels per TRUPACT II are not consistent. The safety limits noted are 325 fissile gram equivalents for the TRUPACT II

2.7.12

The economic discard limits (EDL's) for solids, sludges, slurries, aqueous liquids, and other forms of waste generated at the RFP are not listed. Please provide this information. The waste classification system is notable and appreciated. What quality control/assurance measures will be taken to ensure compliance with IJC's and contractibilities? If there is heavy reliance on visual inspection for this phase of operation, what QA will be followed? Will actual testing of materials occur from time to time to confirm content, and what frequency?

2.5.8

Section five lists no significant impacts, but previous sections listed liquid and air emissions from this operation, the liquid effluent being spray-irrigated to the immediate environs of the RFP. This, over time will have an accumulative effect, and becomes part of surface water run-off. Permeability problems were noted re land application in the Tiger Team Environmental Assessment. Radionuclide air concentrations are broadly stated to be maintained at concentrations less than .020 pCi/m<sup>3</sup>. Considering monitoring deficiencies, this appears at best to be a statement of overconfidence, with out sufficient current state-of-the-art characterization of emissions data.

2.8.10

2.3.22

Radioactive gas generation is stated to be a function only of the fissile material content and target material depletion, indirectly controlled by controls on fissile material content. WDA testing has been shown to not be 100% accurate, with significant discrepancies noted at least with barrel sampling as evidenced by Appendix D of the Criticality Safety Assessment report from 1969. The statements of confidence and reliance on this as mostly infallible seem to exaggerate the "safety envelope" concept applied to fissile materials contents claims. Super-compactness is stated to have no impact on the maximum rate of gas generation, yet it is known that supercompactness will increase fissile content overall, which will increase gas generation. So, which is it?

2.6.10

Venting of gases from waste containers has not been adequately addressed. Do storage areas have gas detection devices to monitor concentrations and buildups that are hazardous? What about operator error and gas hazard controls? Dust control measures are not adequately addressed either. The air exchange noted for the glovebox area may not be adequate to handle the dust generated and/or gases and/or volatiles generated by this operation. Resuspension of contaminants is addressed, but actual levels, tastings, studies are not cited. The percent of materials that will be the significant cause of airborne contamination appears to be incredibly downplayed. It is not a realistic projection. No dispersion is ASSUMED after release from the vents for "no significant impact", but it is well known that in fact RESUSPENSION is a tremendous problem in the immediate environs of the RFP. There needs to be an honest attempt to address this problem taking into account the accumulative state of the problem, along with the generation of sub-micron particles that will become part of the resuspension from this operation.

2.3.24

The meteorological parameters listed state that a conservative approach has been employed, but a comprehensive climatology study has not been done. Past data has been flawed, with faulty assumptions arising from it.

2.11.24

# Concerned Health Technicians For A Cleaner Colorado

6183 HOLLAND ST., ARVADA, CO 80004/(303) 420-2967

RE ENVIRONMENTAL ASSESSMENT OF SARF AND T/S, p 5

Comment No:

The reference section, Appendix B refers to worker doses. The dose estimates fail to take into consideration the change in worker status to 12 hour shifts and exposures rather than 8 hour shifts and exposures. Pollution releases and quantities in the waste, which is an uncertain proposition at best, does not take as conservative approach as could be taken. The release durations and exposure times listed in table B-3 therefore do not appear to be realistic. The notation of respirators being utilized when SAAM's alarm is of concern when repeated reports of the SAAM's being deliberately sabotaged or shut down certainly do filter out of the RFP. How can the workers rely on this "fail-safe" mechanism of early warning of exposure?

2.11.25

Bag rupture at SARF allcock discourse notes protection factors of 100 with use of full face respirators, yet does not take into consideration possibility of poor fit, or operator inability to don the equipment rapidly or properly.

2.11.20

Appendix C discusses criticality event with the supercompactor, citing the Los Alamos report (Stratton 1967) regarding flammable particulate from embedded in plastic. Please provide this report for review. Plastic is noted as being a better moderator than water sources under pressure with fissile materials, yet possible exclusion in parallel simulation re RFP waste is not adequately addressed. Most certainly polyethylene wastes are included with RFP waste, so the possibility is a credible criticality concern. The possibility of multiple violations exists in terms of the application of the SARF and T/S with old wastes and residues, as a fair degree of uncertainty exists as to content of those barrels/containers.

2.7 13

Appendix D, off-site dispersion and exposure modeling continues to utilize old topographic and population data. This must be corrected to indicate the proximity and availability of populace, food chain impacts, etc. Plutonium is noted in Golden Peaks Dairy milk, which is sold to local schools. These cattle are subjected to inhalation and ingestion of the contaminants in the immediate environs of the plant, as evidenced by higher concentrations in the milk, than is found in the monthly water testing. It is obvious that there is bioass concentration that is still not addressed. Assumptions regarding groundwater, plumes, and water intrusion are not realistic in terms of internal dose pathways in light of the above. Potential radiological releases due to an accident is noted to be of limited duration, yet "routine" releases are not taken into account as potentially significant.

2.11.26

I look forward to your earliest response to the issues addressed. Thank you for extending the public comment time on this Environmental Assessment of Supercompactor and Repackaging Facility and TRU waste Shredder.

Respectfully Submitted,

*Paula Elofson-Gardner*

Paula Elofson-Gardner  
Director, CTRF-CC

cc Dr. John Gofman, Committee for Nuclear Responsibility  
Ahearn Commission (ACNS)  
Defense Nuclear Facility Safety Board  
Governor Tom Hatcher  
Colorado Department of Health  
Office of Technology Assessment  
Spratt Panel  
Senator John Clardy  
Senator Tom V. Vran

5/11/7

# ENVIRONMENTAL DEFENSE FUND

RECEIVED  
U.S. DOE  
2510

1405 Arapahoe Avenue  
Boulder CO 80302  
(303) 440-4901

1990 MAY -1 A 7 57

## COMMENTS OF THE ENVIRONMENTAL DEFENSE FUND ON THE ENVIRONMENTAL ASSESSMENT FOR THE SUPERCOMPACTOR FOR THE DEPARTMENT OF ENERGY'S ROCKY FLATS PLANT

Submitted by Melinda Kassen Senior Attorney  
and Nakisa Serry, Legal Intern EDF Rocky Mountain Office

April 30 1990

The Environmental Defense Fund (EDF) is a national not-for-profit organization with six offices and 150 000 members around the country including almost 3 000 in the State of Colorado. Composed of attorneys scientists economists educators and other interested citizens EDF advocates environmentally and economically rational solutions to the problems which have placed so much adverse pressure on the earth's resources. Over the past decade judicial legislative and administrative fora one of the issues on which EDF has focused attention is the management transport treatment storage and disposal of nuclear waste. It is in this context that we offer the following comments on the Environmental Assessment (EA) for the proposed Supercompactor and Repackaging Facility (SARF) and the Transuranic Waste Shredder (TWS) both of which the Department of Energy (DOE) seeks to operate at its Rocky Flats Plant (RFP) outside of Golden Colorado.

We thank the DOE for the opportunity to review and comment on the EA. It is a relatively thorough analysis of the proposed and alternative actions as well as their potential impacts to the existing environment. However as EDF has previously stated if compaction technology were to make permanent waste disposal in the Waste Isolation Pilot Plant (WIPP) both safer and likely to meet disposal standards given the potential benefits as well to the nuclear waste transportation system we would support DOE's use of the compactor particularly against alternative waste preparation and treatment technologies such as incineration.

However the EA does not adequately address our below listed concerns. For that reason DOE must revise the EA prior to issuing a finding on its proposed action. Although some of the comments below may appear to address details in the EA it is important for DOE to recognize that with the likelihood of its issuing a Finding of No Significant Impact comments on the EA are the public's only opportunity for input and it is thus imperative that the EA be clear and explain fully the nature of the proposed action so that citizens can decide based on a complete record whether or not they agree with DOE's assessment.

