OH: 38-4

MATIONAL LEAD COMPANY OF OHIO Cincinnati 39, Ohio B4-1-300

February 3, 1961

SUBJECT

TRIP REPORT TO LEBLOND MACHINE TOOL COMPANY, CINCINNATI, OHIO, ON JAMUARY 16

TO 20, 1961

TO

J. A. Quigley, M.D.

FF:CM

A. D. Workum

CENTRAL FILES

CEJECTIVE OF TRIP

The purpose of this trip was to (1) observe the health and safety aspects of determining if a LaBlond Carlstedt Rapid Boring Machine can drill a hole through the center of a 17-18" solid cast uranium billet, and (2) insure the adequate decontamination of the machinery, tools, equipment, and test area.

CONCLUSIONS AND RECOMMENDATIONS

During the operation there was no noticeable smoke or fumes expelled from the machine. Since the coolant and chips were carried through the drill and thence into a coolant tank, there was also very little external contamination. There was no ventilation on the machine and there does not appear to be a need for any if further testing is required. Air dust samples reveal no significant release of uranium to the atmosphere during this trial operation. If this machine is to be used in NLO operations it is expected that only a minimum amount of ventilation will be required.

BACKGROUND FOR TRIP

Because of the low yield which results from the casting of hollow billets it has become increasingly important to determine whether hollow billets could be machined.

This was the first test conducted at LeBlond although previous visits had been made by representatives of the NLO Technical and Health & Safety Divisions to view the machine in operation on other types of material and to arrange this test.

PERSONS VISITED

Mr. II. Bruck - Sales Manager

Mr. F. Stoffregen - Assistant Sales Manager

Mr. W. Kimsey - Project Engineer, Boring Machines

Mr. B. Brockman - Vice President, Sales

Mr. R. Auge? - Technical Equipment Sales Representative

Additional NLO personnel present were:

Mr. R. J. Jansen - Technical Division

Mr. W. E. Stephens - Technical Division

TRIP REPORT TO LEGLOND MACHINE TOOL COMPANY, CINCINNACI, OHIO, ON JANUARY 16 TO 20, 1961

J. A. Quigley, M.D. Pebruary 3, 1961

DESCRIPTION OF TRIP

The MLO representatives arrived on Monday, January 16, 1961. Testing was begun the afternoon of this day and continued through Thursday morning, January 19, 1961, when the last billet was machined.

The boring machine and coolant tank enclosed an area of approximately 400 square feet, 40 feet long, and 10 feet wide. The coolant tank itself was 5 feet x 8 feet x 3 feet, and sat directly on the floor. The chips and coolant passed through the drill and thence down a pipe to the coolant tank. A high-low level float had been set up on the tank whereby when the coolant reached a certain level it would be pumped out of the tank and through a Pull-flow filter supplied by NLO. Thus, all uranium fines above 10 µ in size were removed from the coolant so it could be recycled.

After every pass the drill was examined for wear. If regrinding was necessary, the drill was first cleaned to background levels. Altogether, fourteen billets were machined. Breathing zone and general air samples were taken before and during several runs. The results are shown in the attached appendix, Table I, and indicate extremely low levels of activity - well below prescribed limits.

Draining the coolant tank, monitoring and decontaminating machinery, tools, equipment, personnel, and test area started on Thursday afternoon and was completed on Friday afternoon. The chips were placed in four vented 30-gallon drums and filled two-thirds full with the coolant remaining in the bottom of the tank. The 30-gallon drums were sealed, placed in 55-gallon drums which were in turn filled with a dry powder, and returned to NLO. Since the coolant tank and associated filter and piping are the property of NLO and are to be returned to Fernald after the completion of any further tests, only loose surface contamination was removed. Fixed contamination was not removed for economic and practical reasons. This NLO equipment is stored at LeBlond pending further tests and will not be used by them.

