

CDH SEPTEMBER 9, 1988 COMMENT

- 1b. The closure plan should describe how the plant will address contamination of the soils and/or ground water if contamination is more extensive than estimated. For example, if ground water is contaminated, better characterization of the geology and a monitoring program will need to be described in the post-closure permit.

CDH MEETING MINUTES:

- 1b. The Closure plan should describe how contamination of the soils and/or ground water will be addressed if they are more extensive than estimated. The Limit of Detection of the portable gas chromatograph is significantly higher than the cleanup standard. Rockwell explained that the portable GC would be used for gathering more data in the field and lab analysis would be performed regardless of field results. It was agreed that for all future sampling efforts, if hits are still being detected at ten feet below the water table or 30 feet, sampling should continue to a depth that there are no more hits. The method of addressing soil contamination more extensive than currently estimated is presented in Section 3.2.1.

RESPONSE:

The method of addressing soil contamination more extensive than currently estimated is presented in Section 3.2.1 (Soil Characterization Prior to Tank System Removal). Specifically, sampling depths will be extended during the field investigation until contamination is not detected. The portable gas chromatograph will be used for gathering additional field data during tank removal.

Ground-water monitoring and additional geological characterization will

be provided in the closure plan and in the Post-Closure Care Permit if found to be necessary. It is currently believed that the tank will be clean closed, so ground water and geological characterization are not currently necessary.

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- 1c. Figure 4 shows the approximate excavation area extending 13-14 feet from Tank #4. However, page 31 states that "volume estimate is based on an estimated volume of backfill extending ten feet beyond the edges of all the tanks." Explain the discrepancy.

CDH MEETING MINUTES

- 1c. There is a conflict between what is presented in Figure 4 and the area of excavation stated on page 31. Figure 4 is inaccurate and should be revised to reflect exactly ten feet of excavation on all sides of the tanks.

RESPONSE:

Figure 4 will be revised to reflect the limits of excavation ten feet beyond the sides of Tank No. 4.

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- 1d. Volume 1 of the Remedial Investigation and Feasibility Plans for Low Priority Sites, dated June 1, 1988, shows SWMU 157.1 as being located near the Building 443 tanks. Explain if there will be a coordination of the cleanups for the two individual units.

CDH MEETING MINUTES:

- 1d. The intersection of SWMU 157.1 and the area to be cleaned up under the subject closure plan will be remediated with the action that

occurs first. The remainder of the site will be left for its designated remediation.

In a previous meeting separation of the source characterization program from the ground-water monitoring of RCRA sites was discussed. Rockwell's interpretation was that CDH wanted the two programs to be entirely independent. In this meeting CDH felt that some overlap was appropriate in the case of overlapping sites.

RESPONSE:

No coordination is planned, and as stated by CDH at an August 29, 1988 meeting, there can be no overlap of RCRA closure and the Low Priority SWMU programs.

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- 2a. 6 CCR 1007-3 265.113(b) allows for a time of closure greater than 180 days if the closure will take longer by necessity.

CDH MEETING MINUTES:

- 2a. The time to remove Tank #4 should not exceed 180 days. DOE has requested lengthening the preparation and review time for all documents which in itself would exceed 180 days. The rate determining step for this closure is FCAP funding which is scheduled for 1992 as a part of the Building 443 Steam Plant Upgrade. By regulations, funding is not a justified cause for granting an extension of the 180-day limit to the 3-year maximum limit. If CDH finalizes and issues the closure plan, as they are commissioned by regulation to do, then DOE and Rockwell have 45 days in which to comment as would any member of the public - no special consideration would be granted. CDH does in fact intend to make minor revisions to the closure plan and issue it for Public Comment.

RESPONSE:

The rate determining step controlling progress of this operation is the

FCAP funding for tank removal and replacement. This funding and its relation to this closure plan is explained in section 1.5.3 of the closure plan. The four tanks associated with Building 443 probably cannot be separated for environmental control, and the four tanks cannot be removed and not replaced without compromising RFP operations. FCAP funding is the first available funding for overall tank removal and replacement.

The sampling of nearby soils and determination of the need for ground-water monitoring will proceed prior to tank removal. If necessary, the closure plan and post-closure care permit will be updated to reflect the increased knowledge gained regarding the unit. It is intended that the maximum extent of soil contamination will be known before tank removal commences. The text of section 1.5.3 can be updated to specifically include the above explanation.

CDH SEPTEMBER 9, 1988 COMMENTS

- 2b. 6 CCR 1007-3 265.113(b)(2) states that the owner/operator will take all steps to prevent threats to human health and the environment from the unclosed but not operating facility. Explain how the Rocky Flats Plant (RFP) will protect human health and the environment given the contamination found in the fence posthole.

