CT.2-3

UNITED STATES
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

OAK RIDGE OPERATIONS
P. O. BOX E
OAK RIDGE, TENNESSEE 37830

AREA CODE 615
TELEPHONE 483-8611

March 8, 1977

Assistant Director for Health Protection, DSSC-HQ
ATTN: R. H. Kennedy, DSSC-HQ

ERDA RESURVEY PROGRAM - BRIDGEPORT BRASS COMPANY, SEYMOUR, CONNECTICUT

On January 26, 1977, H. W. Dickson and M. T. Ryan of ORNL and I visited the Bridgeport Brass Plant in Seymour, Connecticut, to reassess the radiological status of facilities used under AEC contract during the period 1962-64. On October 21, 1964, a closeout radiological survey of the subject facility was conducted by HASL. A copy of the report is enclosed. Data from a prior company survey is also included in the HASL report.

ERDA measurements on January 26 indicated residual alpha contamination to be generally lower than that reported by HASL. Beta-gamma levels remain very comparable. It is clear, based on both surveys, that residual radioactivity levels are well within USNRC and ANSI guidelines for unrestricted use.

Operations at the Seymour site involved developmental cold forming of natural uranium metal and associated storage and laboratory support. Presently, the areas are used for corporate printing operations and for a warehouse.

Conclusion: Radioactivity levels at the Seymour site have been adequately surveyed and documented and fall within available guidelines for unrestricted use.

Recommendation: It is recommended that no further ERDA survey be conducted.

Some AEC contract work with uranium on a laboratory developmental scale was conducted at the Bridgeport Brass Havens Laboratory from about 1953 to 1962. This facility, located at the corner of Kossuth and Pulaski Streets in Bridgeport, Connecticut, was subsequently sold to the Catholic Diocese for use as a school. The building has reportedly undergone substantial

remodeling and has been recently resold to the City of Bridgeport Board of Education. Old Reactive Metals, Inc., files contain information indicating a specific and successful decontamination effort to meet the current "limits for uncontrolled occupancy (letter dated August 27, 1962, from Jefferson to Ruch, copy enclosed). These limits were not significantly different from the current USNRC guides.

It is concluded that the residual contamination which might remain at the former Havens facility is of such negligible health and safety significance that a further ERDA survey effort is not warranted.

If you concur in the findings and recommendation presented in this memorandum, the enclosed letter will be sent to the Bridgeport Brass Company so confirming.

William T. Thornton
Health Protection Branch
Safety and Environmental Control Division

OSH:WTT

Enclosures:
As stated

cc: J. W. Range, PIO
W. H. Travis, S&EC

Bud — 11/5/64
From — 11/5/64
Return to AWG

OCT 30 1964

John W. Ruch, Director
Feed Materials Division - OR

A. J. Breslin, Director
Health Protection Engineering Division, HASL, NY

CONTAMINATION SURVEY AT REACTIVE METALS, INC., SEYMOUR, CONNECTICUT

HSH:AJB

Summary
Accompanied by Mr. A. Grella of Reactive Metals, on October 21, 1964, I visited the Seymour facility, formerly occupied by Reactive Metals, to perform the survey requested in your telegram to Dr. Harley dated October 7. We inspected all rooms that were related to AEC contract activities and measured surface contamination in the following areas: machine shop, metal storage area, lab hood area, cutting and grinding room, and Dynapack area. All rooms were free of process and office equipment and were clean in appearance. Local exhaust ventilation systems had been removed from the process areas. The only fixtures and equipment in evidence were lighting fixtures, electrical, gas and compressed air services, air conditioning systems, and a few portable fire extinguishers.

In my judgment, the process areas have been cleaned of uranium contamination satisfactorily and can be released for unrestricted use.

Survey
Following facility decontamination by Reactive Metals, but prior to my visit, Mr. Grella had performed a detailed survey of floor contamination. His measurements were made on grid patterns established for each of the process areas. His survey results are shown in Figures 1 - 4.

My measurements were performed at locations selected randomly from the same grid patterns, covering about one-third of the locations included in his survey. (It should be noted that the locations were only approximately the same.) In addition, I measured contamination on a few surfaces above the floor such as window sills and shelves. The results are shown in Figures 5 - 9. Numbers on the floor plans correspond to those on Mr. Grella's diagrams. The circled numbers indicate locations at which measurements were obtained.

