

Union Carbide Corporation  
Carbon Products Division  
P. O. Box 500  
Lawrenceburg, Tennessee 38464

Attn: Mr. Max N. Burkett, Plant Manager

Subject: SS MATERIALS SURVEY NO. OR 226

Gentlemen:

In August 1966 personnel from this office conducted a survey of the control exercised by you over special nuclear material held under your license. At the conclusion of that survey a meeting was held and the findings and recommendations available at that time were discussed with you. In particular, you were advised that:

1. it appeared that a cross-over had occurred between several of your jobs;
2. a procedure manual setting forth your controls over special nuclear material as recommended in our prior survey had not yet been prepared; and
3. that preliminary results of check-weighing performed indicated more discrepancies than appeared to be reasonable.

You were also advised that a more precise statistical evaluation of the check-weighings and of the uranium and U-235 analyses would be performed.

The analytical data are now available and have been analyzed statistically. This letter is to advise you of the results of that survey:

A/85

1. Due to the large number of rejections of your inventory based on independent testing and sampling by the AEC, such a low confidence can be placed upon the inventory quantities reported by you that this office does not believe that your July 31, 1966, inventory fairly presents your holdings of SNM. For your information, a breakdown of the survey group's sample results are as follows:

Type Sample	Samples	Rejects	Samples	Rejects
	Uranium	Uranium	U-235	U-235
Whole Container Samples-Scrap	31	16	30	24
Samples from Containers-Scrap	18	16	13	5
Samples from Containers-Oxides	18	13	18	1
	<u>67</u>	<u>45</u>	<u>61</u>	<u>30</u>

The following reject limits were used in this evaluation:

	Reject Limits	
	Uranium	U-235
Whole Container Samples-Scrap	$\pm 100\%$ of AEC Value	} $> 20\%$ Assay $\pm 1\%$ Re
Samples from Containers-Scrap	$\pm 40\%$ of AEC Value	
Samples from Containers-Oxides	$> 50\% \text{ U} + 1\%$ of AEC Value	
	$< 50\% \text{ U} \pm .75\%$ Uranium	} $> 10\%-20\%$ Assay $\pm 5\%$ Rel.

2. The previous suspected cross-over between Job AVR (Section 53 Leased SNM) and WANL (Non-section 53 SNM) appears to have been confirmed as a result of the inventory tests.

3. Also as previously reported to you, a procedure manual which outlines your controls (measurements, inventory, recording, and reporting) for special nuclear material has not yet been issued.
4. Book inventories are not adjusted to agree with the physical inventory.
5. Discards and other known losses are not recorded in the records in the month in which they occurred nor are they reported to the AEC during the required reporting period.
6. A subsidiary ledger which will identify special nuclear material according to its origin and location in the plant is not being maintained.
7. Measurements of special nuclear material made during physical inventory are frequently highly imprecise and thus cannot be expected to provide satisfactory data.
8. Labelling and physical inventory procedures that we observed during our survey were sufficiently lax as to permit omission or duplication of items.
9. We observed that at 75% of your enriched uranium inventory was contained in scrap. Because of the large uncertainties associated with the measurement of scrap, adequate knowledge of the amount of U-235 on inventory is not possible.

Action to correct the above conditions is necessary and should be taken on a timely basis. I would appreciate your advising this office of the specific steps you propose, and of your time scale for accomplishing

*date to reply  
Summer within 30 days*

Very truly yours,

Charles A. Keller, Director  
Production Division

cc: D. E. George (3)  
Compliance (Atlanta, Georgia)