CDH MEETING MINUTES:

- 2b. Protection of human health and the environment from the unclosed but

not operating facility is required by 6 CCR 1007-3, 265.113(b)(2). Rockwell's position is that Plant security and the plant-wide ground-water monitoring provide the assurance needed. CDH and EPA feel that protection of human health and environment from an unclosed but not operating unit must be specific to that unit only. Additional ground-water monitoring will be added to the closure plan when CDH finalizes it.

RESPONSE:

A basic discussion of the protection of human health and the environment is provided in the existing closure plan on pages 35-40. This basic discussion could be updated to more specifically address the actions taken at this unit to protect human health and the environment. Specifically: emptying the tank of its contents, sampling soils in the area of the tank, the installation of ground-water monitoring wells, if necessary, and ground-water monitoring between the tank and off-site areas of the plant.

CDH SEPTEMBER 9, 1988 COMMENTS

- 2c. The Statement of Basis for 6 CCR 1007-3 Subpart G states that: "In no case may closure take more than three years to complete." The figure 9 schedule of closure activities shows a projected closure schedule exceeding this three-year period. Numerous and extensive environmentally-related activities are ongoing at the RFP and may dictate the need for extended schedules for lower-priority units. An overall listing of closure activities and projected schedules should be provided to describe the time-frame of various operations as well as to justify the necessity for the extended closure schedule.

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- 2c. The Statement of Basis for 6 CCR 1007-3 subpart G states that: "In no case may closure take more than three years to complete." - there are no exceptions available to this statement in the regulation. Numerous and extensive environmentally-related activities are ongoing at the RFP and may dictate the need for extended schedules for lower-priority units. Communication between DOE, CDH and EPA is absolutely necessary and critical to the interests of both parties on this and all other closure plans.

RESPONSE:

An overall listing of closure activities will be provided to the CDH and EPA as a part of the interagency agreement and comprehensive planning activities already in progress. As discussed in 2A above, the rate determining step is the removal and replacement of the four tanks associated with Building 443.

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3. If ground-water contamination is present at the #4 Fuel Tank site, and ground-water monitoring is deemed necessary, then a ground-water protection standard needs to be chosen by RFP and approved by CDH. This will be included in the post-closure care permit, if needed. 6 CCR 1007-3 264.92 indicates that the RFP must comply with a ground-water protection standard, specified in the facility permit, to insure that concentration limits of hazardous constituents are not exceeded.

CDH MEETING MINUTES:

3. A specific number for the ground-water monitoring standard was not stated to avoid choosing a number that would change. Rockwell will submit a standard for CDH approval and incorporation into the closure plan.

RESPONSE:

Section 3.4 (Ground Water) of the closure plan addresses ground water and ground-water protection, with the understanding that ground-water protection does not appear warranted at this time. The circumstances under which ground-water monitoring and protection would be necessary are also explained. Ground-water protection standards are also presented in conceptual form, due to ongoing discussions regarding the concept and implementation of Applicable Relevant and Appropriate Regulations (ARARs). This ground-water discussion is presented in the closure plan appears complete in response to the CDH comment.

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- 4a. A reasonable estimate of the amount of waste remaining in Tank #4 should be provided. This should be indicative of the volume of residue remaining the tank and attached lines. 6 CCR 1007-3 265.112(b)(3) indicates the need for a detailed description of removal, transportation, treatment, storage and disposal methods of all hazardous waste residues, contaminated containment system components, equipment, structures and soils. Page 34 of the Closure Plan indicates that any residual tank sludge "will be observed, characterized and removed....prior to approval of the closure plan by CDH." Explain how the residual waste will be observed and characterized, and how it will be disposed.

CDH MEETING MINUTES:

- 4a. The remaining point of question was why Rockwell did not quantify the residual tank sludge. There is no observation or sampling port in the tank. It will be sampled when excavation to the manhole in the middle of the tank has made it possible to sample the residual sludge.

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RESPONSE:

Pages 30 and 43 of the closure plan describe the steps necessary to identify the amounts of waste in the tank and how the waste will be characterized and disposed. The fact that the tank was emptied of contents is noted on pages 7, 24 and 42. A description of how and when any residual contents would be characterized and the amount estimated is provided in the closure plan. If an estimate must be made with a complete lack of data, a maximized estimate of 11 cubic feet could be inserted into section 2.2 of the closure plan. However, the actual volume of remaining residuals will be determined as a portion of the necessary closure actions.