An Eberline PAC 1SA alpha survey meter and a Universal Atomics Model #700 beta-gamma survey meter were used for contact measurements. Smear sampling consisted of rubbing a one inch diameter filter paper over an area of approximately 100cm^2.

Measurements with the Eberline PAC 1SA are reported in Figures 5 - 9 in counts/minute/60 square centimeters. Those values may be converted approximately to disintegrations/minute/100 square centimeters, the usual units for surface contamination, by subtracting an instrument background of 100 counts/minute and multiplying the result by 4. In using this calculation, surface roughness is neglected. Consequently, contamination is underestimated to some degree.

The beta-gamma measurements are reported in units of millirad/hour. Any measurement up to .05 millirad/hour is equivalent to background.

The smear measurements are reported directly as net alpha disintegrations/100 square centimeters.

Results

Taking the measurements in all areas into account, 50% of the direct alpha measurements were $\leq$ 800 α dis/min/100cm^2, 87% were $\leq$ 2000 α dis/min/100cm^2, and 97% were $\leq$ 3200 α dis/min/100cm^2. The maximum value was 25,000 α dis/min/100cm^2.

Calculated not measured →

The smear measurements were in a rather narrow range of 20 to 90 α dis/min/100cm^2. The single measurement in the lab hood area was 3 α dis/min/100cm^2.

With the exception of three or four values, the beta-gamma measurements did not exceed background. The highest value was 0.5 millirad/hour.

Agreement with Mr. Grella's data is good and certainly within the limits of expected differences for this kind of survey. According to Mr. Grella, the fixed alpha values listed on his survey sheets represent readings from a PAC 1SA corrected for a 50 c/m background. Therefore, a more appropriate heading for his measurements would be "net counts/min/60cm^2."

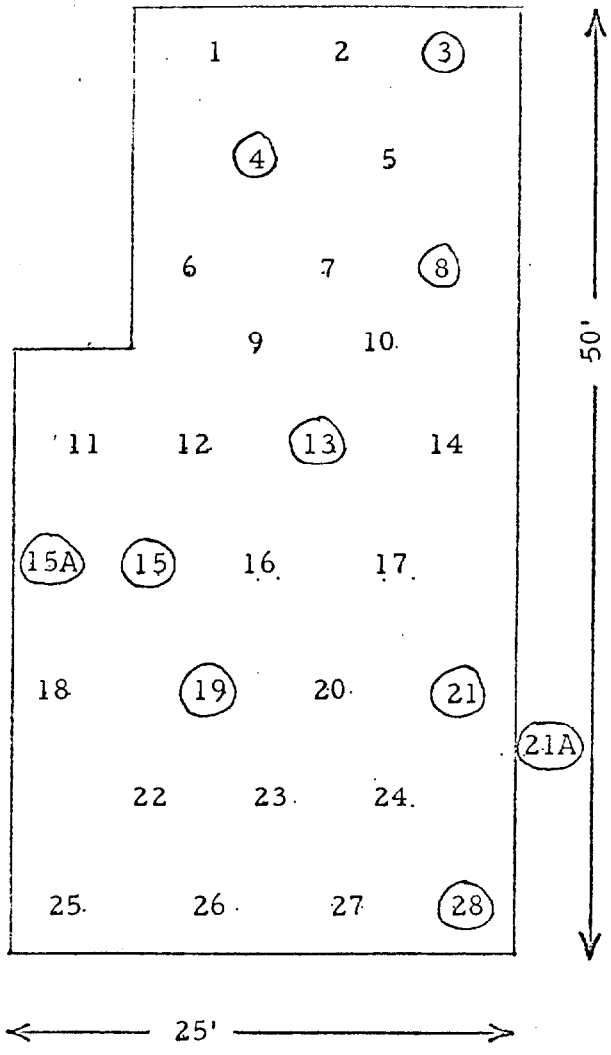
I am not aware of any AEC standards for surface contamination with which the survey data may be compared. However, the values are quite low and certainly are insignificant with respect to any mode of exposure that can be hypothesized.

