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To: Ken Kalman

Company: U.S. Nuclear Regulatory Commission

Subject: RESPONSE TO NRC COMMENTS - DECOMMISSIONING
PLAN

FAX. No.: 301-415-5398

FROM: Jess Larsen
Vice President
Telephone 405-270-2288

OF: Cimarron Corporation

MESSAGE:

Ken,

Attached herewith are Cimarron Corporation's responses to NRC staff's July 11, 1996 comments on the Cimarron Decommissioning Plan. The original and hard copies are being transmitted to you through the typical mail system.

Regards,

Jess Larsen
Attachment

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CIMARRON CORPORATION

P. O. BOX 25861 • OKLAHOMA CITY, OKLAHOMA 73125

S. JESS LARSEN
VICE PRESIDENT

September 10, 1996

Mr. Ken Kalman, Project Manager
Facilities Decommissioning Section
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001


**Ref: Docket No. 70-925; License No. SNM-928
Cimarron Corporation
Response to NRC Staff Comments of July 11, 1996 on Decommissioning Plan**

Dear Mr. Kalman:

Please find attached Cimarron Corporation's response to the NRC staff's comments issued July 11, 1996 on the "Radiological Characterization Report (dated October 1994)" and "Decommissioning Plan (dated April 25, 1995)."

If further discussion or clarification is needed on any of the matters addressed, please feel free to contact me at (405)270-2288.

Regards,


S. Jess Larsen
Vice President
Attachment

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**CIMARRON RESPONSE TO
NRC Staff Comments Dated July 11, 1996
on the "Decommissioning Plan for Cimarron Corporation's
Former Nuclear Fuel Fabrication Facility
(at) Crescent, Oklahoma"**

General Comments

#1. NRC Comment

Amendment 10 to License SNM-928 approved onsite disposal of BTP Option 2 material at one specific location only. NRC's November 4, 1994, letter approving Amendment 10 specifically states that "Any other proposal to dispose of contaminated material on the Cimarron site will be evaluated on its own merit." Other areas on the Cimarron site, such as the former waste ponds, have not been specifically approved as Option 2 disposals. The appropriate limits for these areas will be determined as a part of the decommissioning plan review. For clarification, and to facilitate NRC's review, please identify all areas on the Cimarron site, other than the onsite disposal areas approved in Amendment #10 to license SNM-928, where Cimarron Corporation proposes to apply the BTP Option 2 criteria. Will the material in these areas be under at least four feet of clean soil?

RESPONSE:

Cimarron Corporation is not "proposing to dispose of contaminated material (i.e. Option #2) at any location on the Cimarron site" other than the area designated and approved by the NRC in Amendment No. 10 to License SNM-928. The five former waste ponds including Waste Ponds #1 & #2, which are referenced in your comment, were remediated and closed in accordance with all regulatory requirements which were in place in 1978 (see Section 12.0 of the Cimarron Radiological Characterization Report and Section 2.0 of the Cimarron Decommissioning Plan). The State of Oklahoma and the NRC approved the remediation (waste was solidified, packaged and shipped off-site for disposal leaving only affected soils resulting from solution leakage) and closure of the former waste water ponds. Cimarron Corporation maintains that the former waste water ponds, and specifically Waste Ponds #1 & #2 were remediated and closed with State of Oklahoma and NRC approval in 1978 and are therefore not "Option 2 Disposals". Furthermore, the NRC Branch Technical Position (BTP), "Disposal or Onsite Storage of Thorium or Uranium Wastes from Past Operations" was not issued until October 1981, well after closure of the former waste ponds.

The NRC's suggestion that Cimarron Corporation "re-address" the former waste ponds, including Waste Ponds #1 & #2, under the 1981 BTP criteria causes significant concern to Cimarron Corporation. In SECY-91-398A, the NRC makes the following statement:

"Although Uranium Waste Ponds #1 and #2, in particular, may have concentrations of uranium contamination which exceed current guidelines for release for unrestricted use, the ponds appear to have been closed in accordance with all procedures and requirements in effect in 1978. Even though the license itself was not terminated in 1978, it would conform to the principles of the policy on finality expressed in the Action Plan enclosed with SECY 92-106 to not reopen this issue."