The characterization of the waste will follow the procedures described in Section C of the RCRA Part B Permit Application for Hazardous and Low-Level Mixed Waste. Pertinent portions of Section C are included in the closure plan as appendices. There is nothing unique regarding the tank that necessitates special waste analysis plans be prepared.

Disposal of any residual tank contents will be as described in section 2.3. Part 45 of the closure plan identifies the facility that will handle and dispose of any residuals in the tank.

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The residual waste volume will be estimated and the waste sampled for characterization purposes through the manway shown in the middle of the tank based upon engineering design drawings. This manhole is buried, but it will be excavated and opened, if it exists. If the manhole does not exist, a hole will be sawed in the top of the tank and the tank entered for necessary work. This information can be incorporated into section 3.0.

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- 4b. Explain how management and disposal of any excavated contaminated soil will vary depending on contamination type (VOC, radiation, etc.) (page 33)? Include potential scenarios for the types of soil contamination which may be present at the site.

CDH MEETING MINUTES:

- 4b. Detailed description of management and disposal of excavated contaminated soil is requested by CDH and EPA. Section C of the Part B permit application is incorporated into the closure plan as an appendix. It includes all of the sampling and analysis techniques. A description of the decision points is presented in the characterization and sampling plan. CDH and EPA want to stepwise detailed description of the entire process without referencing other sections or appendices, and without information on sampling techniques and analysis that will not be used in this closure plan. A sampling technique for plutonium in surface soils is not included in the closure plan, but it was agreed that it should be.

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RESPONSE:

Section 3.2.1 (Soil Characterization Prior to Tank System Removal) and Section 3.2.2 (Soil Characterization During Tank System Removal) describe in detail the management and disposal of soil based upon its characterization. All reasonable possibilities with regard to soil characteristics, based upon tank history and wastes managed in the tank, are addressed in the closure plan.

The circumstances under which the soil will be considered a hazardous waste are specifically identified, along with management and disposal of such soil in Section 3.3.3 (Tank and Soil Packaging and Disposal). If the soil does not qualify as a hazardous waste, special disposal methods are not discussed due to the material not being RCRA regulated. If the soil contains petroleum products, and does not qualify as a hazardous waste, the disposal method is not specified due to the waste not being RCRA regulated, but all applicable regulations will be followed with regard to the disposal of such soil.

No radioactive contamination of the soil is expected, as discussed on page 53 of the closure plan, due to past uses of the tank. Radionuclides are included in the soil characterization for completeness.

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- 4c. Also, explain how rinsate obtained from tank decontamination will be processed if RFP determines that this rinsate is a hazardous waste according to 6 CCR 1007-3, Section 261.3(a)(2)(iv)(D).

CDH MEETING MINUTES:

- 4c. An explanation of how to process rinsate water was requested. The water will be processed through the Rocky Flats process waste system as a hazardous waste if it meets the definition of a hazardous waste, as it is expected to. If the rinse water is not hazardous, it could be processed through the process waste treatment system, depending upon its characteristics. The process waste treatment system is described in the RCRA Part B permit application.

RESPONSE:

Section 3.3.3 (Tank Decontamination and Disposal Procedures) can be revised to specifically address the disposal of rinsate water from tank decontamination. The water will be processed through the Rocky Flats process waste system as a hazardous waste if it meets the definition of a hazardous waste, as it is expected to. If the rinse water is not hazardous, it could be processed through the sanitary wastewater treatment system of the Rocky Flats Plant, but may be treated through the process waste treatment system, depending upon its characteristics. The process waste treatment system is described in the RCRA Part B Permit, and can be incorporated into this document if necessary. It is not currently deemed to be necessary to include this description in the closure plan.

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5. The scale drawing of Tank #4 and the associated piping should include the location of the east-end vertical pipe which was used to add solvents to the tank. This drawing is also unclear as to pipe origination. The drawing should make clear that the one easterly line originates from Tanks 1 and 2 outside Building 551, while the four westerly lines connect to Building 443. Explain how the tank heater and centrifugal pump (auxiliary equipment) will be disposed if tank contamination is found and decontamination procedures do not meet the closure performance standard. Explain if the auxiliary equipment will be disposed along with the tank and associated lines, as described in the Closure Plan Section 3.3.3.

CDH MEETING MINUTES:

5. More detail of piping to other buildings and tanks, and for adding solvents to the tank was requested on the scale drawing of Tank #4. Description of the method of disposing auxiliary equipment was requested. The drawing detail will be provided. The auxiliary equipment will be handled similarly to the tank and associated piping.