As a point of reference, these values are well below the limits mentioned in the report "Health Protection Program Review of Special Metals Development Department, Reactive Metals, Inc., Seymour, Connecticut - June 1964" by William A. Pryor and Raymond L. Hervin.

Enclosures:
Figures 1 - 9

cc: C. S. Shoup, OR, w/encl.
A. Grella, RMI, w/Figs. 5-9
J. Hyder, Compliance Div., w/encl.

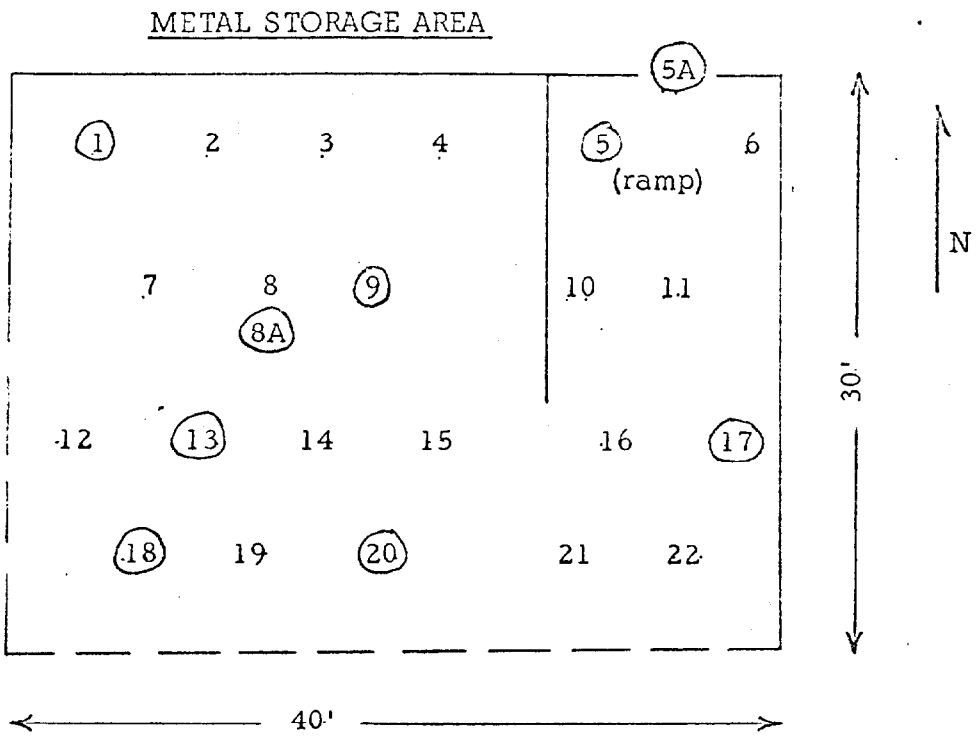
MACHINE SHOP



Painted Concrete Floor

Location	Contact Reading α c/m/60cm^2	Contact Reading β-γ mrad/hr	Smear α d/m/100cm^2
3	400	.03	20
4	400	.04	20
8	500	.02	-
13	800	.05	90
15	600	.05	80
15A(Top of Shelf)	100	-	-
19	900	.02	70
21	6500	.5	-
21A (Window Sill)	300	-	-
28	700	.03	30