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7/7/90

Comment No:

1 DOE has expressed its intent on innumerable occasions that it expects to emplace in WIPP for permanent disposal the waste now proposed for compaction in the SARF. In DOE's Final Supplemental Environmental Impact Statement for WIPP (the SEIS), the authors state that supercompaction "may increase" radiolytic gas generation due to the compaction form and that corrosion gas generation will increase if drums are compacted whole due to the increased metal content of the waste. SEIS, p 6-23. On the other hand the EA claims that "supercompaction of TRU wastes has no impact on the maximum rate of gas generation from radiolytic decay" notwithstanding the fact that the total gas generated per drum may increase. EA p 5-3 through 5-7. DOE must explain in the EA the apparent inconsistency between these statements and the derivation of each. We must know the actual effects of the proposed supercompaction on gas generation prior to implementing the proposed action otherwise DOE could be "stuck" with supercompacted waste which is not acceptable for emplacement at WIPP.

2.6.1

2 The fact that total gas generation per drum will increase as a result of supercompaction means that a resulting explosion would be more severe. The EA fails to consider the effects of increased gas per drum. DOE must consider the environmental consequences of such an accident as well as any increased environmental impacts that could result from testing conducted with supercompacted barrels particularly as such experiments reveal the adequacy of the proposed vents for the drums.

2.6.2

3 DOE claims that one of the values of the SARF is to enhance operational safety by reducing the need for supplied breathing air suits. Is this claim related to or intended to respond to the criticism leveled at DOE by the National Academy of Sciences for allowing a 'respirator culture' to have developed at Rocky Flats? Will the SARF allow those operating it to do so for entire shifts without the need for respirators? If not how does DOE intend to monitor workers to ensure that they are using respirators properly and that the respirators are maintaining a high level of worker protection? Are there other actions that DOE is undertaking to reduce the need for supplied breathing suits further or is DOE also considering enhancing the suits in a manner that would reduce occupational risk hazards?

2.2.1

4 DOE intends to process both combustible and non-combustible wastes by supercompaction. The EA states that the waste types will be separated into designated drums at the point of generation but it is unclear how this will be accomplished and what quality assurance process exists to ensure that such waste separation occurs. EA p 3-1. The EA should explain further how DOE intends to ensure that such separation occurs. In addition the potential risks of mistakenly combining these waste types during the entire waste management process must be considered to provide sufficient contingency planning.

2.5.1

5 Figure 3-1 diagrams TRU and TRU-mixed waste process flow. EA p 3-2. From this diagram it is clear that DOE has assumed a specific economic

2.5.4

Comment No:

discard level for the purpose of performing the analysis contained in the EA. What effect, if any, will the recent ruling, wherein the federal district court held that so-called residues at Rocky Flats are in fact RCRA-regulated waste if they contain hazardous as well as transuranic waste in Sierra Club's suit against DOE have on the assumptions DOE has made which assumptions underlie the facts presented in this chart? If residues are supercompacted what are the increased risks associated with use of the technology at Rocky Flats?

2.5.4

6 The EA assumes that any liquids contained in the drums will ooze out of the compacted waste during supercompaction. EA p 3 10. On what basis has DOE made and has DOE done any testing to support this assumption? DOE should consider in its analysis of the potential environmental health and safety impacts of using the SARF the risks associated with the compacted waste retaining some liquids during storage, transportation and disposal.

2.8.6

7 The EA states that Rocky Flats rates of waste production have been reduced over the past few years. EA p 3 3. However, both DOE and contractor personnel have intimated that such reduction is not actually a gross reduction in generated waste volume but simply a reduction in the amount of TRU and TRU-mixed wastes as compared to Low Level Low Level-mixed and pure hazardous waste. If the latter characterization is correct, does DOE intend to use the SARF to reduce the volumes of these other types of waste as well? Why or why not? In addition, with expected arms-control agreements, nuclear weapon production will further decrease. DOE must consider in the EA the need for the SARF and TWS based on a scenario in which DOE achieves a continued reduction of TPU and TRU mixed wastes.

2.5.5

8 The EA fails to specify how TPU, TPU-mixed and other wastes will be stored in unit 11 and other locations at RFP. DOE must comply with RCRA regulations and separate incompatible wastes. Please address specifically what types of waste will be stored in the same units and how DOE intends to achieve compliance with RCRA storage regulations (40 C.F.R. Part 265).

2.16.1

9 The EA states that workers will operate the SARF through a glove box with an airflow minimum of 150ft/min directed into it. EA p 3 5. Does this comply with accepted national standards for protection against worker exposure? In addition, will the glove box be equipped with a bypass system? If so, will it be free from the defect in all existing glove boxes at the Plant that has allowed workers to bypass the prefilter on their own initiative? Finally, will there be shielding (to protect workers from the gamma radiation associated with Americium) for glove box workers similar to that in use at commercial reprocessing facilities in Europe, or will this glove box merely have the amount of shielding associated with the old and inadequate glove boxes presently in use elsewhere at the Plant?

2.3.11

10 The concrete foundation for SARF is isolated from the floor slab and according to the EA is designed to withstand a seismic event with a maximum

2.11.6

Comment No:

- horizontal of 1 8 and maximum vertical of 1 2 EA p 3-5 Is this consistent with the maximum credible accident? Any analysis in the EA of potential impacts from operating the SARF and TWS in building 776/777 including the impacts and potential effects of an earthquake should be consistent with the updated maximum credible accident If the SARF cannot withstand damage under such scenario the proposed action should be moved to a building that can withstand the updated maximum credible accident 2.11.6
- 11 The EA states that the floor surface and sealant are free of gaps and cracks EA p 3-6 Provisions should be made for on-going observation of this present commendable status in order to prevent problems that may arise if and when the SARF and TWS are operating 2.2.3
- 12 The condition of the present ventilation system in building 776 has not been assessed in the EA The EA must show that it is functioning properly upon a complete evaluation before the proposed action can be approved 2.3.2
- 13 The EA states that selection of the drums for supercompaction will be based on the compactibility of the material contained EA p 3-7 DOE should explain in the final EA the factors it will use to determine compactibility 2.1.8
- 14 In considering impacts to the environment the EA considers the event of a bag rupture at the airlock EA p 5 30 however this is the only place the EA considers such event The impacts associated with bag and liner breaks should be reviewed during other stages of the process as well as precompaction 2.11.7
- 15 The EA describes how free liquids present during supercompaction will be collected and transferred but there is no diagram of the collection ring and collection tank Please clarify this process 2.8.2
- 16 The EA asserts that during precompaction photoelectric cells on either side of the precompactor will be connected to safety shut off devices that will disable the precompactor ram if personnel have their hands in the gloves during precompaction EA p 3-8 Will this mechanism apply when the grappier/hoist is operating? 2.2.2
- 17 The EA states that during repackaging the 55-gallon drums of waste will be transferred to the Advanced Size Reduction Facility EA p 3 20 How will the drums be transferred? 2.4.3
- 18 The separate NEPA documentation concerning the proposal to DOE for alternate storage for RFP TRU-mixed waste on-site and off-site should be taken into account prior to approval of this EA This EA should, but fails to consider sending the waste elsewhere as an alternative Given that the heart of NEPA is a comparison of alternatives DOE must consider all reasonable alternatives to its proposed action prior to issuing a Finding of No Significant Impact 2.13.7

Comment No:

- 19 Because safe operations of the SARF and TWS depend in part on the safe condition of the sprinklers and the nuclear criticality controls already in place in building 776 and other storage buildings, the EA should evaluate such systems and indicate whether they are functioning properly 2.2.4
- 20 The EA states that the criticality limits are based on preliminary analyses of the processes and may be revised upon review of actual operating data. What effect would revisions have? Would revisions be consistent with a finding of no significant impact? 2.7.5
- 21 The nuclear criticality safety limits during storage at Rocky Flats allow inter alia, stacks of a maximum of four drums. This limit should be reconsidered and risks should be assessed due to the increase of concentration of transuranic elements as well as due to the higher potential for gas generation in each drum. 2.7.6
- 22 This EA fails to consider the consequences and risks of incompatible wastes mistakenly supercompacted in the same drum. Such risks may require additional precautions and must be considered to present a complete analysis of the risks associated with the commencement of operations of the SARF/TWS. 2.5.2
- 23 The EA should describe the status of Rocky Flats fire department with higher concentrations of waste stored on-site. Potential accidents will have even more serious effects that could require expansion of the fire department's facilities. Given the historic and continuing deficiencies in fire protection at the Plant, the EA should indicate what steps DOE and its contractor intend to take to ensure adequate protection that Building 776 and the storage areas for compacted waste. 2.11.8
- 24 EDF questions the appropriateness of including these two new to Rocky Flats machines in the Plant's application for interim status under RCRA. Although it is arguably premissible under RCRA for DOE to seek interim status for a new operation that did not exist and was not contemplated in 1980, EDF urges DOE to obtain a full RCRA permit prior to beginning use of the SARF/TWS. 2.16.2
- 25 The EA indicates that DOE is still considering the BEIR V Report. The EA states that in the context of the SARF and the TWS the resulting increases in risk estimates are likely to be small such that evaluation in light of earlier standards is adequate. We urge that the DOE require all analyses to be based on new limits in the BEIR V report as there may be significant differences in the risk estimates. 2.10.1
- 26 Section 112 of the Clean Air Act lists certain compounds regulated by NESHAPS. Will the HEPA filters used in the waste management process satisfy the NESHAPS requirements with regard to the beryllium and radionuclides generated and likely to be found in the emissions at Rocky Flats? 2.3.12
- 27 In assessing accidental exposures to hazardous chemicals, the EA used 2.12.1

Comment No:

Threshold Limit Values (TLV), established by the American Conference of Governmental Industrial Hygienists in the 1960s, as comparison criteria Haven't other analyses done in the past two decades determined that these values should be substantially reduced in terms of the accepted limits for what constitute toxic exposures? Please explain why DOE is relying in a 1990 EA on such an old health-based risk evaluation

2.12.1

23 The EA states that because of the relatively short-term duration of accidental chemical releases and subsequent exposures Acceptable Intake-Chronic (AIC) values suggested by EPA were not appropriate for comparison EA p 5-40 In the EA, AIC values should also be applied to accidental chemical releases in order to determine the results of long-term releases and provide a complete consideration of potential impacts of the operations of the SARF and TWS

2.12.2

Received  
RFO 4/30/90

Written Comments prepared by Barbara A Moore



RE ENVIRONMENTAL ASSESSMENT OF SUPERCOMPACTOR AND  
REPACKAGING FACILITY AND TRU WASTE SHREDDER

Submitted on 4/30/1990

Written Comments prepared by Barbara A. Moore  
in regard to

The Environmental Assessment of Supercompactor  
and Repackaging Facility and TRU Waste Shredder

1 Supercompaction of TRU and TRU-MIXED wastes does not appear to be a very good idea. Sure we will achieve a volume reduction, however we will be greatly increasing the amount of radiation per cubic yard of stored waste.

I keep thinking about a story told to me about radioactive elements coming close together. The story goes like this: Apparently in the early days of Nuclear education there were great misunderstandings about the affects of radioactive materials. A professor was going to demonstrate to his class what the effect would be when he placed two pieces of pitch black in a close proximity to each other. As the two pieces of pitch black got closer together neutron alarms sounded. The professor continued to bring the pieces closer together until a small criticality occurred. As a result the professor died almost immediately. The assistant standing behind him lost both of his arms. Students in the first 2 rows either died or suffered severe illness from this exposure.

My concern is that the Supercompaction could conceivably smash the TRU or TRU-mixed waste into a shape or type of geometric figure that would cause a criticality. This environmental assessment does not mention if each of the pucks would be examined for its geometrical shape. I would like to know how these issues were addressed when this plan was studied.

2.7.3

2 The D O E should at least have afforded the Rocky Flats Clean Up Commission the courtesy of a timely response to our request for additional response time for written comments. The TAG group did not receive copies for 2 weeks after its release. With our limited response time it has been difficult to provide a meaningful, informed written comment on the Supercompactor Repackaging Facility and TRU waste shredder. The D O E continues to receive below average scores in the "Improved cooperation with the public" department. It would be greatly appreciated if each Director would have these documents mailed directly to them at their residence.

2.17.2

3 This Environmental Assessment does not mention if the Manufacturer of the TPUPACT-II containers has corrected the problems it had with the welds. The D O E should offer an assessment for an alternative storage container in the event that the TPUPACT-II were not available. What other containers would be acceptable to WIPP?

2.14.1

(.)

- 4 What procedure will be used to prevent drums which previously held soft TRU-MIXED waste processed in the Supercompactor from being used for TRU waste storage? Procedures should be established to prevent TRU waste from being contaminated with other mixed waste hazards through this method 2.5.7
- 5 The Supercompactor and TRU Waste Shredder should be constructed so it will have a totally independent filter and ventilation system. There needs to be a separate bank of HEPA filters and vent system. The plan to use the existing ventilation system which holds an extremely large volume of plutonium is careless. It demonstrates a total disregard for safety to the workers and the public. This is not acceptable. It is highly unlikely that the existing system was designed for the added volume of air the Supercompactor and Waste Shredder will discharge into this filter system. The current ventilation system should not be used unless all the plutonium inside is removed. 2.3.4
- 6 The methodology of calculating exposure to worker and the public did not address the added impact from having large amounts of plutonium in the ducts also being released in the event of an accident with the SARF facility. Without this being taken into consideration the existing exposure calculations have no real credibility. 2.3.5
- 7 It does not seem feasible that one 55 gallon drum will be able to hold four (4) 35-gallon drums which contain four(4) 55-gallon drums. For a total of 16 compacted 55 gallon drums and 4 compacted 35-gallon drums plus the original waste volume inside each of the original 16 55-gallon drums. DOE needs to provide a calculation of the total mass of the 20 drums plus the estimated mass of the stored waste to see if that will indeed fit into one 55-gallon drum. 2.1.1
- 8 This document states that current waste production is approximately 70 cubic yards per month. If that volume is reduced 5 to 1 that volume amount would be reduced to 302.4 cubic yards of Supercompacted waste plus 1008 yards of waste that could not be processed by SARF. With this in mind there is little storage space available at the Plant. Why should we continue to pour more money into this Supercompactor when we should be shutting down the plant? For the price I just don't see where we will be able to get our money's worth. 2.1.5
- 9 The amount of plutonium allowed for each drum of hard or soft waste will have to be less than 7 grams of plutonium for each drum. If you are going to achieve the volume reduction anticipated of having 16 pucks inside a overpacked 55-gallon drum. How is this way would DOE establish the 50 gram limit for each drum? Or lets be more realistic and say we are looking at a 2 to 1 volume reduction. 2.1.2

This is all I could prepare comments on with such a short

(2)

response time Lets hope that the DOE will provide those who took the time to submit comments a timely response

It seems very apparent that DOE fully intends to bring this Supercompactor on-line The most important item from my comments is in regard to installing a totally separate filtration system for SARF instead of using the contaminated and dangerous system currently in place Please reconsider using this existing system keeping in mind that it's better to be safe than sorry

Thank-you for your consideration on these comments

Sincerely,

*Barbara A. Moore*

Barbara A Moore

Director of Front Range Affirmative Action Group

Director on the Board Rocky Flats Clean-Up Commission

(3)

*Etchart*

# GREENPEACE ACTION

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CONTACT

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COMMENTS  
OF  
JASON SALZMAN  
TO THE  
DEPARTMENT OF ENERGY

REGARDING  
THE ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED  
SUPERCOMPACTOR AND REPACKAGING FACILITY (SARF)  
AND  
TRANSURANIC WASTE SHREDDER (TWS)

APRIL 10 1990

SUMMARY

Greenpeace is not opposed, per se, to DOE efforts to decrease the volume of waste at various facilities once such waste has been generated. However, before moving forward with waste-volume-reduction schemes, DOE must demonstrate that all such efforts are sensible and safe. The EA for the SARF and the TWS reveals that all safety problems relating to the proposed facilities have not been resolved and all alternatives have not been considered.

o The EA for the SARF and TWS should be expanded and re-issued for public comment.

o The EA states that the SARF and TWS would be placed in existing buildings that do not meet current safety standards. The EA should consider placement of the proposed facilities in other buildings.