RESPONSE:

The requested information can be incorporated into the closure plan in the appropriate sections. Briefly, the auxiliary equipment will be handled similarly to the tank itself.

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6. 6 CCR 1007-3 265.115 requires closure certification requirements within 60 days of closure completion, not "when closure is completed," as stated in Closure Plan Section 6.1.

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CDH MEETING MINUTES:

6. Closure Plan Section 6.1 can be amended to specifically identify that closure certification must be completed within 60 days.

RESPONSE:

The editorial text and quote of Section 6.1 can be amended to specifically identify that closure certification must be completed within 60 days of closure completion.

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7. The vicinity map on page 2 should include the location of the cities of Broomfield and Arvada. These communities are cited in the Closure Plan Section 1.1.1. as being 9 to 12 miles from the RFP, along with the cities of Boulder and Golden which are included on the map.

CDH MEETING MINUTES:

7. The vicinity map on page 2 can be revised to include the locations of Broomfield and Arvada.

RESPONSE:

Figure 2 will be revised to include the locations of Broomfield and Arvada.

PRELIMINARY RESPONSES TO OCTOBER 16, 1988
CDH LETTER ON THE CLOSURE PLAN FOR
THE CONTAINER STORAGE FACILITY

These preliminary responses are provided in the order discussed in the referenced letter. These are responses to the interpreted meaning of the comments for internal discussion, and possibly for use in a meeting with the CDH or EPA.

CDH OCTOBER 16, 1988 COMMENT:

- 1. The vicinity map (Figure 1 on page 2) should include the location of the cities of Broomfield and Arvada. These communities are cited in the Closure Plan Section 1.1.1 as being 9 to 12 miles from the Rocky Flats Plant (RFP), along with the cities of Boulder and Golden, which are included on the map.

CDH MEETING MINUTES:

- 1. The vicinity map on page 2 can be revised to include the locations of Broomfield and Arvada.

RESPONSE:

Figure 2 will be revised to include the locations of Broomfield and Arvada.

CDH OCTOBER 16, 1988 COMMENT:

- 2. The geologic cross sections presented with the closure plan contain only superficial information and do not provide details of the geologic setting present beneath each of the units undergoing closure. The lack of detailed knowledge about the specific geology underlying the closing units may hinder the determination of potential contamination extent. If evidence of contamination is revealed, the post-closure plan must include a detailed geologic setting for any regulated units which cannot be clean closed and are

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 By BARBARA DE WINTER
 Date 1-16-89

subject to closure as a landfill under 6 CCR 1007-3, Section 265 Subpart N.

CDH MEETING MINUTES:

2. Geological Cross Sections, Figure 6, is developed from one boring, therefore does not have adequate supporting data, some major assumptions were made. Its limitations are presented on the drawing. The cross section will be revised to include data as it is acquired according to the sampling plan.

RESPONSE:

Additional geological characterization is not currently felt to be required, but will be conducted for this specific unit if found necessary. An updated response will be presented as more data is acquired according to the sampling plan.

CDH OCTOBER 16, 1988 COMMENT:

3. Section 1.3.3 indicates a total of 460 drums stored at the Property Utilization and Disposal (FU&D) Drum Storage Area over its operating life. However, with 20 drums accumulating each year from 1974-1977, and 50 drums yearly from 1978-1985, the total number of drums consequentially raises the total container storage capacity, shown in Section 1.3.4, from 25,300 to 26,400 gallons. Estimated storage capacity is probably also too low for the Swinerton and Walberg (S&W) Contractor Storage Yard. This unit had the potential to contain much more than the 1,965 gallons of waste which were estimated for 1985.

CDH MEETING MINUTES:

3. The correction in the number of drums stored at the Property Utilization and Disposal Drum Storage Area is appropriate - 480 is more accurate than 460. The number of samples in the west area of the FU&D Drum Storage area may be increased.

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RESPONSE:

The closure plan will be revised to indicate 480 drums stored at the PU&D Drum Storage Area. The increased number of drums will be reflected in Section 1.3.4 to indicate 26,400 gallons of storage instead of the reported 25,300 gallons. The number of samples in the west area of the PU&D Drum Storage area will be reviewed and increased appropriately based on the increased storage volume. The storage capacity of the Swinerton and Walberg (S&W) Contractor Storage Yard will be reviewed. Based on the current information, there is no reason to conclude that there is an increase in the storage capacity at the S&W yard.

CDH OCTOBER 16, 1988 COMMENT:

4. Explain the "administrative controls" which would be expected to prevent any radioactive contamination from occurring in the PU&D yards and at the other container storage units. Describe the quality assurance program for insuring the absence of radioactivity in the container storage areas.