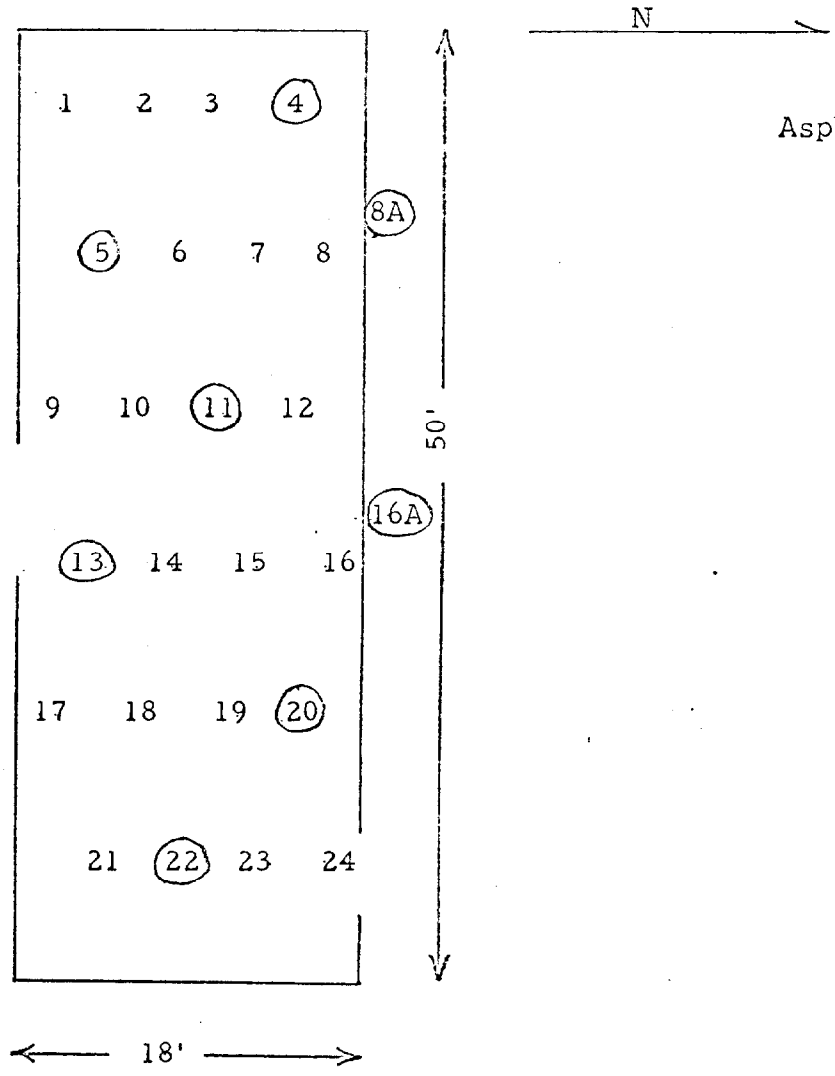
Fig. 6



Location	Contact Reading a c/m/60cm^2	Contact Reading β-γ mrad/hr	Smear a d/m/100cm^2
1	300	.02	40
5	400	.02	70
5A (Top of roll door housing)	300	-	30
8A (Light fixture)	100	-	60
9	700	.03	80
13	400	.10	80
17	400	.05	80
18	400	.08	-
20	500	.25	70