Since a sample of the filtered coolant showed 2.4 mg/l uranium or 0.00024%, LeBlond personnel were informed that they could use the coolant for any purpose they desired.

No significant contamination of personnel or clothing was found. The tools, equipment, and test area, excluding the coolant tank, were decontaminated to background levels. All chips, turnings, and fines were removed with a portable vacuum cleaner. Only NLO rags were used for the cleanup and these were returned to NLO in drums.

MISCELLANEOUS COMMENTS

The cooperation of the LeBlond and NLO personnel was very good. They

TRIP REPORT TO LEBLOND MACHINE TOOL COMPANY, CINCIPHATI, CHIO, ON JANUARY 16 TO 20, 1961

Page 3

J. A. Quigley, M.D.

Pebruary 3, 1961

were all receptive to any health and safety recommendations made.

COMMITMENTS

None

A OWnsum/KRass

ADW: bg

Attach.

cc: J. A. Quigley, M.D. (2x)

J. H. Noyes (2x)

R. H. Storkey

F. L. Cuthbert

R. J. Jansen

C. E. Polson

Central File

APPENDIX

Table I

		Concer	tration	-a d/m/M3	
Type	Sample Description	High	Low	Average	X MAC*
GA	Background samples - First day before any testing.	2	ND	1	<0.1
GA	Samples taken during boring operation, first day. Two billets machined.	ND	ND	ND	-
ÇA	Background samples - Second day. No operations in progress on uranium material.	21	12	16	0.2
BZ	Operator operating controls of machine 2 feet from rotating billet, second day.	9	1	6	0.1
GA.	Operations in progress - Second day of operation.	1	ND	0.5	<0.1
GA	Same as above - third day of operation.	1	ND	0.5	<0.1
BZ	Same as above - third day of operation.	15	ND	5	0.1