CDH MEETING MINUTES:

4. CDH and EPA want more detail on Administrative Controls which should prevent any radioactive contamination from occurring in the PU&D yards.

RESPONSE:

Administrative controls to prevent any radioactive contamination from occurring in the PU&D yards and at the other container storage units will

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be provided based on current plant policies. The revisions will include more detail as requested.

CDH OCTOBER 16, 1988 COMMENT:

5. 6 CCR 1007-3, Section 256.112(b)(3) requires "an estimate of the maximum inventory of hazardous wastes even on-site over the active life of the facility." For the S&W Building 980 Container Storage Facility, Section 1.4.3 indicates that "the maximum number of containers stored at any given time was ten." However, Section 1.4.7 states that "as of March 1988, the area contained approximately 35 drums." Explain the discrepancy, and provide an updated storage capacity for the unit.

CDH MEETING MINUTES:

5. The discrepancy in quantifying the number of waste drums at the 980 S&W site lies in that most of the drums stored did not contain waste. The area is going through RCRA closure due to activities in 1986 and earlier, whereas the reference to drums causing confusion came from a Spring 1988 site visit. These locations will be further characterized.

RESPONSE:

Not all of the drums stored in the yard in the Spring 1988 contained hazardous waste. Section 1.4.3 can be revised to indicate that "the maximum number of containers of hazardous waste stored at any given time was ten."

CDH OCTOBER 16, 1988 COMMENT:

6. Avoid words like "should" or "might." For example, Section 1.4.6 indicates that wastes stored in the drums "Should not have contained radioactive contamination." 6 CCR 1007-3, Section 265.13 requires

"a detailed chemical and physical analysis of a representative sample of the waste." The May 1985 analysis obtained from the drums stored in both the S&W Building 980 Container Storage Facility and the PU&D Drum Storage Area indicates that a gamma scan was performed, but not an alpha or beta scan. Explain how the composite sample was adequately characterized given the absence of these scans.

CDH MEETING MINUTES:

6. Words like "should" or "might" are not appropriate in a closure plan. Positive statements of the situation should be made. This is a problem with Rockwell's consultants, which is being corrected by Rockwell.

RESPONSE:

Words such as "should" or "might" will be changed in the revised closure plan where they pertain to a commitment, but not where the meaning is changed. The example cited from Section 1.4.6, the wastes stored in the drums "should not have contained radioactive contamination" is an example where a definitive statement would change the meaning. In this instance, the characterization data available on the wastes stored in the drums was not specific towards radioactive contamination and does not permit a definitive statement regarding its presence. Therefore, the statement made regarding what should have been stored in the drums is supportive of the concept of closure.

CDH OCTOBER 16, 1988 COMMENT:

7. The maximum container storage capacity for the Building 885 Drum Storage Area should be 20 drums for each of the two sides of the

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storage area, or 2,200 gallons. The maximum storage capacity for the other container storage facilities is also potentially much different than the amount of wastes cumulatively stored at the individual units at any given time. This is due to the drums being cycled in and out over the operational lifetime of the closing units.

CDH MEETING MINUTES:

7. Calculational errors in the quantities of waste in the Building 885 Drum Storage Area and other storage areas should be recalculated.

RESPONSE:

The maximum storage capacity will be recalculated and the closure plan revised accordingly.

CDH OCTOBER 16, 1988 COMMENT:

8. Explain whether drums in the Building 885 Drum Storage Area were at one time stored on pallets directly on the ground before the ground surface in the east and west sections was covered over with concrete. Sections 1.6.5 and 3.1.1 are contradictory and the long-term storage history is unclear. If drums were at any time stored directly on the ground surface, then soil samples from under the concreted slab must be obtained. In this instance the sampling procedure for Building 885, as described in Appendix 2, page 20, is inadequate. This unit is also identified as SWMU 177 in the 881 Hillside RI/FS, and is not considered a potential source of ground-water or surface-water contamination. However, Section 1.6.7 notes evidence of "staining on the ground surface," and Section 1.6.5 indicates the lack of containing berms around the storage area. Explain the contradiction in these two reports.

CDH MEETING MINUTES:

8. The drums stored in the Building 885 Drum Storage Area were always stored on concrete, not directly on the ground. Therefore, sampling underneath the concrete is not appropriate. Clarification between the description of SWMU 177 in the Building 881 RI/FS and its

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description in the closure plan is needed. The RI/FS states that SWMU 177 is not a potential source of ground-water or surface-water contamination, but the closure plan describes staining on the ground surface, and the area's lack of berms for containment. The documents will be cross-checked.