Fig. 7

CUTTING AND GRINDING ROOM

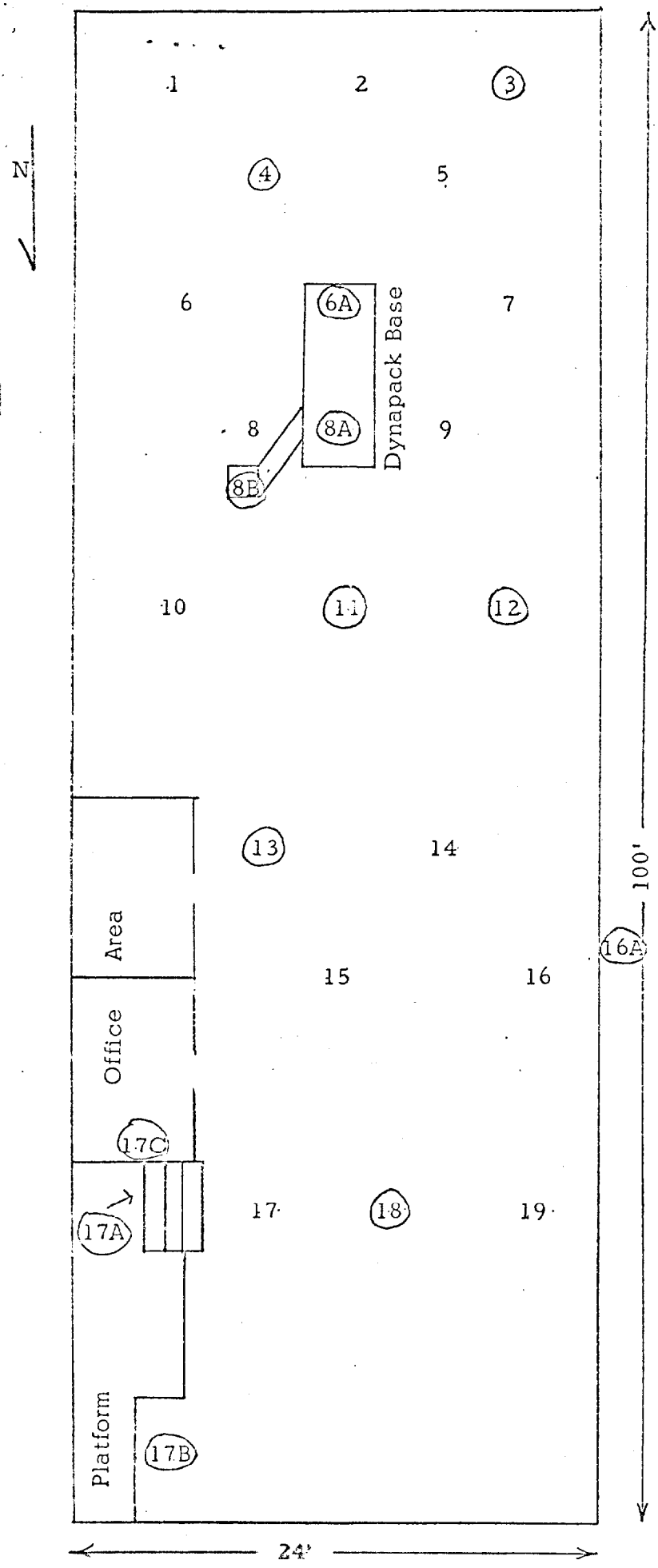


Location	Contact Reading a c/m/60cm^2	Contact Reading β-γ mrad/hr	Smear a d/m/100cm^2
4	300	.04	-
5	200	.06	50
8A (Window Sill)	800	.05	-
11	200	.02	-
13	200	.04	30
16A (Window Sill)	200	.02	-
20	100	.04	-
22	300	.01	20

DYNAPACK AREA

Fig. 8

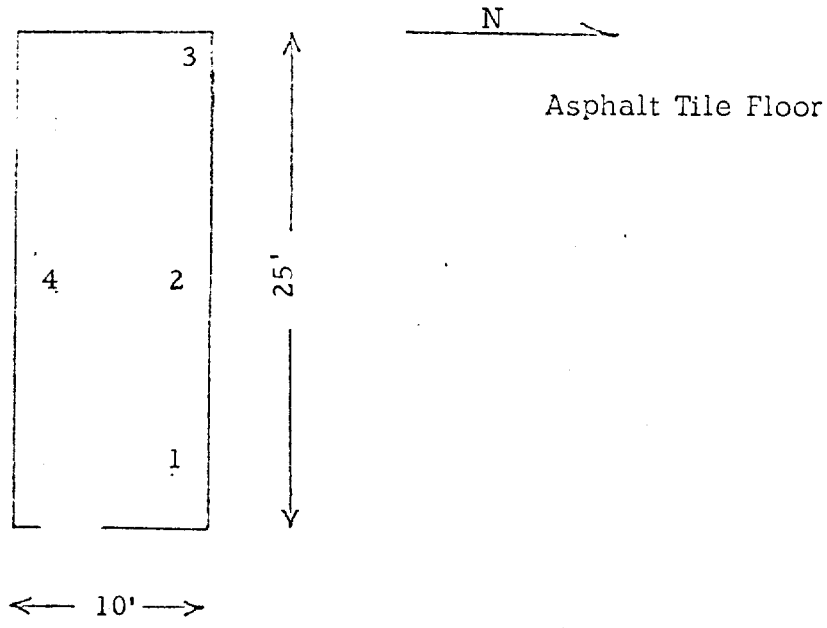
Painted Concrete Floor



Location	Contact Reading α c/m/60cm²	β-γ mrad/hr	α d/m/100cm²
3	100	.03	-
4	100	.01	20
6A (Base)	400	0.4	7
8A (Base)	200	.05	-
8B (Trench)	300	.07	-
11	100	.02	14
12	100	.03	-
13	250	.02	-
16A (Top Elect. Box)	250	.02	-
17A (Step)	350	.02	-
17B (Shelf)	400	.03	-
17C (Office Roof)	200	.03	-
18	200	.03	-

