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INTER-COMPANY CORRESPONDENCE

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COMPANY CARBIDE AND CARBON CHEMICALS CORP. LOCATION

Post Office Box P OAK RIDGE, TENN.

TO Mr. C. N. Rucker, Jr.
LOCATION K-1001, A-217

DATE December 9, 1946

ATTENTION

COPY TO Messrs. S. C. Barnett
J. L. Waters ✓
R. W. Levin
File

ANSWERING LETTER DATE

SUBJECT Disposal of Contaminated Material

REPORT NO.
KZ 3756

KZ 3756 3 A



KZ 3756 3 A

Dear Mr. Rucker:

The attached report from the Process Materials Department Council suggests methods for setting T-concentration limits for contaminated solutions and contaminated carbon under which the contaminated material cannot be economically recovered and therefore should be discarded. If, however, economy is only secondary we desire approval for the adoption of some similar limit below which material may be discarded approached if necessary from the supply and accounting angle.

The need for discarding certain contaminated material is due to storage problems which also involve material accounting operations and considerable handling and recovery problems.

Very truly yours,

G. T. E. Sheldon

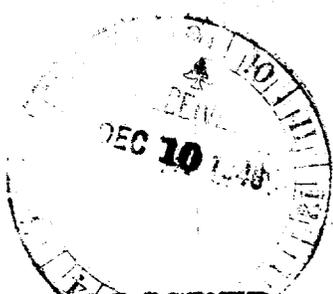
G. T. E. Sheldon

This document has been approved for release to the public by: *[Signature]* Date 5/30/95
Technical Information Office
Oak Ridge K-25 Site

GTES/jw
Attachment:

Carbide and Carbon Chemicals Corporation Operating Contractor for the U.S. Atomic Energy Commission.

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Classification changed to: (level and category)
Thomas W. Shelton 5/11/95
AWC signature (first reviewer) Date
John F. Kester 5/12/95
AWC signature (final reviewer) Date
OK a82 5/30/95

SECRET

DATE December 2, 1946

ANSWERING LETTER DATE

SUBJECT Disposal of contaminated material

TO: Mr. C. E. Rucker, Jr.
 E. I. Winters
 E. W. Levin
 File

REPORT NO. 8/20

Dear Mr. Rucker:

The attached report from the Process Materials Department
 Council suggests methods for setting T-concentration limits for
 contaminated solutions and contaminated carbon under which the
 contaminated material cannot be economically recovered and therefore
 should be discarded. If, however, economy is only secondary we
 desire approval for the adoption of some similar limit below which
 material may be discarded provided it necessary from the supply
 and accounting angle.

The need for discarding certain contaminated material is one
 of storage problems which also involve material accounting operations
 and considerable handling and recovery problems.

2 cts
 Region Office
 Date
 Please abbreviate for release

Very truly yours,

DECLASSIFIED 5/15/95

by authority of: *J. F. Preston* 5/15/95
 (6 P.G.D. 4) *Class. Specialist (K25)*
 (Authorized Declassifier's name and organization)

or

(Official declass. notice memo, TIC notice, etc.) *5/15/95*
 (Person making change) *5/15/95*
 (Date)

(Declassification verified by)

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THIS FORM FOR INTER-COMpany

PROCESS MATERIALS DEPARTMENT

To: Process Materials Department Council

Date: November 27, 1946

Subject: Determination of Limits for Discarding Contaminated Wastes

Purpose:

It is the purpose of this report to establish concentration limits, based on stated assumptions, for discarding contaminated solutions and contaminated carbon.

PART I - CONTAMINATED SOLUTIONS

1. Procedure:

The cost of handling and recovery of contaminated solutions will be equated to the value of the contained "T" at the corresponding X-assay. The concentration of "T" in the solution at which the solution handling and recovery cost is equal to or less than the value of the contained "T" is computed.

2. Production Costs:

It has been estimated that crude feed costs \$5.90 per pound of "T" and that "T" enriched to 2510001 X costs \$8000.00 per pound of "T".

The curve relating cost of "T" to enrichment has been prepared on a linear basis for lack of better information. If the cost versus enrichment curve is exponential, then cost figures below 2510001 X-assay are more than those given by the linear curve; similarly, above 2510001 X-assay, the cost figures given by the exponential curve are less than those given by the linear curve.