RESPONSE:

The subject drums were always stored on concrete; therefore, no soil sampling will be conducted below the concrete slab. Clarification will be provided in the response regarding the description of SWMU 177 in the 881 Hillside RI/FS. Evidence of "staining on the ground surface" and lack of containing berms is not necessarily a contradiction to the RI/FS statement that SWMU 177 is not a potential source of ground-water or surface-water contamination. No coordination of the cleanups is planned, and as stated by the CDH in previous meetings, there can be no overlap of RCRA closure and the Low Priority SWMU programs.

CDH OCTOBER 16, 1988 COMMENT:

9. Explain your source for the review of 90 day accumulation storage in the Building 865 Drum Storage Area. Section 1.8.1 references J. Norris, 1988, while Section 1.8.7 references J. Norris, 1986 and the U.S. DOE, 1987A. Section 1.12 references 40 CFR as the source for identifying the maximum extent of operation for a closure plan. As the Rocky Flats Plant falls under the jurisdiction of the Colorado Code of Regulations, the corresponding section of 6 CCR 1007-3, should be the reference cited.

CDH MEETING MINUTES:

9. This comment pertains to some incorrect references which should be corrected.

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RESPONSE:

Code references in the revised closure plan will cite the appropriate Colorado Code of Regulations. The references will be revised.

CDH OCTOBER 16, 1988 COMMENT:

10. 6 CCR 1007-3, Section 265.113(b)(2) indicates that in order for the Department (CDH) to approve an extension of the 180-day closure period, the owner/operator must have taken and continue to take "all steps to prevent threats to human health and the environment." The inclusion of the general monitoring and security procedures at the plant, taken from the 1986 "Annual Environmental Monitoring Report" does not specifically address the protection of human health and the environment at the unit(s) that are not operating that are undergoing closure. Explain the unit-specific procedures RFP will use in order to prevent threats to human health and the environment.

CDH MEETING MINUTES:

10. Schedules of the closure and the protection of human health and the environment were once again discussed, see 2a. above. A case must be made for each specific site to go beyond the 180-day limit for closure. The schedules must be reconsidered - CDH intends to issue the plans for public comment, not to have Rockwell/DOE revise them.

RESPONSE:

AA basic discussion of the protection of human health and the environment is provided in the existing closure plan, Section 1.14.4 (Justification for Extension of Schedule). This basic discussion could be updated to more specifically address the actions taken at this unit to protect human health and the environment. Specifically, removing any stored hazardous waste, sampling the soils in the storage area, the installation of

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monitoring wells if necessary, and the ground-water monitoring between the storage yard and off-site areas of the plant.

CDH OCTOBER 16, 1988 COMMENT:

11. The floor screening survey for removable beta-gamma radiation, from Section 3.2.2.2, must be stated as 1000 dpm/100 square centimeters, and not "less than the activities defined in Table XII." The beta-gamma screening level for fixed contamination must also be explicitly stated and not referred to as "less than those defined in Table XII" where various values are given. Radioactive Contamination levels are based on ALARA, or "as low as reasonably achievable." The values presented in Table XII are the maximum acceptable, and efforts must be made to reduce values further.

RESPONSE:

The closure plan will be revised to state specifically that removable beta-gamma contamination must be less than 1000 dpm/100 square centimeters, as shown in the Summary of Acceptable Surface Contamination Levels, Table XII. The beta-gamma limits for fixed contamination are also summarized in the table and will be explicitly stated in the revised text.

CDH OCTOBER 16, 1988 COMMENT:

12. The sampling methods presented in Appendix 4, "Rinsate Sampling Methods" do not specifically address the sampling and analysis of rinsate. Likewise, the soil sampling method presented in Appendix 7 does not address the sampling of soils found within the areas of potential contamination. Generic methods are not appropriate in these cases and sampling methods specific to the investigation must be included.

RESPONSE:

Specific soil sampling methods will be incorporated in Appendix 2 of the response, combining applicable portions of Appendix 7. Similarly, specific rinsate sampling methods will be presented where applicable.

CDH OCTOBER 16, 1988 COMMENT:

13. Section 5.1 states that ground-water monitoring will be provided if contaminated soils are encountered all the way to the water table. Ground-water monitoring will also be required under a Part 264 Post-Closure Care Permit if the container storage units cannot be "clean-closed" but must be closed as a landfill. 6 CCR 1007-3, Part 264, Subpart F indicates that a ground-water monitoring system must consist of at least "a sufficient number of wells installed at appropriate locations and depths to yield ground-water samples from the uppermost aquifer." Section 5.1 of the closure plan states that "three downgradient monitoring wells and one upgradient well will be located at each container storage facility requiring ground-water monitoring." These numbers from Part 265, are not absolute standards, and will be subject to refinement by CDH, dependent on the extent of the contaminant plume and the site-specific geology and hydrogeology of the individual container storage area.