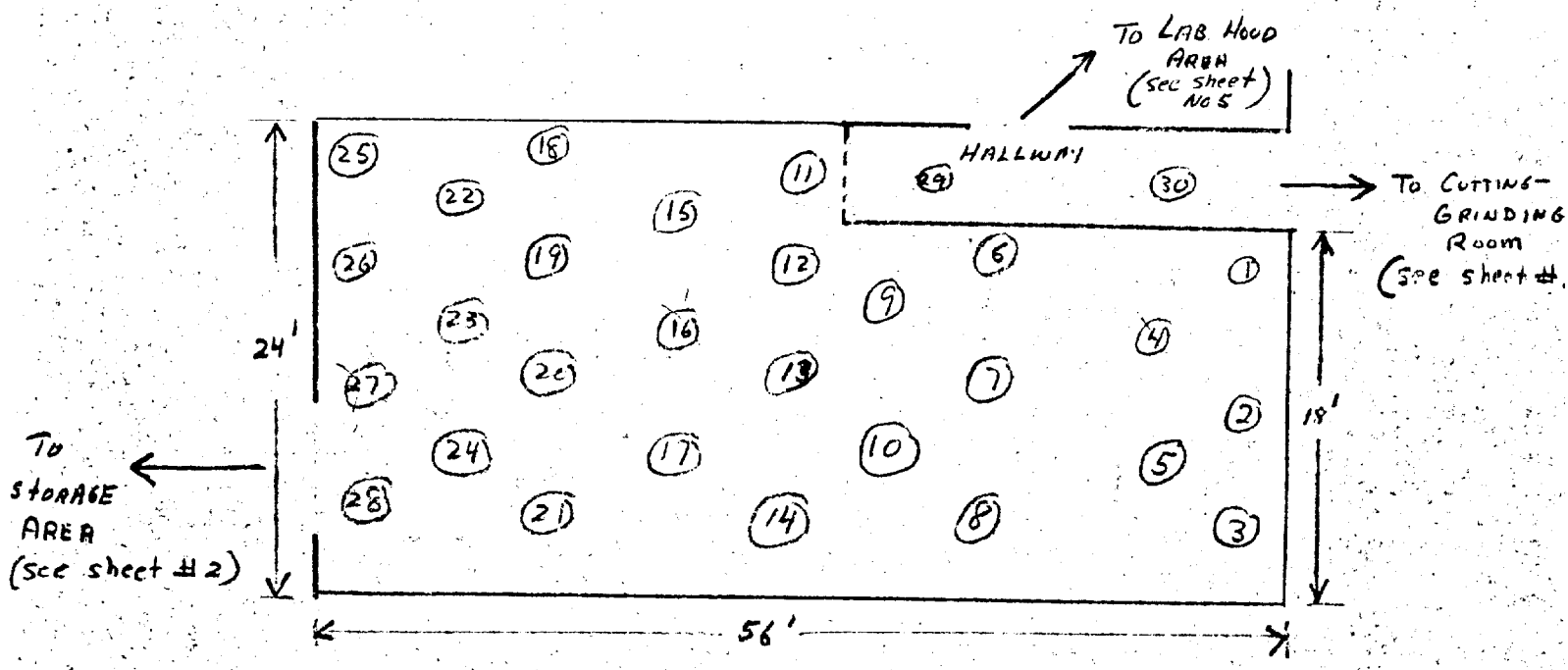
Fig. 9

LAB HOOD AREA



Location	Contact Reading a c/m/60cm^2	Contact Reading β-γ mrad/hr	Smear a d/m/100cm^2
1	300	.03	-
2	200	.03	3
3	150	.03	-
4	200	.02	-