Irrespective of the above both NRC and Cimarron discussed at length and agreed that it would be preferable to end up with a site that had uranium concentrations no greater than BTP Option 2 criteria in any location. Higher concentrations would be removed if identified in Cimarron's survey and clean-up program. Therefore, Cimarron Corporation agreed to gather additional characterization data, as requested by the NRC in the 1993 letter from Mr. Jerry Swift, Section Leader to Dr. Edwin Still, Kerr-McGee Corporation, in order to better characterize these areas and their greater than Option 2 potential affected soils. Cimarron Corporation is performing this extensive characterization just as they have performed many other tasks which "went the extra mile" throughout the entire decommissioning process. Accessible areas of U-Ponds #1 and #2 were cored and sampled in 1993. Sampling was performed on a 10 m x 10 m grid. This data was presented in the Characterization Report.

Cimarron Corporation is performing additional soil sampling in the former Waste Ponds #1 and #2 areas to further characterize the areas that were previously inaccessible and to fill in the 10 m x 10 m grid. This overall characterization program will result in a sampling frequency equivalent to, and in some cases greater than, that recommended for affected areas as described in NUREG/CR-5849 (i.e., 5 m x 5 m grid intersects). In several locations, additional samples are being collected to depth to increase the frequency of collection even further. In any event, the goal has always been to identify greater than Option 2 concentration areas and remove them.

Cimarron has worked closely with the NRC throughout the overall site decommissioning process believing that "closure" meant "closure." Discussions of the previously closed and released areas were always to leave Option 2 materials in place and remove the higher concentrations. Cimarron Corporation has proposed those actions for the previously

closed areas in its Decommissioning Plan. NRC has endorsed those objectives until just recently.

Cimarron cannot understand why NRC is now raising the issue of re-addressing Waste Ponds #1 and #2 some 15 years (1978 to 1993) after NRC/State of Oklahoma approval of their closure, and 12 years after issuance of the 1981 BTP in the context of approving the areas as new Option 2 burial areas. It now appears that the achievement of license termination (i.e. finality) is a moving target that can never be attained.

The NRC has further stated that if the Cimarron Decommissioning Plan is approved prior to the issuance of the "new rule" (sometime in 1997), then the Cimarron site will not be subject to any requirements of the "new rule". We hope this is true.

#2. NRC Comment

The Commission in an October 30, 1992, Staff Requirements Memorandum directed the NRC staff to "treat in the same manner and apply the same criteria to buried contamination in the area of the former waste ponds as will be applied to the waste materials in other locations on the site." The criteria that the staff applied to the Option 2 disposal that was approved in Amendment 10 included an evaluation of potential groundwater migration from the disposal area. Therefore, any of the areas on the Cimarron site where the Option 2 limit is applied should be evaluated for potential groundwater migration (See comment Number 4).

However, if the average contamination level in a former pond or burial is at or below 30 pCi/g, it may be acceptable to evaluate localized areas that are above 30 pCi/g in terms of hot-spot compliance and averaging criteria, as opposed to considering the former pond or burial an Option 2 disposal.

RESPONSE:

See response to NRC General Comment #1 above. As discussed in the Decommissioning Plan and in the response to Comment #1 above, Cimarron considers all five former waste water ponds closed. However, as discussed in the response to Comment #4 below, Cimarron has committed to evaluate present trends in groundwater and is in the process of drafting a report for this purpose. Cimarron believes that any impacts are residuals from past leakage since the sludges, the real source term, were removed, solidified, and shipped off-site at the time of closure.

#3. NRC Comment

The plan is vague in several areas as to what data will actually be used to demonstrate that unrestricted use criteria have been met, and whether the data will be provided in the final survey report. Please clarify what data will be supplied for each contaminated "unit." Specifically discuss what characterization data will be used, if any, to substitute for final survey data. If the proposed sample frequency, averaging criteria, or statistical treatment of the final survey data for a given affected or unaffected area differs from that recommended in NUREG/CR-5849, please provide a justification for the difference. This includes the frequency, etc., of characterization data if it is to be used to demonstrate compliance with unrestricted release criteria.

