

DOCKET NO. 40-1112-A

UNION CARBIDE NUCLEAR COMPANY

DIVISION OF UNION CARBIDE CORPORATION

200 PARK AVENUE, NEW YORK, N. Y.

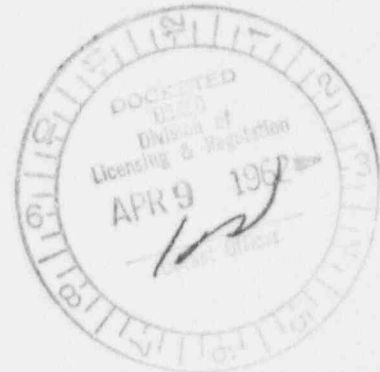
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April 9, 1962

REGISTERED LETTER
RETURN RECEIPT REQUESTED

Mr. Robert Lowenstein, Director
Division of Licensing & Regulation
U. S. Atomic Energy Commission,
Washington 25, D. C.



References: Source Material Licenses
No. R-105, UCNC mills at Uravan &
Rifle, Colo.
No. R-212, UCNC mill at Maybell, Colo.
(Formerly Trace Elements Corp.)
No. R-238, Globe Mining Co. mill,
Gas Hills, Wyoming

Dear Mr. Lowenstein:

This letter is to request your authorization to make allowances for the use of respirators when calculating exposures of individuals to airborne uranium during temporary periods when unexpectedly high concentrations might exist and until such time as corrective steps can be taken to reduce such concentrations. Since January 1, 1961, no time weighted exposures to airborne uranium, which have been calculated for individuals who have occupied areas of higher dust concentrations, have exceeded the appropriate maximum permissible concentration specified in 40 CFR Part 20 regulations. This applies to all of the four mills referred to above.

As an added precaution, certain operators in our mills are required to wear respirators for particular operations such as changing and sampling uranium product drums, preparing yellow cake and ore samples, and clean up work in certain areas. We do not anticipate any increase in airborne concentrations over those experienced during the past year. However, we are requesting approval to make allowance for the added protection of respirators when calculating exposures to airborne ore dust and airborne uranium during temporary periods, if unforeseen circumstances should arise.

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As required in Section 20.103(c)(3) of 10 CFR Part 20, the information on the use of respirators is listed below:

Description and Efficiency of Equipment

The two respirators commonly used in our mills are the MSA Dustloc #66 Respirator with Dustloc Catalogue No. CM-73053 filters or the AO-R 2000 Respirator with the R-25 filter. The Dustloc is the more commonly used.

Nineteen efficiency tests were made at four different mills in the presence of ore dust and yellow caldust. The tests were made by analyzing the uranium on the respirator filter media and on 0.8 micron pore size Millipore paper after air samples had been taken through the filter media backed-up with the Millipore paper, both in a 47 mm Millipore Filter Corp. sample head. Air sampling rates varied between 20 and 30 liters per minute. The results of the tests are shown in the attached table. The average efficiency of the filter media was determined to be 94.1%. Excluding the three tests which showed results deviating greater than 10% from the mean, the average efficiency was 96.9%.

It is planned to use a respirator efficiency factor not to exceed 90% for calculating actual exposures during temporary periods.

Procedures for Fitting, Maintenance and Cleaning

The fitting, use, and maintenance of respirators are explained and demonstrated to all new employees who may be required to wear them. The procedures are periodically reviewed with employees at safety meetings and frequently checked with individual employees by their supervisors.

In some instances employees presently clean their own respirators at designated locations and in a designated manner while in most locations the respirators are turned in at the end of the shift and trained personnel diamantle, clean, sterilize, dry, inspect, reassemble and bag the respirators for reissue. If it should become necessary to make allowances for a respirator efficiency factor, due to higher than usual dust concentrations, the latter procedure will be used to assure proper cleaning.

