1897

ChemRisk/Shonka Research Associates, Inc., Document Request Form

(This section to be completed by subcontractor requesting document)

Jack Buddenbaum / K-25 Site ~~Response~~ Records

Requestor — Document Center (is requested to provide the following document)

Date of request 3/22/95 Expected receipt of document 4/7/95

Document number K2-7904-1 Date of document 1/1/57

Title and author (if document is unnumbered)

Cascade Inventory Summaries

Please copy the marked pages

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Date request received 3/27/95

Date submitted to ADC 4/3/95

Date submitted to HSA Coordinator 3/27/95

(This section to be completed by HSA Coordinator)

Date submitted to CICO 4/3/95 & 5/31/95

Date received from CICO 6-26-95

Date submitted to ChemRisk/Shonka and DOE 6-27-95

(This section to be completed by ChemRisk/Shonka Research Associates, Inc.)

Date document received

Signature

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K/EM-133

CASCADE INVENTORY SUMMARIES

(Sanitized Version of CRD Document # K/EM-115 Dated April 1, 1995)

Compiled by
S. G. Thornton
Environmental Management Division
OAK RIDGE K-25 SITE
for the Health Studies Agreement

May 1995

Oak Ridge K-25 Site
Oak Ridge, Tennessee 37831-7101
managed by MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the U.S. DEPARTMENT OF ENERGY
under Contract DE-AC05-84OR21400

This document has been approved for release
to the public by:
Gary W Hall for AS Quist 6/26/95
Technical Information Officer Date
Oak Ridge K-25 Site

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KZ-7904

CASCADE INVENTORY SUMMARIES

JANUARY 1, 1957

OAK RIDGE GASEOUS DIFFUSION PLANT

Operated by

UNION CARBIDE NUCLEAR COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

for the Atomic Energy Commission

Acting Under U. S. Government Contract W7405 eng 26

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83 PAGE(S)

CLASSIFICATION CHANGED TO
By authority of
Change 5 to CG-PGR
By C. C. Myers Date 8-2-71

JUN 1957
AUTHENTICATED
U.S. ATOMIC ENERGY COMMISSION
L B Emlet per A Parsons
DOCUMENT NO. 5949

S-13695

CASCADE INVENTORY SUMMARIES

Cascade Inventory Summaries, T & X, 0001 January 1, 1957

KZ 7904 1 1 A

TOP SECRET

11-4-63 HLF
APR 1964 WN
11-3-64 HF
5-5-65 LR
11-5-65 HLF
5-12-66 HLF
11-1-66 HLF

10-31-57 HLF
5-1-58 GR
NOV 5 1958 WN
NOV 8 1959 WN
APR 29 1960

5-3-67 HF
11-6-67 LR

TOP SECRET INVENTORY

Date	By
NOV 2 1960	HLF
	WN
OCT 1962	WN
MAY 1963	WN

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Auxiliary System	Inventory 0001 DEC. 1, 1956			Inventory 0001 JAN. 1, 1957			Inventory Change JAN. 1 Minus DEC. 1		
	Uranium Grams	Wt. % U-235	U-235 Grams	Uranium Grams	Wt. % U-235	U-235 Grams	Uranium Grams	Wt. % U-235	U-235 Grams
	—	—	—	—	—	—	—	—	—
K-3[illegible] Test Loop "A" Loop	14,579	8.730	1,273	298,989	8.840	26,431	284,410	0.110	25,158
K-3[illegible] Test Loop "C" Loop	50,552	8.730	4,413	50,875	8.840	4,497	323	0.110	84
K-3[illegible] Test Loop	27,400	0.326	89	—	—	—	-27,400	-0.326	— 89
[redacted] K-131 Surge System	4,656	1.674	78	4,656	1.674	78	—	—	—
K-3[illegible]2-5 Cold Traps	—	—	—	—	—	—	—	—	—
K-3[illegible]2-5 Purge and Product	—	—	—	—	—	—	—	—	—
K-3[illegible] Cold Traps	—	—	—	—	—	—	—	—	—
K-3[illegible] Cold Traps	—	—	—	—	—	—	—	—	—

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Auxiliary System	Inventory 0001 DEC. 1, 1956			Inventory 0001 JAN. 1, 1957			Inventory Change JAN. 1 Minus DEC. 1		
	Uranium Grams	Wt. % U-235	U-235 Grams	Uranium Grams	Wt. % U-235	U-235 Grams	Uranium Grams	Wt. % U-235	U-235 Grams
ge-for-Purge Systems									
ower, Plant II	6	13.313	1	625	13.641	85	619	0.328	84
pper, Plant II	5	31.078	2	53	32.087	17	48	1.009	15
lant III	53	67.551	36	54	66.922	36	1	-0.629	0
-27 [redacted] EVAC. HDR.	4,461	0.946	42	—	—	—	-4,461	-0.946	-42
-29 Surge System	84	3.930	3	21	4.100	1	-63	0.170	-2
-31 Surge System	106	2.260	2	180	2.340	4	74	0.080	2
-33 Surge System	101,738	0.946	962	100,126	0.905	906	-1,612	-0.041	-56
Recovery Systems									
-31 Holding Drums	12	2.260	0	—	—	—	-12	-2.260	0
-33 Holding Drums	41,264	0.448	185	37,501	0.846	317	-3,763	0.398	132
Auxiliary System, Total Inventory									

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CONF[illegible]

[illegible] WORK SHEET

1-1-57

Side Purge & Return

Symbol	A Size	Press.	Mol. Conc. P.G.	Temp. °R	Kg. "T" (1) × (2) × (3) / (4)
[illegible]ge Line	6,590	2.48	.0050	581.4 ~~608.0~~	141 ✓
[illegible]turn Line	3,912	2.775	.0417	581.4	779 ✓
[illegible]2-1					405

CONF[illegible]

CO[illegible]

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Date 1-1-57

Top Purge & Return

Symbol	[illegible]	[illegible]	[illegible]	Temp. °R	Kg. "T" (1) × (2) × (3) / (4)
Normal	816	1.10	.0100	597.0	15 ✓
Normal	272	1.52	.0078	597.0	5 ✓
312-3					34

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Product Purification Unit

1-1-57 15

	Grams
Freeze out Cylinder Inv.	
U = 17.7 × 0.63992	11327 ✓
Reflux Drum Liquid Inventory	
Liquid Volume = $\frac{79.12 \times \frac{10.0}{.20}}{1154 - 184}$ − 0.2234 = 3.855 ✓	
+ 0.75 Reflux line	
4.605 Total	
3540.4 ✓	
Small = [4.605][−3.65(184) + 4212](.63992) =	10433 ✓
Vapors Top of Tower	
ΔU = $\frac{.674 \times 10.08 \times 36.0 \times .9500}{645.0}$	360 ✓
Freeze-Out Cylinder Inventory	
ΔU = 0.52 × 0	—
Reboiler Inventory	
Vol = $\frac{229.6 \times \frac{19.5}{0.48}}{1519 - 227}$ (0.1254) + 0.1206	[illegible]
ΔU = 7.34 × 1.6223 × .0086	102
Wetting Effect	1875
Correction	—
Total	24097

DISTRIBUTION

1. K-25 Site Records (RC)
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3. DOE Public Reading Room
4. S. G. Thornton (K-25 EMD)