RESPONSE:

Cimarron does not believe the plan is vague, but rather that results from the great amount of data taken during the 20 years of decommissioning adds to the complexity of the presentation. In general, for both Phase II and Phase III areas, Cimarron Corporation has committed to follow the methodology prescribed in NUREG/CR-5849 for performing the Final Status Survey. The Final Status Survey is conducted after fairly comprehensive efforts have been made to identify, evaluate, and if necessary remove any areas of residual activity exceeding the guideline value. The Final Status Survey Reports for these two areas will include all necessary (and in many instances much more) data to support the final status survey and will also include an evaluation of the data presented.

#4 NRC Comment

The Decommissioning Plan does not address the groundwater contamination identified on the site. This issue was discussed in NRC's April 17, 1996, letter. From past correspondence and meetings, it is NRC's understanding that Cimarron maintains that the contaminated groundwater is in a non-potable aquifer. However, this was not presented in the decommissioning plan. NRC has not previously reviewed or approved a proposal for the Cimarron site related to the unrestricted release of areas with contaminated groundwater. Please provide additional information on the extent and location of groundwater contamination and Cimarron's position related to the unrestricted release of areas with groundwater contamination, including related information such as the State of Oklahoma's classification of the affected aquifer.

RESPONSE:

Cimarron Corporation has always known that groundwater impact issues resulting from its operations are to be addressed. Cimarron Corporation has provided Environmental Monitoring Reports for the NRC's review since 1970 as required by License SNM-928. In addition, the 1989 and 1990 "Site Investigation Reports" prepared by James L. Grant and Associates discussed at length the quality of groundwater on and around the site as they relate to the disposal cell hydrology. These reports were submitted as part of Cimarron's application for on-site disposal. Finally, Cimarron is in the process of compiling a comprehensive report updating the available information concerning the groundwater quality at the site. This report should be completed for submittal to the NRC by September 30, 1996.

Cimarron believes that the natural uppermost groundwater under the site is of such poor quality or quantity that the water cannot be considered a current or future water supply source. Much of that information was reported in the supporting documents delineating the now approved Option 2 disposal cell. Also, Cimarron believes that any groundwater that has been impacted by site activities is not a source of recharge to the underlying aquifer but instead, is discharged locally to surface seeps or shallow alluvium deposits containing naturally poor quality water.

Specific Comments**#5 NRC Comment - Page 1-5, Paragraph 2**

See General Comment #1.

RESPONSE:

See Response for General Comment #1

#6 NRC Comment - Page 1-7, Paragraph 3

Are the surface contamination criteria from NRC's "Guidelines for Decontamination of Facilities and Equipment Prior to release for Unrestricted Use or Termination of License for Byproduct, Source, or Special Nuclear Material," August 1987, being used for exterior paved surfaces? If so, please justify averaging over 100 m² as opposed to the 1 m² area recommended in the August 1987 guidance.

RESPONSE:

For exterior paved surfaces, the August 1987 surface contamination criteria from NRC's "Guidelines for Decontamination of Facilities and Equipment Prior to Release from Unrestricted Use" are being utilized by Cimarron Corporation. However, the activity is averaged over 100 m² as opposed to 1 m². NUREG/CR-5849 treats paved surfaces as open land areas (See "Open Land Surveys", NUREG/CR-5849, Section 4.2.3, page 4.16). Systematic grid surveys for open land areas are performed on a 10 m x 10 m grid as noted in Figure 4-4 (page 4.17) in NUREG/CR-5849. This treatment of paved surfaces as "Grounds" is also discussed in Section 4.3.7, page C-25 of NUREG/CR-5849.

#7. NRC Comment - Page 1-8, Paragraph 1

In a July 5, 1995, letter regarding the Phase I Final Survey Plan, Cimarron agreed to use an enriched uranium background concentration of 4 pCi/g. Please confirm.