2.11.2

o A final decision on the proposed action should be delayed until DOE finishes evaluating the BEIR V Report and the public has had the opportunity to comment on the Department's findings.

2.10.2

o The EA should consider operating the proposed facilities elsewhere.

2.19.3

o DOE should not subvert the intent of the 1601-cubic-yard storage limit for mixed transuranic waste.

2.13.1

o The EA should provide more details about drum ratering.

2.6.3

o The EA should consider the impacts of liquid effluent.

2.8.7

o The EA should assess the existing ventilation system in building 776.

2.3.6

o The EA should assess the risk of transporting compacted waste.

2.14.2

## INTRODUCTION

My name is Jason Saitman. I am the Rocky Flats Campaigner for Greenpeace. I am pleased that DOE has given the public the opportunity to comment on the Environmental Assessment (EA) for the proposed Supercompactor and Repackaging Facility (SARF) and the Transuranic Waste Shredder (TWS).

Greenpeace is an international environmental organization with offices in 21 countries. Among other goals, Greenpeace's Disarmament Campaign aims to halt the production of nuclear weapons at Rocky Flats and all nuclear weapons production sites in the U.S. and abroad. Greenpeace also favors swift cleanup of these weapons production sites.

Prior to joining Greenpeace, I was a Resource Specialist with the Natural Resources Defense Council (NRDC) in Washington DC. I have published articles on nuclear weapons issues including U.S. weapons production policies in number of magazines including The Bulletin of the Atomic Scientists, Environmental Forum, and Environment. I am a graduate of Brown University.

THE EA SHOULD CONSIDER THE NO PRODUCTION ALTERNATIVE

The EA for the SARF and TWS should consider whether the proposed facilities would be necessary if all warhead production at Rocky Flats were halted or drastically reduced as a result of arms control agreements or shifting budget priorities. As an alternative to the proposed action, DOE should consider halting all warhead production at Rocky Flats. This could certainly be one way for DOE to meet its own directives for reducing radioactive exposure to workers.

2.19.2

THE EA SHOULD CONSIDER OTHER BUILDINGS FOR PLACEMENT OF THE PROPOSED FACILITIES

2.11.2

DOE proposes to construct the SARF and TWS facilities in Buildings 776/777. These buildings do not meet design basis accident criteria and therefore should not house the proposed facilities. DOE states Buildings 776/777 were built prior to the establishment of design basis accident (DBA) criteria and, therefore, do not meet those criteria. The EA should consider the construction of a new building to house the SARF and TWS facilities or the placement of the facilities in buildings that meet all current standards.

2.11.2

DOE admits that operations in buildings 776/777 should be transferred to other buildings that meet DBA criteria. The Department states on the first page of the Finding Of No Significant Action (FONSI) that efforts will be implemented

Department of Energy, Environmental Assessment of Supercompactor and Repackaging Facility and Transuranic Waste Shredder, (DOE/EA-0432) March 22, 1990, at 4 - 6

over the next two to three years to reduce the risk of storing supercompacted wastes by transferring wastes into buildings designed to withstand severe natural phenomena e.g. earthquakes and winds

DOE is sufficiently concerned about the very real threat of natural catastrophe to emphasize to the public its plans to move waste out of Buildings 776/777. Why then, is the Department proposing to site the SARF and TWS in these same unsafe buildings?

2.11.2

There is no disagreement that Buildings 776/777 do not meet DBA standards for earthquakes or wind. With respect to earthquakes the current design basis earthquake (DBE) for Rocky Flats is .14 g horizontal acceleration at bedrock. This is equivalent to 6.0 on the Richter scale. The threshold damage level for Buildings 776/777 is estimated at .12 g. If an earthquake occurred above .12 g which is below the DBE standard radioactive materials would be released to the environment.

2.11.2

DOE is currently upgrading Buildings 776/777 so that they will withstand an design basis earthquake. The department plans to complete this project in the early 1990's. This should be completed PRIOR to final approval of the EA.

with respect to design basis wind criteria, the situation is worse not only because the Department is not upgrading buildings 776/777 to withstand a design basis wind event but also because wind damage could be more extensive. The design basis wind (DBW)

1DOE/EA-0432 at 5-32

2DOE/EA-0432 at 5-43

At the DBW of 16 mph, Buildings 776/777 have a damage response of 35 mph. At 25 mph, about sixty percent of the roof of the building is disintegrated or lost. Wind would also remove portions of the roof of the facility, and 30 percent of the east wall would fall.

At the DBW of 16 mph, Buildings 776/777 would sustain severe damage, including the destruction of the east and west walls as well as general structural damage. 4

The EA does not explain how DOE arrived at its assumption that only five percent of the SARF and TWS and 25 percent of five waste drums could be damaged in a DBW or DBE event. This assumption seems quite low given the extensive damage that the buildings could sustain especially in a DBW event.

2.11.2

It is also unclear why the off-site exposures would be the same for DBE and DBW event. DOE states: Although the amount of material released in the initial damage will be the same for a DBE, worker exposure will be less because the wind (assumed to be fifty mph after the initial gust) blowing through the building will disperse that release quickly. 5

2.11.2

Overall, it simply does not make sense to build new facilities or buildings that do not meet current safety standards. Such an action, the consequences of which are not adequately addressed in the EA, would not only perpetuate ongoing safety problems at the plant, but further erode the public's confidence that DOE will indeed place health and safety ahead

2.11.2

4DOE/EA-0432 at 5-34

5DOE/EA-0432 at 5-35 (emphasis added)

21.10.2

FINAL DECISION ON THE EA SHOULD BE DELAYED UNTIL DOE FINISHES EVALUATING THE BEIR V REPORT

2.10.2

DOE is currently evaluating the recent findings of the National Research Council's committee on the Biological Effects of Ionizing Radiation. Its December 1989 report entitled "Health Effects of Exposure to Low Levels of Ionizing Radiation" (BEIR V) raised concerns about the health effects of low levels of radiation. DOE states that increases in risk estimates resulting from the BEIR V review, are likely to be small. Nonetheless, in view of the uncertainty and importance of this matter, DOE should delay the SARF and the TWS projects until the BEIR V report is fully reviewed and the public has had the opportunity to comment on the Department's findings.

THE EA SHOULD CONSIDER THE ALTERNATIVE OF OPERATING THE PROPOSED FACILITIES ELSEWHERE

2.19.3

Because DOE plans to use the SARF and the TWS to reduce the volume of existing wastes, the EA should consider the impacts of operating these facilities elsewhere. The EA should compare the risks (e.g. transport) and consider the potential benefits of operating the proposed facilities at other sites instead of Rocky Flats, where more waste material is in storage.

The EA should state whether wastes from other sites will be brought to Rocky Flats for compaction.

DOE SHOULD NOT SUBVERT THE INTENT OF THE 1601-CUBIC-YARD STORAGE LIMIT FOR MIXED TRANSURANIC WASTE

2.13.1

6DOE/EA-0432 at 5-19

According to an agreement between DOE and the State of Colorado DOE will not store more than 1601 cubic yards of mixed transuranic waste at the Rocky Flats Plant. By compacting this waste, DOE will be able to store up to five times as much waste on site before reaching the 1601 limit.

2.13.1

DOE states, Supercompaction will increase the average plutonium content per drum 7. Clearly this subverts the intent of the waste 1601 limit, which was to put a cap on the amount of radioactive materials in storage at the plant. DOE should please not to store more plutonium, by weight, at Rocky Flats Plant. It would have been able to store without operating the SRPF and the TWS.