RESPONSE:

The closure plan response will be revised to indicate that the proposed ground-water monitoring (consisting of three downgradient monitoring wells and one upgradient monitoring well), if required, is a minimum program which will be revised as necessary based on the extent of the contaminant plume and the site specific geology and hydrogeology. In any case, the final monitoring plan will be submitted to CDH for approval prior to its implementation.

CDH OCTOBER 16, 1988 COMMENT:

14. 6 CCR 1007-3, Section 264.94 Table I provides a ground-water protection standard for certain constituents. If the constituent of concern is not presented in this table, then the performance standard is background according to Section 264.94(a)(1). However, an alternate concentration limit can be granted by CDH. RFP has proposed that the ground-water protection standard be the highest of: background, drinking water standards, proposed drinking water standards, maximum contaminant levels (MCLs) or Colorado Pollution Discharge Elimination System (COPDES) permit discharge limits. If ground-water monitoring is deemed necessary at any of the container storage sites, RFP will select a ground-water protection standard, subject to approval by CDH. This standard will be included in the post-closure permit.

RESPONSE:

Ground-water protection standards are presented in Appendix 2, Section 5.2, with the understanding that ground water protection does not appear warranted at this time. Background criteria will be presented in a comprehensive plant study currently being prepared by Rockwell International. If ground-water monitoring is necessary at any of the container storage sites, a specific protection standard will be submitted to CDH for approval, and will be included in the post-closure permit. The circumstances under which ground-water monitoring and protection would be required are explained. Ground-water protection standards are also presented in conceptual form due to ongoing discussions regarding the concept and implementation of Applicable, Relevant, and Appropriate

Regulations (ARARs). The ground-water discussion as presented in the closure plan appears complete in response to the CDH comment.

CDH OCTOBER 16, 1988 COMMENT:

15. 6 CCR 1007-3, Section 265.115 requires the certification of closure by an independent registered professional engineer. This engineer must be present during operations which are essential to the closure of each individual unit. Soil sampling operations, as well as contaminated soil removal and concrete decontamination, are key operations to closure certification and must be monitored by the certifying engineer.

RESPONSE:

The closure plan will be revised to include observation of portions of the soil sampling by the certifying engineer for closure certification of each unit.

CDH OCTOBER 16, 1988 COMMENT:

16. The list of sampling indicator parameters, presented as Table II in Appendix 2, may be sufficient to characterize the soils. However, if the photoionization detection (PID) or organic vapor analysis (OVA) screening of the sample material registers positive, and none of the indicator organics can be identified in concentrations high enough to account for the PID or OVA levels, then analysis for the volatile and semi-volatile organics on the Hazardous Substance List (HSL) must be performed.

RESPONSE:

The target parameters were selected to identify soils contaminated by potential releases in the storage areas based on sample analyses of the containerized wastes and knowledge of hazardous materials stored.

Criteria defining soil contamination is presented for the target parameters. The closure plan will be revised to indicate that analytical analyses will be conducted to evaluate all volatile and semi-volatile compounds on the HSL, which will include all of the target compounds. The complete laboratory results will be presented to the CDH for review.

CDH OCTOBER 16, 1988 COMMENT:

17. State your rationale in deciding whether to conduct gross alpha and/or gross beta radiation surveys in conjunction with FIDLER surveys for gamma radiation. The surveys to be used must be explicitly stated within the closure plan. As mixed waste was potentially stored at these units, alpha, beta and gamma assessments may be necessary in order to independently identify the presence of radiation.

RESPONSE:

Appendix 2, Section 4.2.2 discusses the procedure for direct radiation survey of the container storage areas during the Phase I characterization. The closure plan response will indicate all three radiation parameters (gross alpha, gross beta, and gamma) will be evaluated in the survey using field instrumentation. The procedures for the radiation survey will be in accordance with the Rocky Flats Radiation Monitoring Procedures Manual.