RESPONSE:

In the July 5, 1995, letter to the NRC, Cimarron agreed to use an enriched uranium background concentration of 4 pCi/g. This letter was written after the submittal of the Decommissioning Plan to the NRC. Thus, the first paragraph of page 1-8 of the Cimarron Decommissioning Plan will be revised as follows:

"The average site background value for the total uranium concentration in soil as determined by the Cimarron soil counter is approximately 4 pCi/g. The total uranium concentration corresponding to 25% of the guideline value of 30 pCi/g is 7.5 pCi/g. This value is then added to the average background value for the Cimarron site to derive the corresponding limit of 11.5 pCi/g total uranium. Therefore, any total uranium concentrations in soil for unaffected areas which are greater than 11.5 pCi/g will be further investigated."

#8 NRC Comment - Page 1-9, Paragraph 1

The background exposure rate is stated as ranging from 7 - 10 μ R/hr. What value will be subtracted from field measurements to determine compliance with the exposure rate criterion?

RESPONSE:

The background exposure rate is stated as ranging from 7 - 10 $\mu\text{R/hr}$ due to the fact that different types of instruments have been utilized by different groups (i.e. Cimarron, ORISE, NRC, etc.) to obtain background readings. Although there is a range as would be expected, Cimarron conservatively used 7 $\mu\text{R/hr}$ as a background exposure rate and therefore this value of 7 $\mu\text{R/hr}$ will be substituted for the range listed in this section. This value will be utilized unless a different value is warranted due to changes in environmental variables (i.e., rock outcroppings). Background exposure rates are taken prior to performing a survey. The exposure rate recorded is noted on the data sheet for each specific survey.

#9 NRC Comment - Page 1-10, Paragraph 3

Is Cimarron basing the conclusion that NRC has released Uranium Warehouse Building 4 and yard only on the December 28, 1979 letter from NRC, or were final survey data submitted to NRC at a later date to demonstrate that the unrestricted use criteria have been met? If such data were not submitted in support of the release, then Cimarron should include this information as part of the termination survey in support of the release of the entire site.

RESPONSE:

Cimarron has not based its conclusion that the Warehouse Building #4 and Yard area were released by the NRC's December 28, 1979 letter. As required by this letter, follow up surveys were performed for both the Warehouse Building #4 and Yard Area. The history of these two areas is discussed in Section 6.3 of the "Final Status Survey Plan for Phase II Areas" and in Section 14.1 of the Characterization Report. The Final Status Survey data for this area will be included in the Phase II Final Status Survey Report for Subarea I.

#10 NRC Comment - Page 1-10, Paragraph 5

Cimarron should provide the survey results of the wet ceramic area excavated surface in the final survey report since the NRC only provided a verbal approval to backfill. Will the survey results for various other excavated areas be provided in the final survey report? If not, on what basis does Cimarron propose to demonstrate compliance with NRC's

decommissioning requirements and the suitability of these areas for unrestricted release?

RESPONSE:

First of all, Cimarron believes that NRC's verbal approval was based on their knowledge of the thoroughness and comprehensiveness of Cimarron's decommissioning methods and surveys. Areas like the Wet Ceramic Area were excavated to remove soil containing Option #2 or greater materials. Characterization work was performed throughout the excavation process to guide contaminated soil removal. At the completion of remediation, a final status survey was performed to demonstrate that the excavated surface met the unrestricted use criteria. (i.e., guideline value of 30 pCi/g total U). The Final Status Survey data for the Wet Ceramic area as excavated was presented in Section 14.2 of the Characterization Report. Confirmatory surveys were also completed by ORISE on June 22, 1992. The ORISE independent confirmatory radiological survey is discussed in their report entitled "Confirmatory Radiological Survey of the Wet Ceramic Area, Cimarron Corporation Facility, Crescent, Oklahoma - Final Report" dated July, 1993. Upon completion of this report and with approval from the NRC, the Wet Ceramic Area was backfilled. The backfill materials that were used were classified as background because they were excavated from an unaffected area on site and transported to the Ceramic Area for placement. In general, Cimarron has followed this basic methodology for other excavated areas in and around Uranium Building #1, including the Scrap Recovery Area and South U-Yard Area. With approval from the NRC, Cimarron backfilled the areas with the understanding that unrestricted use criteria had been met. A final status survey in accordance with NUREG/CR-5849 will be completed on these backfilled surface areas with the collection of surface soil samples as part of the Phase III Final Status Survey.