2.13.1

THE EA SHOULD PROVIDE MORE DETAILS ABOUT CARBON FILTERING

The EA states that drums of supercompacted waste will be equipped with carbon filters. This plan raises a number of questions. If the drums are submerged in water, will water flow into the drums? If yes, how will this affect the waste? If a filter malfunctioned, what kinds of releases would result from a typical drum? Is the likelihood of a release from a drum with a filter greater than that from an existing drum? Would a drum with a filter be more susceptible to damage from fire?

2.6.3

THE EA SHOULD CONSIDER THE IMPACTS OF LIQUID EFFLUENT

The EA states that no significant quantities of liquid wastes will be produced by the SARF and TWS and thus water

2.8.7

7DOE/EA-0432 at 5-28

quality will not be affected by operation of these facilities. However, DOE may not have assessed all liquid effluent. The EA states, in order to prevent TRU waste from becoming contaminated by TRU mixed-waste, cleaning procedures would be used to decontaminate both the SARF and the TWS treatment equipment whenever a batch of TRU waste was to be treated after a batch of TRU-mixed waste. Would this treatment involve water or other cleaning fluids? If so, what volume of fluid would be used? What does DOE plan to do to collect and dispose of this effluent which will contain both radioactive and toxic materials?

2.8.7

THE EA SHOULD ASSESS EXISTING VENTILATION SYSTEM IN BUILDING 776

The SARF would be connected to the ventilation system in building 776. The EA should assure the public that the existing ventilation system in Building 776 is free of plutonium. Before operating the SARF/TWS, DOE should first address the hazard posed by substantial plutonium accumulations in the air ducts, accumulations which could increase with the operation of the SARF/TWS

2.3.6

THE EA SHOULD CONSIDER THE RISKS OF TRANSPORTING COMPACTED WASTE

Supercompaction will increase the weight and average plutonium content of waste drums. The EA should analyze the impact that these increases may have on the safety of transporting waste.

2.14.2

Received RFO  
7/1/90



OFFICE OF THE GOVERNOR  
STATE CAPITOL  
BOISE 83720

JIL D ANDRUS  
GOVERNOR

(208) 334-2100

April 30, 1990

Patrick J Etchart  
U.S. Department of Energy  
Rocky Flats Plant  
P O Box 928  
Golden, CO 80402-0928

Comment No:

Re Proposed Finding of No Significant Impact/EA  
SARF and TWS - Rocky Flats Plant

Dear Mr Etchart

On March 30, 1990 the Department of Energy (DOE) issued an Environmental Assessment (EA) of the Supercompactor and Repackaging Facility (SARF) and Transuranic Waste Shredder (TWS) and proposed Finding of No Significant Impact (FONSI). Because of Idaho's continued interest in timely and appropriate resolution of the transuranic (TRU) waste disposal issue, we have reviewed these documents to determine what, if any, impact the construction of these facilities at the Rocky Flats Plant would have on Idaho, and more particularly on the storage of TRU waste at the Idaho National Engineering Laboratory (INEL).

2.13.9

The state of Idaho supports DOE activities that will result in reduction of waste volumes, waste processing costs and radiation exposure to workers, and for these reasons believes the construction of the SARF and TWS is in the public interest. It must be acknowledged, however, that the EA and the proposed FONSI do not resolve the problem that created the immediate need for the SARF and TWS facilities, i.e., insufficient storage capacity for TRU-mixed waste at Rocky Flats. This is an issue of extreme importance to Idaho, and one which the state will closely monitor because historically DOE has sent TRU-mixed waste to the INEL for indefinite storage until Governor Andrus instituted his ban on the INEL's importation of this waste last year.

2.13.9

The EA states, at page 3-22, that DOE is in the process of reviewing a proposal for alternate near-term storage for Rocky Flats Plant TRU-mixed waste which considers both onsite and offsite options. The offsite options include the INEL. The EA also states, at page 3-23, that DOE is considering the need for longer-term storage of the waste. It appears from the EA that separate NEPA documentation is being prepared for the near-term and longer-term storage proposals.

2.13.9

Because near-term and longer-term storage of TRU-mixed waste, and impacts associated with transporting and storing the waste, are so closely related as to be, in effect, a single course of action, they must be evaluated in a single NEPA evaluation. 40 C F R § 1502.4 Connected actions are considered closely related where they (1) automatically trigger other actions which may require preparation of an EIS, (2) cannot or will not proceed unless other actions are taken previously or simultaneously, or (3) are interdependent parts of a larger action and depend on the larger action for their justification. Based on these criteria, the storage proposals should be considered together in one comprehensive NEPA analysis.

2.13.9

Realistically, the waste storage problems presented by TRU-mixed waste will only begin to be resolved after the Waste Isolation Pilot Plant (WIPP) opens in New Mexico. DOE's discussion of near-term and longer-term storage solutions detracts from what DOE's primary focus should be the opening of WIPP. DOE's shell game approach of TRU-mixed waste storage can only be resolved by WIPP, and we urge DOE to focus all of its efforts in this direction. Finally, it should be clear by now that any study of storage alternatives for TRU-mixed waste should not include Idaho as a potential storage site.

2.13.9

Very Truly Yours,



Jonathan P Carter  
Special Assistant

JPC -  
I0430 01  
a/f

rec'd AT10  
4/30/90

April 30, 1990

CERTIFIED MAIL NO P 947 565 619  
RETURN RECEIPT REQUESTED

Mr Patrick J Etchart  
U S. Department of Energy  
Rocky Flats Plant  
P O Box 928  
Golden, Colorado 80402-0928

Comment No:

PE Environmental Assessment and Finding of No Significant  
Impact on the Supercompactor and Repackaging Facility  
and the Transuranic Waste Shredder

Dear Mr Etchart

The Board of County Commissioners of the County of  
Jefferson, State of Colorado, appreciates the opportunity to  
comment on the Environmental Assessment of the Supercompactor  
and Repackaging Facility (SARF) and the Transuranic Waste  
Shredder (TWS), and the proposed Finding of No Significant  
Impact (FONSI). Though public comment is not required on the EA  
and the FONSI, the Board recognizes the Department of Energy's  
good faith efforts toward gaining information on this subject  
from all sectors

There appears to be definite advantages to operating the  
SARF and the TWS. However, the Board of County Commissioners  
has several concerns regarding both on-site and off-site issues

ON-SITE CONCERNS

The Board of County Commissioners is particularly concerned  
about the safety of workers during the repackaging of previously  
packaged waste (Sec 3 1 3). The volume of TRU-waste has  
accumulated across the plant site under previously inadequate  
practices and procedures. Transporting this waste to Building  
776 for compacting and shredding and for repackaging in safer  
containers appears hazardous. Old containers have been  
unreliable, contents labels have at times been erroneous, the  
integrity of the inner bags used for soft waste has been  
questionable, and the waste boxes have not always proven  
adequate. Although this part of the SARF project is a

2.4.2

AT10 ETCHART

COUNTY HOUSE      700 ARDEN BLVD      GOLDEN, CO 80402-0000

Comment No:

non-routine short term repackaging effort, it has the potential for jeopardizing the safety of the workers and the environment. A complete plan for this operation including protection for workers and the environment should be formulated.

2.4.2

A second on-site concern is with the potential for increasing near-term storage capacity beyond the 1601 cubic yards (Sec. 3 1 4). An increase in storage capacity even on a temporary basis should not be considered until all formal permitting procedures are met, including public hearings. Additional storage should only be deemed temporary and off-site alternatives (WIPP and others) should be actively and seriously pursued.

2.13.2

OFF-SITE CONCERNS

The Board has two major concerns regarding off-site impacts. The first is a reaction to the statement that "the only potential exposure to the public from routine operations of the SARF and the TWS will be from radioactive particulates emitted from the Building 776 rooftop exhaust vents" (Sec. 1 3). Although off-site exposure is projected to be minimal, it would be our request that air monitoring be intensified during the early months of use of this new equipment. The Governor's Scientific Panel on Monitoring Systems will soon release its recommendations. An effort to implement those recommendations dealing with air monitoring should be made before the supercompactor becomes operational. Results of the monitoring should be made public as quickly as possible to assure the public that the SARF and the TWS are in fact not having a negative impact on air quality off-site.