3. Recovery Costs:

Cost of recovery figures are taken from a report to Mr. L. L. Anthony, Jr. by Mr. J. H. Julien, October 30, 1946

These are:

Class	TABLE I				
	A	B	C	D	E
Recovery Cost of Contaminated Solution, dollars per gallon	4.05	3.23	1.64	1.39	1.26
Upper Limit, wt. %X	3320301	2293304	1332509	6939104	2797000

4. Solution Discard Limits:

Figure No. 1 shows at which concentrations the value of "T" recovered from contaminated solutions equals the cost of recovery. Below these concentrations, the cost of recovery exceeds the value of the material recovered.

The given limits are based on the previously given production and recovery costs. It is to be noted that if the production costs assumed are low below 2510001 X-assay, the following limits are correspondingly high below 2510001 X-assay and low above 2510001 X-assay.

5. Estimated Volume of Discard:

TABLE II

Class	Class Median X-Assay Wt. %	Solution Inventory Pounds of "T"	"T"-Value dollars/pounds	Total Value dollars	Solution Inventory gallons	Recovery Cost dollars/gallons	Total Recovery Cost dollars
A	1127502	460	15	6,900	9,270	4.05	37,600
B	2251802	115	675	78,000	10,380	3.23	33,500
C	3427903	12	2675	32,000	3,670	1.64	6,000
D	4650803	25	6000	150,000	4,900	1.39	6,800
E	1598005	5	12,000	60,000	760	1.26	950

The above class inventories, both in pounds of "T" and gallons of solution, are based on an approximate October 1, 1946 inventory.

The value of the "T" in the classes is estimated by the median X-assay of the class upper and lower limit X-assay.

It is estimated that nearly all of Class A and about 50% of the Class B contaminated solutions consist of filtrates and washings of "T" concentrations below the minimum concentrations given in Table II for these classes and may therefore be discarded as uneconomical to recover.

The following table indicates the portion of the contaminated solutions formed by Class A and 50% of Class B:

TABLE III

	Gallons	No. of Containers	Pounds "T"	Ave. Wt.% X
Class A and 50% Class B	14,400	350	516	3329702
All Classes	28,000	700	616	4455903

PART II -- CONTAMINATED CARBON

1. Procedure:

The cost of handling and recovery of contaminated carbon will be equated to the value of the contained "T" at the corresponding X-assay. The concentration of "T" in the contaminated carbon at which the cost of handling and recovery is equal to or less than the value of the contained "T" is computed.

2. Production Costs:

The same production costs assumed in "Part I -- Contaminated Solutions" are used.

3. Recovery Costs:

Costs of recovery figures are taken from a report to Mr. F. H. Anderson by Mr. J. H. Julien.

These are:

TABLE IV

Class	A	B
Recovery Cost of Contaminated Carbon, dollars per pound	4.83	2.44
Upper limit, Wt. % X	3320301	2293304

Information on recovery costs for classes C, D, and E are not available at this date.

4. Carbon Mixtures Discard Limits:

The following table shows at which concentrations the value of "T" recovered from contaminated carbon equals the cost of recovery. Below these concentrations, the cost of recovery exceeds the value of the material recovered.

As in the case of contaminated solutions, it should be noted that if the production costs assumed are low below 2510001 X-assay, the following limits are high:

TABLE V

Class of Material	Wt. % X in T (Class Upper Limit)	Wt. % T in Mixture
A	8837203	81.86
A	3320301	5.40
B	2293304	0.19

The above figures are examples. It will be necessary to calculate more detailed tables for individual drum discarding.

5. Estimated Volume of Discard:

TABLE VI

Class	Class Median X-assay Wt. %	Inventory Pounds of Mix	Inventory Pounds of "T"	Value of "T" dollars/pounds	Total Value dollars	Recovery Cost dollars/pounds	Total Recovery Cost dollars
A	1127502	200,000	19,000	15.	285,000.	4.83	966,000.
B	2251802	29,000	450	675.	303,000.	2.44	70,800
C	3427903	275	14	2,675.	37,500.	—	—
D	4650803	550	1	6,000.	6,000.	—	—
E	1598005	400	—	12,000.	—	—	—

The above class inventories are based on an approximate November 1, 1946 inventory. The value of "T" in each class is estimated by the median X-assay of the class upper and lower limit X-assay.

About 95% of the Class A contaminated carbon contains "T" of feed concentration or lower, and is uneconomical to recover.