The supporting data demonstrating that both the surface and subsurface areas meet the unrestricted release criteria along with the applicable ORISE references will be submitted as part of the Phase III Final Status Survey Report.

#11 NRC Comment - Page 1-12, Paragraph 3

Will additional surveys be performed in the area north of Building #1 as a part of the final survey? Will existing characterization data be used to supplement the final survey data? Will the final survey include subsurface sampling?

The characterization data presented in Table 13.2 of the characterization report indicates contamination below four feet. NRC acknowledges that Table 13.2 shows very few samples above 30 pCi/g and no samples above 90 pCi/g. Nonetheless, the plan states that excavation was performed to a depth of "up to 4 feet." Will the subsurface areas below 4 feet be surveyed as a part of the final survey effort, or is Cimarron proposing to rely on existing data to demonstrate that the unrestricted use criteria have been met? If existing characterization data are proposed to be used to supplement or replace final survey data, please describe how the data will satisfy the guidance in NUREG/CR-5849 regarding statistical confidence level, averaging, and sample frequency. If a different protocol is proposed for the subsurface area, please justify.

If characterization data are to be used, will the data be presented in the final survey report? This comment applies to use of characterization data for other parts of the site as well.

RESPONSE:

The characterization data presented in Table 13.2 of the Characterization Report shows three samples above 30 pCi/g total-U (with background removed). This data represents characterization data that was utilized to plan the overall remediation of these areas. The three elevated samples at 160N, 140E; 160N, 130E and 160N, 120E are located below the DAP #4 Option #2 soil stockpile. Cimarron is relocating this stockpile to the licensed on-site disposal cell after receipt of the NRC approval letter dated August 15, 1996.

When the stockpile has been placed into the on-site disposal cell, further characterization and possible remediation of the subsurface will be performed which will include the locations of the three elevated samples. The data generated during this characterization and the final status survey will be presented in the Final Status Survey Report for Phase III.

In general, Cimarron Corporation performs detail characterization surveys prior to performing any remediation. Throughout the remediation effort, additional samples are collected to guide the excavation. The areas of elevated activity are excavated until total uranium soil concentrations are below the Option #1 guideline value. Excavation below 4 feet may be required. At the completion of excavation, a 100% surface scan is performed to determine if further surface sampling is warranted. Elevated areas are sampled again and remediated as required. Following the surface scan, the surface soils are sampled on a 5 m x 5 m grid for the final status survey. No further subsurface sampling is performed. The characterization data for the sampling performed prior to the remediation

effort is utilized to demonstrate that unrestricted use criteria has been met for areas not requiring remediation. The characterization data along with the final survey data will be presented in the final status survey report for the specific area under review.

#12 NRC Comment - Page 1-13, Paragraphs 4 and 5

Will subsurface samples be collected as a part of the final survey? Will the subsurface and surface frequencies be equivalent to that for an affected area?

RESPONSE:

Burial Area #3 and the Trash Incinerator Area are affected areas included in Phase III. These areas were characterized as discussed in Section 9.0 of the Characterization Report. The characterization data gathered for Burial Area #3 indicated several subsurface locations requiring further investigation and possible remediation. The entire Burial Area #3 has been recently remediated and the final status survey will be performed on a 5 m x 5 m grid. Surface soil samples and subsurface samples will be collected to depth for both areas during the final status survey. The results will be presented in the Final Status Survey Report for Phase III.

#13 NRC Comment - Page 1-15, Paragraph 2

What data will be submitted in the final survey report to demonstrate that the land areas affected by the drain lines meet the unrestricted use criteria. Will subsurface samples be collected? If the data frequency and treatment is different from the final survey commitments made by Cimarron for Phase III areas in Section 4 of the decommissioning plan, please justify.

The characterization report (Section 15) states that the drain line that was under the "eastern option 2 stockpile" remains to be excavated. Has this been completed? Will a survey be conducted?