2.3.3

Transport of the waste (Sec. 3 1 4 and 5 1 6) to WIPP is of great concern to Jefferson County. As stated in Jefferson County's comments on the WIPP Supplemental Environmental Impact Statement, the County believes that rail transport needs to be evaluated further. The Board would also urge that emergency preparedness programs be continued, and that DOE assume responsibility for funding emergency equipment needed by jurisdictions along the transportation routes. Further, assurances must be made and kept that the trucking contractors, their equipment and employees meet the highest standards of preparation and performance in order to protect the public as the supercompacted waste is transported off the plant site.

2.14.3

AT10 ETCHART

OVERSIGHT

Finally, the Board of County Commissioners suggests that as this new equipment becomes operational, increased third party monitoring would be appropriate. The Environmental Protection Agency, the Colorado Department of Health, the Advisory Committee on Nuclear Facility Safety, and the Defense Nuclear Facilities Safety Board should all be encouraged to evaluate the operation. This action would assure safety for the workers and the public, guarantee protection of the environment, and increase credibility for the plant operators.

2.15.2

The Board of County Commissioners appreciates the opportunity to comment on the supercompact before it is put into operation and is hopeful that the SARF and TWS represent a sincere effort to make the Rocky Flats facility safer for the plant's workers, the public and the environment.

Very truly yours,

BOARD OF COUNTY COMMISSIONERS



Rich Ferdinansen, Chairman

- cc Marjorie E. Clement, Jefferson County Commissioner
- John P. Stone, Jefferson County Commissioner
- Governor Roy Romer, Governor of the State of Colorado
- Dr. Tom Vernon, Director, Colorado Dept. of Health
- Jim Scherer, Regional Administrator, U.S. EPA Region VIII
- Admiral James Watkins, U.S. Secretary of Energy
- Patrick R. Mahar, Jefferson County Attorney

AT10 ETCFART

GARREY CARRUTHERS  
Governor



*J. Roeder*

RECEIVED  
OFFICE OF THE GOVERNOR  
State of New Mexico  
Santa Fe 87503  
A - 7

April 20, 1990

Mr Robert M Nelson, Jr  
US Department of Energy  
Rocky Flats Office  
Post Office Box 928  
Golden Colorado 80402-0928

Dear Mr Nelson

Thank you for your letter of March 28, 1990, and for enclosing copies of an Environmental Assessment of the Supercompactor and Repackaging Facilities and Transuranic Waste Shredder and the proposed Finding of No Significant Impact

I have forwarded these documents to the New Mexico Environmental Improvement Division for their review and comments

It is important to keep New Mexico informed of actions which may impact the Waste Isolation Pilot Plant (WIPP) site or transuranic wastes which could be emplaced at WIPP.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read "Garrey Carruthers".

Garrey Carruthers  
Governor

GC MJB c;  
90/03, 2065

cc Richard Mitsel felt Director  
Environmental Improvement Division

*MHS  
20-8*



Comment No:

In summary, the proposed action seems to be a knee-jerk reaction to the waste storage limit in the RCRA permit. The EA must address the implications of long term storage of waste and include contingencies such as the WIPP not opening.

2.13.3

2. BENEFITS OF THE PROPOSED ACTION

The EA fails to adequately address the honest benefits of the proposed action. The real benefits from the proposed action are short term; the benefit is that EG&G can resume and possibly increase production and thus increase waste since the volume of waste will be reduced. DOE will therefore be able to resume plutonium operations without exceeding the 1601 cubic yard volume waste limitation imposed by CDH, at least for a while.

2.13.4

DOE might be able to claim the benefit of reduced waste volume to be stored at the WIPP if the WIPP were guaranteed to open on a specific date. However, no assurances are present that the WIPP will open. Therefore, the benefits from this proposed action are questionable at this point. The EA does not address the potential detriment from the proposed action if the WIPP fails to open and the waste is stored at the RFP.

2.13.4

Additionally, it appears that the benefits from the proposed action might be distorted because the EA claims that the supercompactor will reduce waste by a factor of five to one (5:1). While the first page of the EA states that the overall reduction is 2:1, other sections of the EA fail to remind the reader of this. Page 3-3 of EA states that 60% of the waste production (70 cubic yards per month) can be processed through the supercompactor. Therefore, 42 cubic yards of waste can be supercompacted at a reduction factor of 5:1. This reduces the 42 cubic yards to approximately 8 cubic yards. However, 40% of the waste cannot be supercompacted. So 28 cubic yards are unaltered. The bottom line is that 28 cubic yards plus the 8 cubic yards of supercompacted waste yields approximately 36 cubic yards at the end of the process. Thus, 70 cubic yards is reduced to about 36 cubic yards, which is an overall reduction of two to one (2:1) and not five to one (5:1). Failure to state the overall waste volume reduction is misleading when the EA claims a 5:1 reduction from supercompacting.

2.1.6

3. INDIVIDUAL COMMENTS

Page 2-3 All of the SARF equipment and the glovebox have been purchased and delivered and some of the equipment has been assembled. This indicates that the EA is simply a formality and therefore a sham because DOE obviously believes that the proposed action will be permitted or the DOE would not have purchased the equipment prior to the authorization. It seems that the wagon has gotten ahead of the horses. This supports the contention that the EA and corresponding FONSI are simply a rubber stamping process.

2.16.3

Page 3-12 Liquid collects in a storage tank and a high level alarm will signal the workers when the 4 liter storage tank is at an upper level. What would happen if the 4 liter storage tank overflowed before the workers could stop the operation? First, should you not have some supplemental safety feature that would automatically stop the supercompactor once a limit is reached? Second, what would be the result of a spill? Would the liquid be contained or would the liquid spill over the floor or seep into the foundation? What are the dangers associated with this scenario?

2.8.8

Page 3-28 Along the same lines, an alarm sounds if criticality is detected. However, what effect is there beyond an alarm sounding? Is there any system to stop the procedure or avoid any aggravation of the criticality situation? Are workers trained adequately to react to such a situation? What is the contingency plan and how can we be assured that the plan is fool-proof?

2.7.7

Page 4-6 The EA indicates that building 776 was not designed to withstand certain natural catastrophes. The EA fails to suggest alternate buildings to house the SARF and TWS that might be safer than building 776. The EA is to examine potential environmental damage from the proposed action, but should also suggest and examine alternatives. Alternatives should include those which would make the proposed action safer and more environmentally sound.

2.11.3

Page 5-1,2. It is stated that the HEPA filters will be tested to assure efficiency, but can it then be inferred that releases to the atmosphere can be occurring until the filters are checked? Should not the effluent be constantly monitored to assure quality and the operation shut down immediately upon determining any problem?

2.3.7

Further, the EA states that effluent SAAM's will alarm "if significant increases in airborne alpha activity are detected." What is considered significant? Will the operation cease immediately? What is the contingency plan?

2.3.13

It is stated that an investigation will be conducted to determine the cause of emissions exceeding 0.20 pCi/m<sup>3</sup>. What occurs in the mean time? Do operations cease or simply continue while the investigation occurs?

2.3.14

Finally, I question whether or not the proposed action have as little impact on air and water quality as the EA suggests. Are the HEPA filters as effective as claimed for the particle size released during supercompaction?

2.3.15

Page 5-5 Bacterial degradation is said not to have any impact because the mechanism is slow. However, what if the WIPP does not open or the opening of WIPP is delayed for some time? The waste will then be stored at the RFP until a home is found. Query: If the waste is stored at the RFP for some time, then would not

2.6.6

Comment No:

bacterial degradation begin to become a concern? If so, then what are the consequences?

2.6.6

Page 5-7 It is inferred from the EA that the impacts of the SARF are compared to other current operations and then assessed as increased or decreased risk. This infers that the other current operations are a baseline and are therefore a "safe" level. While the SARF can be said to be relatively better or worse than current operations, I would hesitate to say that because the SARF improves upon current operations that the SARF is "safe."