CDH OCTOBER 16, 1988 COMMENT:

18. 6 CCR 1007-3, Section 265.112(b)(4) requires a detailed description of the procedures for testing and sampling surrounding soils, and

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the criteria for determining the extent of decontamination necessary to satisfy the post-closure standard. RFP has proposed a 70 percent probability of locating contaminated areas under the random systematic sampling program. This value does not necessarily represent a high enough probability for finding potential contamination sources, especially since the radius of contamination is based on the total number of drums estimated to be added per year. This approach can easily miss small areas (one or two drums) of contamination particularly in the soil sampling grid locations for the Building 444/453 Drum Storage Area.

RESPONSE:

The closure plan will be revised to indicate that the soils will be removed for the first "lift" over the entire area of the Building 444/453 Drum Storage Area.

The 70% probability refers to finding contamination of the defined minimum area using only the unbiased, random systematic grid sample locations. The sampling plan includes both biased (stratified sampling based on the results of the Phase I surveys) and unbiased sampling. The combination of the two sampling approaches in each container storage area increases the overall probability by an undetermined amount.

If the Phase II soil sampling, as discussed in Appendix 2, Section 4.3, indicates soil contamination is present, further soil analyses (Phase III) will be conducted to define the extent of contamination and to determine further actions as discussed in Section 4.5. The additional

sampling will be conducted to identify contamination at a 90% confidence level. If required, the Phase III soil sampling plan will be developed and submitted to the CDH for approval within 30 days after determining Phase III sampling is required. The Phase III soil sampling plan will become part of the revised closure plan.

CDH OCTOBER 16, 1988 COMMENT:

19. The "rule of thumb" soil sampling method which consists of 16 samples, does not provide an adequate program for locating and identifying potential contaminated areas in the S&W Storage Yard, an area of almost 75,000 square feet. Several large areas of the storage yard, most of which are located in historical locations of material storage (Figure 8, page 36), are without sampling locations. The sampling plan for the S&W Storage Yard must address all areas of the yard, particularly areas of known storage. This sampling program should be in conjunction with the sampling of both the soil-stained area and the sites of known material storage during 1985.

RESPONSE:

The soil sampling in the S&W Contractor Storage Yard will include both random systematic sampling, and stratified sampling. The random systematic sampling will be comprised of 16 samples in a random grid pattern as discussed in Appendix 2, Section 4.3.4. The selection of 16 samples for random systematic sampling in the S&W Contractor Storage Yard is a rule-of-thumb-number based on statistical significance. In addition, 11 samples will be taken at the locations of identified hazardous material storage shown on Figure 8, page 36 of the closure

plan. One sample will be taken in the one area of observed soil staining. Therefore, a total of 28 soil samples will be taken by these three rational approaches to represent soil characterization for the storage yard.

CDH OCTOBER 16, 1988 COMMENT:

20. The background soil sampling section of Appendix 2 (page 13) indicates that "nine soil borings within one background soil plot will be made." The location of the background soil plot as well as the placement of the borings must be indicated within the closure plan.

RESPONSE:

The issue of background contamination will be addressed separately in a plant wide comprehensive study and report currently being prepared by Rockwell International. The container storage facility closure plan will be revised to reference this study, and delete reference to a specific background soil sampling program as indicated in Appendix 2, Section 4.3.3.

CDH OCTOBER 16, 1988 COMMENT:

21. The determination of the vertical extent of contamination must not be limited by the ground-water table, as is stated in Appendix 2, Section 4.5. Borings should be extended until uncontaminated materials are reached, and not just until the ground-water table is encountered.

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RESPONSE:

Appendix 2, Section 4.5 will be revised to indicate that the vertical extent of contamination will be determined by extending the borings to uncontaminated material as determined by field monitoring at the time of drilling. The depth of drilling will not be limited by the ground-water table.

CDH OCTOBER 16, 1988 COMMENT:

22. If RFP "reserves the right to send samples off site for analysis or to substitute equivalent methods," as is stated in Appendix 5, the alternate methods must be submitted to CDH for approval prior to their use by the facility. Trip and field blanks should always be taken in order to assure the accuracy of reported results. Explain how the Quality Assurance/Quality Control Procedures for the taking of trip or field blanks, found in Appendix 6, "will increase personnel chemical or radioactive exposure above ALARA levels."

RESPONSE:

Alternate off-site locations and methods of sample analyses will be submitted to CDH for approval prior to implementation.

Sampling for site characterization at the container storage facilities, including field and trip blanks, will not involve personnel exposure above ALARA levels. Potential exposure above ALARA levels applies to sampling in "glove boxes and other controlled atmosphere environments", as stated in Appendix 6. Field and trip blanks obtained during the

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course of this closure plan will not increase personnel chemical or radioactive exposure above ALARA levels. Field and trip blanks will always be taken to assure the accuracy of reported results.

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