Procedures for Use

Supervisors periodically check the manner in which the employee is using his respirator and signs are posted designating locations where respirators are required.

The portion of their time which certain employees are required to wear respirators varies from 4% to a maximum of 25%. This time is not consecutive during an 8-hour shift but is broken up in numerous short periods when an operator is required to check equipment operations or, as an example, occasionally change and sample yellow cake product drums in their position at the discharge of the product dryer.

Average Concentrations Present


The average concentration of airborne uranium during 1961 in areas of higher dust levels in which employees, who are required to wear respirators, periodically work are shown below.

MILL	pc U-nat x 10^{-11} /ml	
	YELLOW CAKE AREAS	ORE DUST AREAS
UCNC, Uravan	20	1.8
UCNC, Rifle	6	2.3
UCNC, Maybell (T.E.C.)	6	0.5
Globe Mining Company, Gas Hills	35	0.5

During short periods when airborne concentrations might be unexpectedly high and allowance for respirators used, the airborne uranium concentrations may be higher than the averages listed above, possibly 100×10^{-11} uc/ml in yellow cake areas and 20×10^{-11} uc/ml in ore dust areas. The time exposed to these concentrations would be short and the duration of periods when such concentration exists would be limited as corrective action will be initiated immediately.

If there are any questions pertaining to this authorization request, we will be glad to provide additional information. As it applies only to temporary periods which are not expected to occur frequently, if at all, we do not believe it should require extensive study and hope your approval will be forthcoming in the near future.

Very truly yours,


Sylvan Cromer,
Vice President

cc: Dr. D. I. Walker, Director,
Region 4, Division of Compliance
U. S. Atomic Energy Commission
10,395 West Colfax Avenue
Denver, Colorado

EFFICIENCY TESTS ON RESPIRATOR FILTER MEDIA

<u>Mine</u>	<u>Airborne Material</u>	<u>Uranium On Media</u>	<u>Collected, mg On Millipore</u>	<u>Collection Efficiency Of Media, %</u>	<u>Respirator</u>
Belle	Y. Cake	115.0	2.14	98.2	AO
"	"	115.0	2.98	97.5	MSA
Gravan	"	2.41	0.67	78.2	AO
"	"	303.3	3.39	98.9	MSA
"	Ore Dust	51.30	1.33	97.5	AO
"	"	67.3	0.93	98.6	MSA
Maybell	"	2.65	0.14	95.0	"
"	"	4.05	< 0.14	> 96.7	"
"	"	6.57	0.20	97.0	"
"	Y. Cake	3.18	0.27	92.2	"
"	"	3.87	0.20	95.1	"
Globe	"	353.78	5.70	98.4	"
"	"	822.14	8.59	94.0	"
"	"	3764	30.59	99.2	"
"	Ore Dust	26.18	1.43	94.8	"
"	"	26.43	1.76	93.8	"
"	"	21.70	5.79	78.9	"
"	"	37.91	0.88	97.7	"
"	"	49.43	10.90	81.9	"
		Average	All	94.1	
			Yellow Cake	95.2	
			Ore Dust	93.2	

FROM: Union Carbide Nuclear Corp.
New York 17, N. Y.

DATE OF DOCUMENT:

4-5-52

DATE RECEIVED:

4-9-52

NO.

3691

LETTER

REPORT

OTHER

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ORIGIN

CC:

OTHER

W

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ACTION NECESSARY

W

CONCURRENCE

☐

DATE ANSWERED

NO ACTION NECESSARY

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COMMENT

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BY:

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40-1112-A & C, -1856-299

REFERRED TO

DATE

RECEIVED BY

DESCRIPTION (Must be Unclassified)

Ltr. req auth to make allowances for the
use of respirators when calculating ex-
posures of ind to airborne uranium.

Runabauer

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w/file sy. (1/each docket)
sy for Compliance

ENCLOSURES

REMARKS

H E Distribution: 1 - ASC PDR (1/each docket)

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