2.2.5

Page 5-28. Criticality is not expected to breach the glovebox. I would question the accuracy of this statement. The EA should assess the result of criticality breaching the glovebox, even if the EA assumes that it will not occur

2.7.7

The EA claims that criticality has never occurred at the RFP Was not the 1957 and 1969 fires the result of a criticality situation or at least aggravated by criticality as a result of the fire fighting operation?

2.7.8

Page 5-60 The average level of plutonium in soils is claimed to be 0.14 pCi/m<sup>2</sup> Is this a world-wide average or an average taken from areas near similar facilities where the average might escalate? I have heard much lower estimates than this

2.19.4

Page 5-61 The EA claims the average volume reduction will be 5.1 from the SARF As stated supra, not all the waste is capable of supercompaction Page 3-3 of EA states that 60% of the waste production (70 cubic yards per month) can be processed through the supercompactor Therefore, 42 cubic yards of waste can be supercompacted at a reduction factor of 5.1 This reduces the 42 cubic yards to approximately 8 cubic yards However, 40% of the waste cannot be supercompacted So 28 cubic yards are unaltered. The bottom line is that 28 cubic yards (unaltered) plus the 8 cubic yards of supercompacted waste yields approximately 36 cubic yards at the end of the process. Thus, 70 cubic yards is reduced to about 36 cubic yards, which is an overall reduction of two to one (2:1) and not five to one (5:1) While the first page of the EA admits this, the remainder of the EA fails to acknowledge it This overall reduction of 2:1 should be stated so that the reader is not led to believe that the SARF will cut the waste at the RFP by 5:1 It is misleading to state otherwise and has the effect of putting the SARF in a better light than it is due.

2.1.3

II. COMMENTS ON THE FONSI (THE RUBBER STAMP)

Page 3 of the FONSI confirms suspicions that the SARF is simply a short term emergency solution to avoid surpassing the 1601 cubic yard limitation imposed by CDH The FONSI admits to needing the SARF to continue operations while complying with RCRA.

2.18.1

Page 6 of the FONSI states that effluent from the gloveboxes would

2.18.2

be filtered and then discharged to the atmosphere. The FONSI fails to address the composition of the effluent and the amount of that effluent. A finding of no significant impact should assess exactly what is being discharged and why that discharge has no significant impact. As stated in my comments on the EA, an alarm will sound if alpha radiation is detected above a limit, but the FONSI fails to state what the contingency plan is during the time between the sounding of the alarm and the implementation of the corrective action. Specifically, does the operation cease until the cause is found?

2.18.2

Page 6 also states that drums of supercompacted waste will have carbon composite filters for venting of gas. Will the filtered effluent gas cause any significant impact? What is the composition of the effluent filtered gas?

2.18.3

Page 8 of the FONSI states that the SARF and TWS would create no detectable increases in emissions to the environment. The EA did assess the risks to the public and the workers, so there must be some increase in emissions for the public and workers to be at some increased risk. In fact, pages 7 & 8 of the FONSI admit that there is some increased exposure from the routine operation of the proposed action.

2.18.4

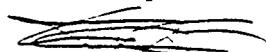
Page 11 goes to great lengths to point out that criticality is unlikely and that it has never occurred at the RFP. As stated in my comments supra, was not the 1957 and 1969 fires the result of criticality or aggravated by criticality as a result of the fire fighting efforts? Criticality does not seem as unlikely as the FONSI would have us believe.

2.18.5

In summary, the FONSI appears to be the rubber stamp that the DOE expects. The FONSI avoids the issues and simply discounts any adverse impacts. As stated supra, the equipment has already been purchased and on site, some of the equipment has already been assembled. It seems that DOE fully expected a FONSI when they purchased the equipment and this EA and FONSI certainly appear to confirm this.

Thank you for the opportunity to comment on DOE/EA-0432 and its corresponding FONSI. I hope that my comments are some value to you.

Sincerely,



Craig Kish, Rocky Flats Cleanup Commission  
Box 658  
Golden, Colorado 80402-0658

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Rocky Flats Cleanup Commission

1738 WYNDROP SUITE 302  
 DENVER, COLORADO 80202  
 (303) 298-8001

RECEIVED  
 US DOE  
 PFAO

1990 MAY -2 A & 16

Comment No:

Pat Etchart  
 US DOE  
 Rocky Flats  
 PO Box 928  
 Golden, CO 80402-09028

April 30, 1990

Re Comments on the EA for the Supercompactor and Repackaging  
 (SARF) and TRU Waste Shredder (TWS)

Dear Mr. Etchart

The Rocky Flats Cleanup Commission (RFCC) has the following questions  
 and concerns regarding the operation of the SARF and TWS

QUESTIONS

While the EA states that wastes will be reduced 5 to 1 with  
 the SARF and 2 to 1 with the TWS, a statement is made on page 3-31  
 that each overpack drum will be limited to a maximum of 16 drums of  
 sort waste. This appears to be a reduction factor of 16 to 1. What  
 is correct?

2.1.4

2 On page 5-65 a statement is made that "If one of these alterna-  
 tives were to be implemented a RCRA permit will be obtained as  
 required and compliance with the requirements of the permit will be  
 maintained. We assume a permit will be issued and it will be  
 subjected to a public hearing and full public review. Is this  
 correct?"

2.16.4

3 On page 3-20 a statement is made that during the initial SARF  
 operating period an estimated maximum of approximately 15 000 cubic  
 feet (3 000 cubic yards) of TRU and TRU mixed wastes will be  
 removed from storage repackaged and supercompacted concurrently with  
 the normal waste production feed to the SARF. On page 3-22 a state-  
 ment is made that approximately 80% of the waste to be processed in  
 the SARF and TWS will be TRU mixed. If 80% of the 5,000 cubic yards  
 or 4 000 cubic yards are TRU mixed waste has the Rocky Flats Plant  
 already exceeded the 1601 cubic yard limit?

2.1.9

MAJOR CONCERNS

Our greatest concern is with the plutonium in the existing  
 ductwork at Building 76 where the SARF and TWS are located.  
 If any more gloveboxes are hooked up to this ductwork it  
 should be cleaned and further contamination should be prevented. The  
 criticality potential of the plutonium should be assessed to deter-  
 mine if any immediate action should be taken to prevent a critical-

2.3.8

The RFCC is concerned that the supercompactor will cause excessive

2.3.8

*MHS  
 27-C*

Rocky Flats Cleanup Commission

1738 WYNDROP SUITE 302  
DENVER COLORADO 80202  
(303) 298-6001

Comment No:

Mr. Directors  
1738 WYNDROP SUITE 302  
DENVER COLORADO 80202  
(303) 298-6001  
Mr. President  
Mr. C. L. Field, Ph.D.  
Denver 321-7276  
Mr. J. W. Elston-Gardine  
Denver 420-2967  
Mr. R. W. Arsh  
Denver 421-3383  
Ms. K. Anderson  
Denver 333-9714  
Mr. J. W. Gage, Ph.D.  
Denver 494-4288  
Mr. J. W. Gage, Ph.D.  
Denver 986-2371  
Mr. J. W. Gage, Ph.D.  
Denver 442-3117  
Mr. J. W. Gage, Ph.D.  
Denver 744-8173  
Mr. J. W. Gage, Ph.D.  
Denver 400-1211  
Mr. J. W. Gage, Ph.D.  
Denver 830-7295  
Mr. J. W. Gage, Ph.D.  
Denver 238-2168  
Mr. J. W. Gage, Ph.D.  
Denver 333-3077  
Mr. J. W. Gage, Ph.D.  
Denver 832-4508

1. The measure on the HEPA filters and the glovebox system may not contain all plutonium particles which escape during compaction. This possibility should be thoroughly analyzed before operation.

3. The RFCO is concerned that sparks will be generated during the piercing process to release gases from the drums before compaction. These sparks could ignite the gases in the drum and increase the risk of fire in the glovebox and release plutonium particles to the environment.