Type: GA - General Air BZ - Breathing Zone

ND - Non-detectable

*MAC (Maximum Allowable Concentration) - 70 a d/m/M3

PLEASE RUSH

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

ANALYTICAL DATA SHEET

NLO

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LeBlond	<u>. </u>			Air dust		F U	×	A	pha	9/1/61 METHOD OF	ANALYSIS:				
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	<u> </u>							_{BKGD} •17	c/m	_{GEO} 40%			
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								2	10	.03	.2		
4303	10:20	GA same as 43		• •	.03	1	5 .45	- -	 	+ • • •	-		
		GA pump locate	ed approx 6	in bac	.035	2	70	7	30	.06	.3		
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26 2 1-18-61 AW AW 1-19-61 LOCATION: TYPE OF SAMPLE: ANALYZED FOR OATE REPORTED: BY: LB BLOND COMPANY Air Dust F X Alpha 1-25-61			OLICEPIAL LINGUENI	E AND BADIAT	ION D	ED.					ANALYT	ICAL CE	FMICTRY	SECTION		
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Type of sample Analyzed for Date Reported: BY:				1-18-61							1-19-61					
LE BLOND COMPANY	LOCATION			TYPE OF SAMPLE			ANALY	ZED	FO	R	DATE REPOR	TED: BY:				
U Beta METHOD OF ANALYSIS: SAMPLE NO. SAMPLE DESCRIPTION R T Q Count Time c/m d/m/m3 CA-Same as 962 .03 15 .45 6 24.00 .08 1		LE BLOND COMPANY Air Dust				П				pha	1-25-6	1				
Oil pH Be Th Counting DATA: BKGD .23 c/m GEO 42%	REMARKS:					П					METHOD OF ANALYSIS:					
Oil pH Be Th Counting DATA: BKGD .23 c/m GEO 42%	3rd day of operation							\square	Ra	1	ASC #	2 1/2	5			
SAMPLE NO. HOUR SAMPLE DESCRIPTION R T Q Count Time C/m d/m/m3							Oil		pН	1		· · · · · · · · · · · · · · · · · · ·	BY:			
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SAMPLE NO. HOUR SAMPLE DESCRIPTION R T Q Count Time c/m d/m/m3 975 1345 GA-Same as 961 .03 15 .45 6 24.00 .02 nd 976 1345 GA-Same as 962 .03 15 .45 11 36.00 .08 1						Ш		\vdash					L			
NO. DESCRIPTION Count Time c/m d/m/m3 975 1345 GA-Same as 961 .03 15 .45 6 24.00 .02 nd 976 1345 GA-Same as 962 .03 15 .45 11 36.00 .08 1						Ц		Ш			BKGD .23	c/m	GEO 4	2%		
976 1345 GA-Same as 962 .03 15 .45 11 36.00 .08 1		HOUR					R	T		Q	Count	Time	c/m	d/m/m3_		
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	975	1345	GA-Same as 961				.03	1.	5	.45	6	24.00	.02	nd		
	976	1345	GA-Same as 962	2		\dashv	.03	1.5	5	.45	11	36.00	.08	1		
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		DUSTRIAL HYGIE	NE AND RADIATION DE	PT.	UTE	: то	· ·	ANALYTICAL CHEMISTRY SECTION				
I. H. NO.	SAMPL		COLLECTED:	ROUTE TO:				· ·				
25		5	1-17-61 AW	ANALY		F^		1-18	S-OT BA:		: <u>.</u>	
	LE BLOND Air Dust				X							
REMARKS:	<u> </u>		1422 2434	F U	F		eta	1-25	ANALYSIS:			
Machin	es in op	eration - no u	musual conditions	NO ₃	\Box	Ro		ASC	# 2	11:15	1/25	
noted	<u> </u>	-		Oil	Ħ	pΗ	1			BY:		
_				Ве		ŤΗ						
					\Box			COUNTING D		l		
					لبل			BKGD .23	c/m	GEO 42%	<u> </u>	
SAMPLE NO.	HOUR	DE	SAMPLE ESCRIPTION	R	1	- -	Q	Count	Time	c/m_	d/m/m3	
970	1050	GA-Same as	961	.03	2	o	60	14	34.00	.18	1	
971_	1050	GA-Same as	962	.03	2	0	.60	2	13.00	nd	nd	
972	1335	BZ-Same as	967	•03	2		.06	0	10.00	nd	nd	
973	1337	BZ-Same as	967	03	2		.06	4'	20,00	nd	nd	
974	1339	BZ-Same as S	967	_03_	2	<u>. </u>	.06	5	10.00	.27	15	
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		ADUSTRIAN HYGIEL	NE AND RADIATION D	DEF	<u></u>	—			ANALY?	TICAL CHE	EMISTRY	SECTION		