Have all the drain lines shown on Drawing 85PRUT been excavated?

RESPONSE:

Affected areas containing previously removed drain lines have been or will be characterized and surveyed as required by NUREG/CR-5849. The data which demonstrates that the areas meet the unrestricted use criteria will be included in the Final Status Survey Report for Phase III.

The drain lines under the "eastern Option #2 stockpile" have been removed and a final status survey is currently being performed.

The drain lines shown on Drawing 85PRUT have been removed with the exception of the following:

- The section of the drain line located under the North-Western end of Warehouse Building #4 is still in place (the inside of the drain has been surveyed, see Characterization Report, Section 15.0). This drain line will not be removed as Building #4 will continue to be used by Kerr McGee Corporation for continued non-radiological uses.
- The operating sanitary sewer system, including septic tank, drains, and lateral lines are still in use. New PVC drains and lateral lines were installed after closure of the East and West Sanitary Lagoons. This system will be left in place as long as the existing offices and Building #4 are occupied.
- A section of the former sanitary sewer line located under the administrative offices has yet to be removed. This was a non-radiological sewer line. It will be removed if and when the existing administrative offices are demolished.

#14 NRC Comment - Page 1-15, Paragraph 4

Will plutonium analyses be performed to confirm the conclusion regarding the presence of plutonium in previous reservoir No. 1 water samples?

Drawing 95MOST_RF2 shows Reservoir No 1 as an affected area. Why is the drainage pathway that extends continuously from the uranium plant, which is the source of the contamination, to Reservoir No. 1 not classified as an affected area?

RESPONSE:

The sample referenced in this comment was collected in 1971. Cimarron Corporation believes that the elevated sample result was due to a combination of laboratory error and interference. Subsequent water samples collected confirm the conclusion that plutonium concentrations in the Reservoir are negligible. For example, the water samples collected between 1977 and 1980 ranged from 0.012 to 0.036 pCi/L Pu-239. No additional sampling for Pu is planned for Reservoir No. 1.

As included in the Phase II Final Status Survey Plan, Drawing 95 MOST_RF2 has been revised by Drawing 95 MOST_RF3 to include the drainage pathway that extends from the U-Plant to Reservoir No. 1 as a potentially affected area for enriched uranium.

#15 NRC Comment - Page 2-3, Paragraph 4

What is the status of the Plutonium Evaporation Pond and the portions of the plutonium and uranium Emergency Ponds that are located below the New Sanitary Lagoon? Will additional data be collected to characterize these areas? Will the data be consistent with the survey requirements for Phase III areas?

RESPONSE:

As discussed in the response to Comment #1 above, the five former waste water ponds were closed in 1978 by Cimarron after approval from both the State of Oklahoma and NRC. Cimarron considers these three ponds closed. Prior to closure of the East and West Sanitary Lagoons which were isolated in 1985, Cimarron constructed a New Lined Sanitary Lagoon to collect sanitary waste, laundry discharge and liquids from floor drains. The New Lined Sanitary Lagoon was constructed over the area previously occupied by the Plutonium Evaporation Pond as well as portions of the Plutonium and Uranium Emergency Ponds. The New Lined Sanitary Lagoon was constructed at an elevation below the areas occupied by the three original ponds. Additionally, a french drain was constructed below the New Lined Sanitary Lagoon to monitor groundwater for potential affects from the lined lagoon. The drain was sampled weekly during the duration of lagoon operation, and samples have shown no evidence of any residual contamination or liner leakage.

When the New Sanitary Lagoon synthetic liner was removed, the surface (soil) under the lagoon was surveyed in accordance with NUREG/CR-

5849. A 100% scan of the surface was performed, followed by direct exposure rate measurements and soil samples. This data is included in the Phase III, Subarea L (Subsurface) Report.