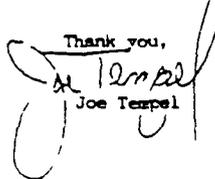
4. The supercompacted wastes should not be stored in buildings which do not meet design basis criteria for wind and earthquakes. Building 776 is designed for wind loads of 135 mph and the design basis wind load is 161 mph.

5. The RFCO is generally concerned with the quality control throughout the whole process. As a minimum, the State of Colorado's monitoring system should be installed at the stacks before operations begin. How can we be assured that only 100 grams of plutonium are in each barrel? How can we be assured that incompatible wastes are not mixed? How can we be assured that the HEPA filters are installed and changed regularly? What documentation will be prepared to assure the public that proper procedures are being followed? How can the public be assured that the HEPA filters are capturing the smallest plutonium particles generated by the SARF and TWS?

6. Finally, the comment period should be extended another two weeks to allow a full 30 day review. We did not receive the EA until two weeks after its availability was published in the Federal Register. This does not give the public adequate time for a proper review. A public hearing should be held to obtain additional public input.

2.3.8  
2.6.7  
2.11.4  
2.3.9  
2.7.1  
2.5.3  
2.3.9  
2.17.3

If you have any questions regarding these questions and comments please call Joe Tempel at 757-9931

Thank you,  
  
Joe Tempel

- Secretary Watkins
- Representative Schroeder
- Representative Skaggs
- Senator Wirth
- Representative Brown
- Mr. Maggart
- Mr. Miullo

DOE/RFO  
 CORRESPONDENCE  
 OPENING LETTER  
 6 '92 DOE 90  
 echart  
 4-10-90  
 5-21-90



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 CITY of WESTMINSTER

May 7, 1990

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- SON RM XI
- SONSON DP I I
- THOP ML I I
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- S. G
- KAROL MS
- LOCKRAN
- DER. JR
- BONDO. R
- CHER. F I I
- ANDERSON. W
- DOCKMAN D
- WITTE PC I I
- THARC. P I I
- SON. S
- INGER. S
- SK. WC
- H. JE
- ROBERTS RJ I I
- SCHASSBURGER I I
- FFY GC I I
- GREFFY
- HUFFMAN GN I I
- T. PR. HG
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- ROSSEAU. WJ
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- RECORDS IXI
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- OF 1-23-80

Office of the Mayor  
 4800 West 92nd Avenue  
 Westminster Colorado  
 80030 6399  
 303 430 2400

Mr Patrick J Etchart  
 U S Department of Energy  
 Rocky Flats Plant  
 P O Box 928  
 Golden, Colorado 80402-0928

Comment No:

Dear Mr Etchart:

I am writing to provide comments on "Environmental Assessment of Supercompactor and Repackaging Facility and TPL Waste Shredder" on behalf of the City of Westminster. Westminster is concerned about the operations of the Rocky Flats facility because of the potential impacts on Westminster citizens and the City's water supply. Standley Lake provides drinking water for approximately 180 000 in Westminster, Thornton, Northglenn and Federal Heights as well as irrigation water for snareholders in the Farmers Reservoir and Irrigation Company.

Westminster is opposed to the use of the Supercompactor and Repackaging Facility and TRU Waste Shredder (SARF/TWS). Westminster cannot support any operation which will increase the amount of waste which can be stored at the Rocky Flats Plant. Because there is yet no solution to the hazardous waste disposal problem at Rocky Flats, the SARF/TWS will merely increase the amount of wastes stored at Rocky Flats. It will not be solving the problem. Westminster is concerned that this will open the door to making Rocky Flats a waste repository, for both its own wastes and possibly those from other facilities. Wastes should not be generated if there is no means of disposal and staying within the limits set by the State of Colorado. The handling of the wastes necessary for shredding and repackaging also increases the risk to the workers and neighboring citizens.

2.13.5

2.4.4

The City of Westminster is also opposed to the proposed means of disposing of liquid wastes generated during the handling process. The plan calls for such wastes to be treated and disposed of by spray irrigation. This is unacceptable to Westminster in the absence of an interceptor canal around Standley Lake. Rocky Flats has not used proper engineering judgement in the land application of effluent in the past, which has resulted in surface water runoff reaching Pond C-2. Even when properly applied, it appears the groundwater surfaces and flows into Woman Creek. This is unsatisfactory to the City of Westminster unless an interceptor canal is in place to carry all waters from the Rocky Flats Plant around Standley Lake.

2.8.9

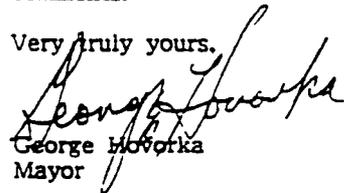
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 CR) ISF 12



May 7, 1990  
Page 2

Thank you for the opportunity to comment on this important issue  
Please contact me if you have any questions regarding these  
comments.

Very truly yours,



George Hovorka  
Mayor

cc: Congressman David Skaggs  
Governor Roy Romer  
City Council  
Bill Christopher, City Manager

**ATTACHMENT B**

**ERRATA**

## ERRATA

Page 5-2, first partial paragraph, fifth line should state "per cubic meter (pCi/m<sup>3</sup>) If emissions of non-specific alpha emitters exceed 0.020 pCi/m<sup>3</sup>, an"

Page 5-36, the following paragraph should be inserted after the first paragraph, prior to Section 5.1.4.3

The exterior containment of Buildings 776/777 is being structurally upgraded to withstand a DBW. This upgrade is scheduled for completion in the early 1990s. After completion of the upgrades, damage from a DBW is expected to be substantially mitigated or eliminated.

Appendix B, page B-2, first paragraph, last line should state "Ci/g. The weighted average DCF value was calculated to be  $8.76 \times 10^7$  rem/Ci."

Appendix B, page B-2, Table B-1, should be as follows

Table B-1

<u>Isotope</u>	<u>Half-life (days)</u>	<u>Mass Fraction</u>	<u>DCF (CEDE, rem/Ci)</u>
Pu-238	$3.20 \times 10^4$	$1.01 \times 10^{-4}$	$4.60 \times 10^8$
Pu-239	$8.78 \times 10^6$	$9.36 \times 10^{-1}$	$5.10 \times 10^8$
Pu-240	$2.39 \times 10^6$	$5.84 \times 10^{-2}$	$5.10 \times 10^8$
Pu-241	$5.26 \times 10^3$	$4.10 \times 10^{-3}$	$1.00 \times 10^7$
Pu-242	$1.37 \times 10^8$	$3.02 \times 10^{-4}$	$4.80 \times 10^8$
Am-241	$1.58 \times 10^5$	$8.04 \times 10^{-4}$	$5.20 \times 10^8$

Appendix B, page B-6, second and following paragraphs should state

It was assumed that there are twenty drums on the loading dock. Twelve contain combustible waste and eight contain non-combustible materials. Half of these drums are eventually involved in the fire. It is assumed that each drum contains 100 g of plutonium and that the values for RSF (as described in Appendix A) are  $5.3 \times 10^{-4}$  for combustible waste and  $9 \times 10^{-3}$  for non-combustibles (see Appendix A). It was conservatively assumed that all the releases from the drums containing combustible material impact the workers before evacuation. The calculated release to the room during the initial stage of the fire is

$$\begin{aligned} \text{REL} &= 6 \text{ drums} \cdot 100 \text{ g/drum} \cdot 5.3 \times 10^{-4} \\ &= 0.318 \end{aligned}$$

Using the techniques described in the section on uptake by workers, the maximum dose to the workers was calculated to be 66 rem (CEDE).

For calculation of the doses to other RFP workers and the public, the releases from four non-combustible waste drums were added to releases from the six drums

of combustible waste. The total release to the room was calculated to be 4.82 g. With both receiving bay doors open to allow fighting the fire, the building leak factor was assumed to be 0.1 for a total release to the environment of 0.482g of plutonium. This will lead to a maximum dose to other RFP site personnel of 3.87 rem.

Appendix D, page D-12, Table D-8, the footnote should state "Values are from DOE (1988b) "