TX.9 NLO

CENTRAL FILES

[illegible]

November 19, 1959

SUBJECT TRIP REPORT TO SUTTON, STEELE, AND STEELE COMPANY, DALLAS TEXAS, ON NOVEMBER 5 & 6, 1959

TO J. A. Quigley, M.D.

FROM R. L. Ruhe

OBJECTIVE OF TRIP

The purpose of this trip was to observe and to make any needed recommendations pertaining to health and safety during the operation of separating uranium shot by means of a Model V-135 air float table. It was also necessary to conduct a health and safety survey and to advise on the proper decontamination methods after the separating of uranium shot particle size was completed.

CONCLUSIONS AND RECOMMENDATIONS

During the separation of uranium shot on the Model V-135 air float table full protective clothing, gloves, safety goggles, and dust-type respirators (all supplied by NLO) were worn by the operating personnel.

At the completion of the test, the Model V-135 air float table along with the area surrounding the machine were completely decontaminated and monitored with a GS-3 Geiger Counter.

It was recommended that the uranium shot be kept centralized in order to prevent the spread of contamination. The area adjacent to the machine was kept as clean as possible by the use of a portable vacuum cleaner. The equipment and area showed no measurable amount of radioactive contamination after decontamination.

The results of air dust samples taken during the evaluation (see Table I) indicated there was no significant airborne contamination produced by this short term operation. However, it is recommended that designed ventilation be required if a similar apparatus is installed for production purposes at NLO. Since no coolant was used, the residual surface contamination was slight.

BACKGROUND FOR TRIP

During a recent expansion program in the Pilot Plant a new piece of equipment was added called a shot tank. Difficulty was experienced by NLO personnel in separating, cleaning, and grading the uranium shot mixed with odd shaped particles and extraneous material. Arrangements were made with Mr. Guy C. Satterlee, Project Engineer, Sutton, Steele, and Steele Company, Dallas, Texas, to evaluate their dry tabling equipment for the separation of normal uranium shot, mesh size of -12, #200. This was accomplished on November 5, 1959.

PERSONS TAKING PART IN TEST

Guy C. Satterlee, Project Engineer, Sutton, Steele, and Steele Co.
Melvin W. Kieke, Laboratory Technician, Sutton, Steele, and Steele Co.
Harold A. Kraus, Technical Division, NLO
Raymond L. Ruhe, Health & Safety Division, NLO

DESCRIPTION OF TRIP

Essentially, the Model V-135 air float table is a 23-1/2" x 34" x 24" machine, weighing 225 pounds. Basic parts include a streamlined base which houses a fan and motor, a molded Fiberglas laminate and metal assembly, and a smooth running deck drive mechanism. The unit is completely counterbalanced against vibration and false motion. The machine requires no foundation and no bolting down. It is ready to operate simply by plugging into a 110 volt circuit. Controls for volume of air, speed of oscillation, and inclination of deck are centrally located. A complete range of interchangeable lightweight decks are available.

The 50 pounds of normal uranium shot were dumped into a surge hopper and fed slowly by means of a vibrating conveyor onto the inclined reciprocating porous deck. The mass was instantly fluidized by precisely zoned air delivered through the deck. Each particle rapidly oriented itself and the entire mixture was accurately classified by density, shape, or size. This continuous grading, from lowest to highest settling rates, permitted the selection of as many intermediate products as desired. It also afforded the opportunity to recycle middlings and attain extremely high concentration of quality end products with minimum handling.

At the conclusion of the operation, all the normal uranium shot was placed back into the original containers and returned to FMPC. The Model V-135 machine and the surrounding area were vacuumed with an NLO portable vacuum cleaner. The Model V-135 machine and the table were then wiped with a damp cloth until no measurable radioactive contamination could be detected. All rags were returned to FMPC.

MISCELLANEOUS COMMENTS

Everyone concerned with the separation of normal uranium shot at the Sutton, Steele, and Steele Company was very helpful and welcomed all health and safety recommendations. They did an extremely good job in handling the material to prevent the spread of contamination, and also in decontaminating the equipment and surrounding area.

COMMITMENTS

None

R. L. Ruhe
R. L. Ruhe

RLR:bg

Attach.

cc: J. H. Noyes (3)
J. A. Quigley, M.D. (1x)
R. H. Starkey
J. O. Davis
H. A. Kraus

Central File

TABLE I

RESULTS OF AIR DUST SAMPLES

Type	Sample Description	Concentrations d/m/M3 High	Low	Average	% MAC*
BA	Background sample - Taken 5' north of Model V-135 machine.	4	3	3	0.02
BZ	Operator working the controls on the Model V-135 machine while the uranium shot was being separated. A vacuum hose was held nearby and a dust-type respirator was worn.	88	53	71	0.64
DA	Taken 5' north of Model V-135 machine during the running of uranium shot. A vacuum hose was held nearby.	69	30	51	0.46

*MAC - The maximum allowable concentration of radioactive air dust used on this trip is 110 alpha disintegrations per minute per cubic meter. This MAC is taken from 10 CFR, Part 20, Standards for Protection Against Radiation, which applies to licensees.

The maximum allowable concentration at NLO is 70 alpha disintegrations per minute per cubic meter. This MAC is based on AEC Manual Chapter 0524.

NATIONAL LEAD COMPANY OF OHIO
ANALYTICAL DEPT. - HEALTH AND SAFETY DIVISION
ANALYTICAL DATA SHEET

NCO

Nº 24118

1959 — Industrial Hygiene or Medical Dept.

I. H. # 917 Sample Nos. 5 Date Collected 11/5 by RR Route to RR

Location SUTTON STEELE & STEEL Type of Sample air dust Analyzed for F Alpha xx

Remarks Samples of running uranium shot on a dry tabulating machine. A vacuum hose and dust-type respirator were used. U Beta

NO_3 Ra

Oil pH

Be Th

Analytical Chemistry Section:

Date Received 11/11/59 by

Date Reported 11/11/59 by MWB

Method of Analysis ASC#3

Counting Data:

BKGD 0.22 c/m GEO 42%

Sample No.	Hour	Sample Description	R	T	Q	count	time	c/m	µg/m³
3451	0925	GA Taken 5' north of Model U-135 - Background sample.	.02	10	.2	13	28.00	0.24	4
3452	0926	GA Taken 5' south of Model U-135 - Background sample.	.02	10	.2	7	18.65	0.16	3
3453	1000	BZ Operator working the controls on the Model U-135 machine while the uranium was being serrated. A vacuum hose was held close by and a dust-type respirator was used.	.02	1	.02	79	17.55	4.28	73
3454	1040	BZ Same as 3453	.02	1.5	.03	135	17.00	7.72	88
3470	1400	BZ Same as 3453	.02	1.08	.0216	54	15.00	3.38	53

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