The Plutonium and Uranium Emergency Pond areas located outside the New Lined Sanitary Lagoon were sampled in accordance with NUREG/CR-5849 through the collection and analysis of both surface and subsurface soil samples. This data was presented in the Decommissioning Plan with Drawings No. 94PRESS-0 thru 94PRESS-4 and in the Phase III, Subarea L (Subsurface) Report Drawing No. 95PO3LSS-0. Phase III, Subarea L (Subsurface) Report has been reviewed by the NRC and Cimarron is currently drafting response comments.

#16 NRC Comment - Page 2-6

Why does the weighted average formula multiply the "non-elevated average" concentration by the fraction of elevated readings? Please justify this treatment or rewrite the formula.

Please describe the basis for the "maximum average allowable activity" equation on the bottom of page 2-6. How is this equation related to potential dose?

RESPONSE:

The weighted average formula as presented in the Decommissioning Plan had a typographical error. The formula should have been presented as follows:

$$x_w = OA[ON/(ON + NE)] + EV[NE/(ON+NE)]$$

Based upon the recent decision by Cimarron Corporation to gather additional subsurface characterization data for these two ponds, the equation for the "maximum average allowable activity" as presented in Section 2.1.2.b of the Decommissioning Plan will not be utilized. The 10m x 10m grid survey data for Waste Ponds #1 and #2 is being augmented with soil samples collected on a 5m x 5m grid intersect. In addition, locations containing elevated activities exceeding 200 pCi/g total U are being further characterized to determine the extent of the elevated activity. As discussed in the Decommissioning Plan, all soil sample locations noted to exceed 300 pCi/g total U will be remediated with the soil removed and packaged for off-site disposal. Soil removed from above the remediated area will be returned back into the excavation and compacted.

When all remediation work is completed, any remaining subsurface activity will be averaged (volumetric averaging in lieu of planer averaging) to determine the residual inventory for the two waste ponds. This volumetric averaging follows the intent of the 1981 BTP, as the BTP evaluates the hypothetical dose to an individual based upon the average activity of the buried radioactive materials.

#17 NRC Comment - Page 2-10, Paragraph 1

Will the contaminated portions of the liner be shipped offsite or placed into the onsite disposal cell?

RESPONSE:

The liner has been cut into sections and surveyed demonstrating that it meets unrestricted release criteria.

#18 NRC Comment - Page 2-10, Paragraph 3

The staff agrees with the general approach of using a pathway analysis/dose assessment to evaluate the acceptability of the contaminated concrete in the drainage and spillway areas. However, the completed characterization data, the assumptions to be used to estimate effective volumetric concentration levels, and the pathway analysis methods and assumptions are not included in the decommissioning plan. This information is needed for the staff to make a final determination regarding acceptable levels of contamination on the concrete in the drainage and spillway areas.

RESPONSE:

Cimarron Corporation is currently performing additional surveys to further characterize the contaminated concrete in drainage and spillway areas located within Phase II areas. Cimarron intends to evaluate this data and to perform calculations to demonstrate that the concrete can be left in place. At this time, Cimarron has not yet completed all of the additional surveys of the contaminated concrete. The completed characterization data, assumptions to be utilized to estimate the effective volumetric concentration levels, pathway analysis methods, and other pertinent assumptions will be submitted to the NRC in the final status survey reports for each of the specific Phase II sub-areas containing the contaminated concrete.

#19 NRC Comment - Page 3-1, Radiation Protection Program

Please provide copies of the following documents:

1. Cimarron Radiation Protection Procedures
2. Cimarron Site Health and Safety Plan
3. Cimarron Quality Assurance Plan and Procedures
4. Cimarron Emergency Plan

RESPONSE:

It is our understanding that in lieu of submitting the above referenced procedures, Cimarron Corporation will submit a description of the Cimarron radiation protection program with the forthcoming license amendment. The radiation protection program description (herein referred to as the Radiation Protection Plan) will address all regulatory requirements and potential radiological health and safety issues that could have an impact on workers and the public and will represent a revision to Annex A to the license. In response to this question, Cimarron Corporation will submit the following to the NRC:

- Radiation Protection Plan (to be submitted with license amendment);
- Health and Safety Plan (containing the Emergency Plan); and
- Quality Assurance Plan.

All documents submitted to the NRC will be stamped "For Information Only" and "Uncontrolled".