I, H, NO,		LE NOS.:	COLLECTED: BY:	/	RO	OUTE		ا :د	DATE RECEIVED: BY:					
24		5	1-17-61 A	AW		AW			1-18-61					
LOCATION:			TYPE OF SAMPLE:		ANALY	ZEC	FO	R _	DATE REPOR	ATED: BYI				
LE BLO	AT	-	Air Dust		F		Αl		1-25-6	ลา				
REMARKS:	<u></u>			1	U		_	eta						
and day	y of oper	eration			NOg		Ra		ASC #	3	11:30	1/25		
	/ 44				Oil		рΗ	i			BY:			
					Ве		Th		<u> </u>					
				1		\perp	Ĺ		COUNTING D	l	1			
				'ـــــــــــــــــــــــــــــــــــــ		\perp	Ĺ		BKGD	 '	GEO			
SAMPLE NO.	HOUR		SAMPLE SCRIPTION		R		Т	Q	Count	Time	c/m	d/m/m3		
965	0910	GA-Background	sample-same as 95	<u>55</u>	.03	1	LO	.30	7	28.00	.10	12		
966	0910	GA-Background	d sample-same as	956	.03	1	ιο	•30	4	12.00	•18	21		
967	0920		operating control ne. No visible du				-							
		or fumes	- oil splatters of operation.	'	.03	2	2.5	.075	4	12.00	•18	9		
968	0933	BZ-Same as 96			.03			.075		15.00		9		
		•									T .	1		
969	0936	BZ-Same as 96	57		.03	1	5	.045	2	9.00	•07	1 1		
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INDUSTRIAL HYGIENE AND RADIATION DEP					ROUTE TO:				DATE RECEIVED: BY:				
	PAREL	4	1-16-61	AW			AW	1	1-17-6	31			
23			TYPE OF SAMPLE:	Ť	ANALY				DATE REPOR	TED: BY:			
	COMPANY		air dust		F		Alpha		1-26-0				
LEBLOND	CONTENST.			$\neg \vdash$	U	T^{\dagger}	Beta		METHOD OF	ANALYSIS:			
Countet	Complete drilling of one billet (per set of				NOg	\prod	Ra		ASC #	2	1/25	2:30	
Samples) includ	ling set-up and	take-down.	丁	Oil	\Box	рΗ				BY:	. _	
				工	Be	\Box	Th						
				工		\prod			COUNTING D		h	വർ	
					<u></u>				BKGD .2	၁ C/T L	GEO 4	2%	
SAMPLE NO.	HOUR		SAMPLE SCRIPTION	_	R	т	٠ ر	Q	Count	Time	c/m_	d/m/m3	
NO.			ehind billet be	ng	 		$\neg \vdash$						
961	1420	drilled.			.03	10	3 .3	1	7	27.00	.03	nd	
UL		GA 6º behind	machine and 12°	to		\Box							
962	1420	right of b	illet being dril	lled.	.03	10	3 .3		1	10.00	nd	nd	
		GA Same as 96			.03	15	5 .4	5	2	16.00	nd	nd	
963	1455	Gr. Same as 90	<u> </u>		1.55	 			· ·				
964	1455	GA Same as 96	2		.03	1.5	5 .4	5	1	8.00	nd	nd	
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		DUSTRIAL HYGIEN		ION DEF	۲. اعرا	UTE	TO	ANALYTICAL CHEMISTRY SECTION DATE RECEIVED: BY:				
1. H. NO.	SAMPL	E NO5.:	COLLECTED:		"`	AW						
22		6	1-16-61	AW		_		1-17-	OL ITEO: BY:			
	- colto41			`	F		Alpha	1-26-	į,			
LEBLOI REMARKS:	ID COMPAI	NY	air dust		 [+^+	Beta	METHOD OF		-		
	ound sar	mn1eg		 	NOa	1 †	Ra	ASC #	3	1/25		
		chine previous	to operation.		Oil	T	pН			BY:		
<u> </u>	, <u>, , , , , , , , , , , , , , , , , , </u>				Ве		Th					
						\bot		COUNTING D		1		
					1	othup		BKGD .15	c/m	GEO	40%	
SAMPLE	HOUR		SAMPLE SCRIPTION		R	Т	Q	Count	Time	c/m	d/m/m3	
NO.		GA Pump 6° bel		±o.	1		_	Count	TTIME	C/ III	 U/ II/IIS	
955	0855		ocation where		.02	25	.5	64	15.73	3.92	28	
755_	0055		ill take plac							,		
					<u></u>	<u> </u>						
					_		i		10 00	05	a	
957	0920	GA Same as 95	5		-02	25	-75	2	10.00	.05	nd	
0.50	0945	GA Same as 95	<u> </u>		.03	25	.75	8	17.00	.32	2	
959	0945	GA Pump 4° di			•00	<u> </u>	- 1-	 		1		
956	0855	billet loc		<u> </u>	.03	25	.75	4	9.00	.29	1	
958	0920	GA Same as 95	6		.03	25	.75	15	24.00	•48	2	
							.	_		0.7	1_	
960	0945	GA Same as 95	6		03	25	.75	3	8.00	.23	+ +	
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