The following table indicates the portion of the total contaminated carbon mixtures formed by 95% of Class A.

TABLE VII

	Pounds Mixture	No. of Drums	Pounds "T"	Ave. Wt. % X
Class A	190,000	525	18,750	4416021
All Classes	230,000	635	19,475	5526412

Approved by: Process Materials Department Council

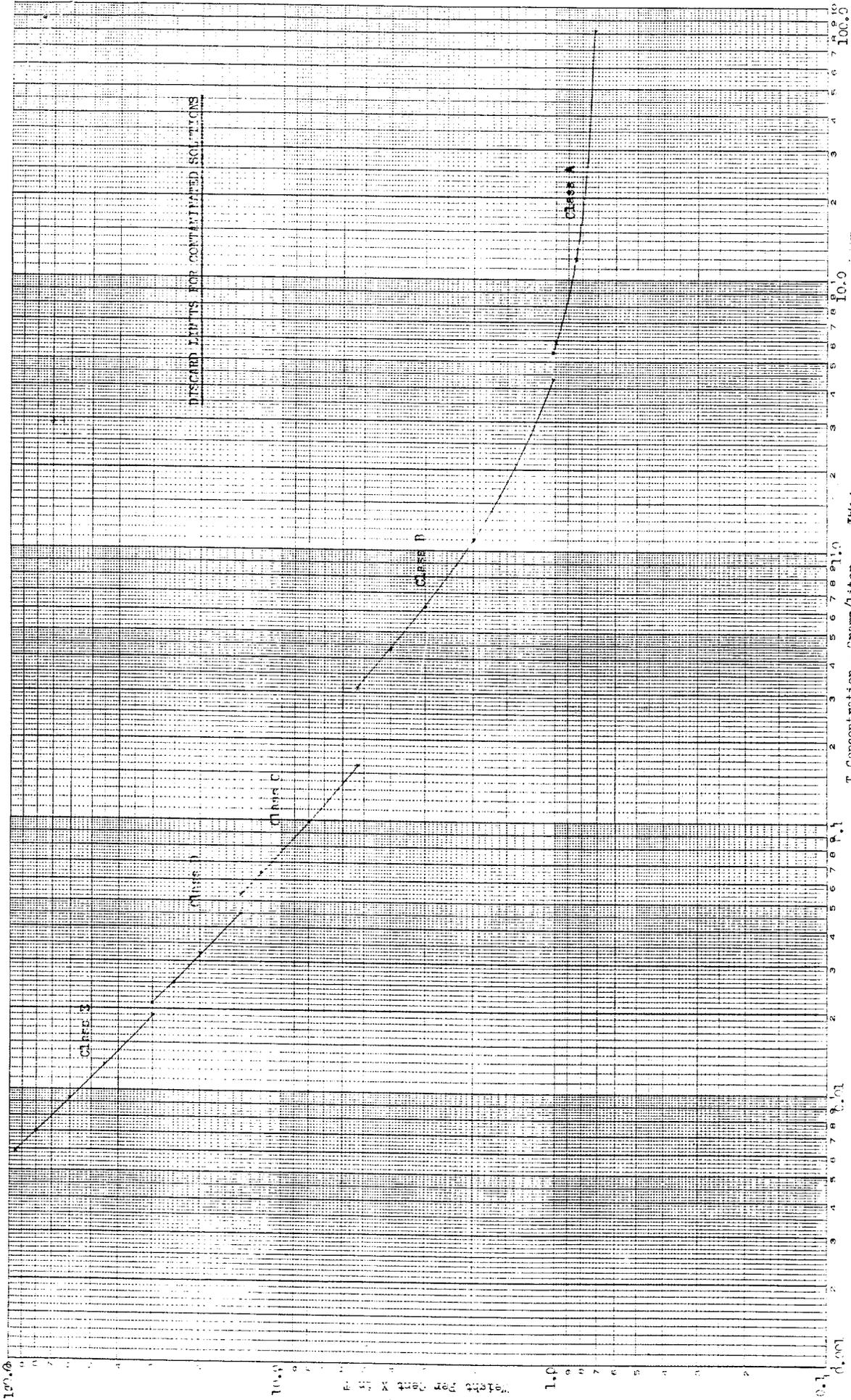
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This document consists of
one page, continuation series



Discard Limits for Contaminated Solutions

T Concentration - Grams/liter

Fig. 1

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