① MACHINE SHOP

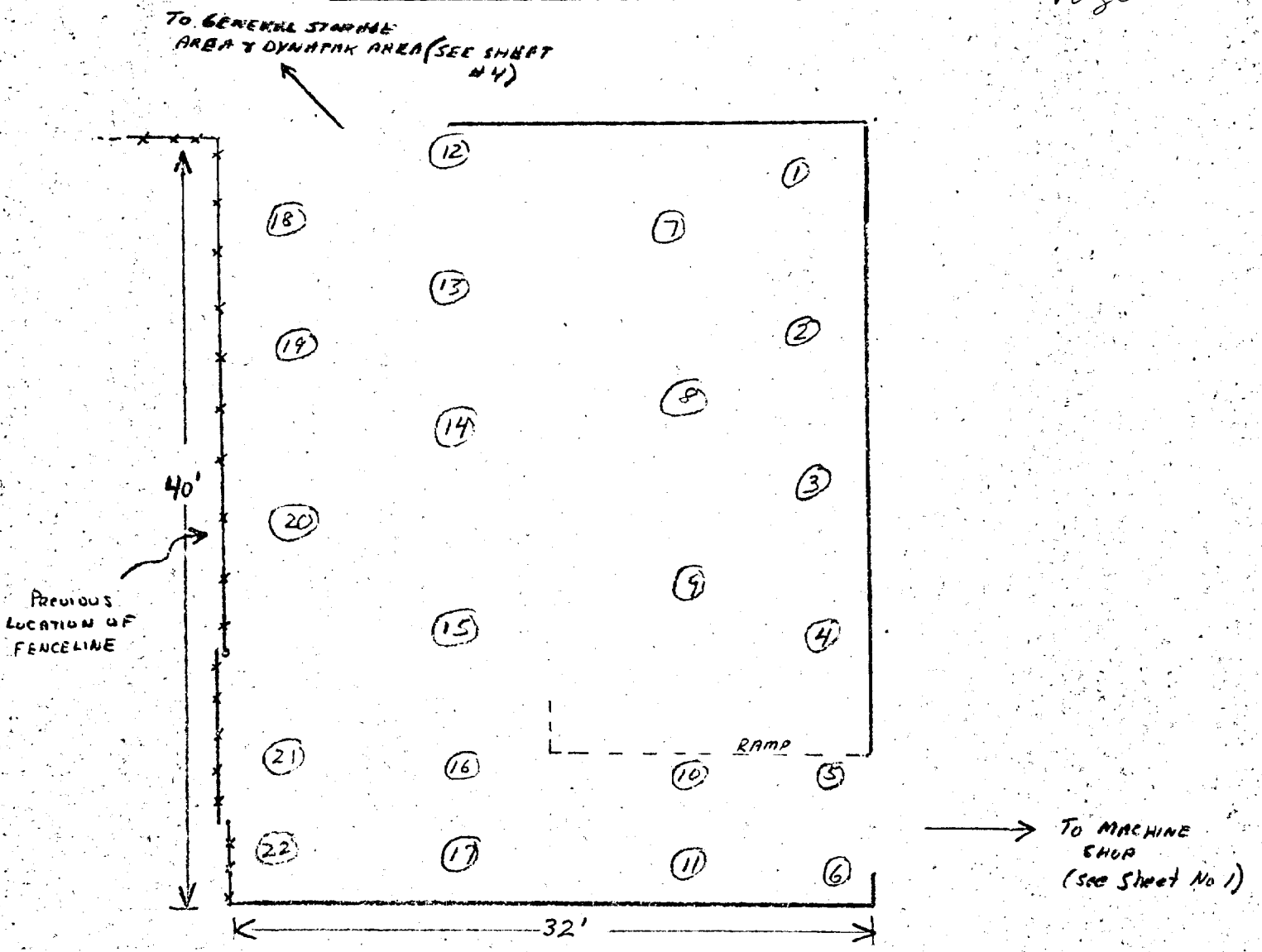


	alpha dlm/100cm² FIXED	alpha dlm/100cm² REMOVABLE	mrad/hr Beta-gamma
1	200	16	.05
2	350	21	.05
3	300	11	.10
4	500	18	.10
5	450	11	.25
6	400	6.5	.05
7	600	9.3	.05
8	400	24.1	.10
9	500	31.8	.20
10	500	23.6	.15
11	300	64.8	.05
12	300	25.8	.15
13	500	17.5	.15
14	100	34.6	.05
15	500	71.4	.05
16	1100	110	.25
17	400	98.3	.05
18	150	51.6	.05
19	600	48.9	.10
20	1000	19.2	.15
21	1300	72.5	.45
22	250	50.5	.05
23	250	42.8	.10
24	250	3.8	.15
25	150	36.8	.20
26	100	39.5	.05
27	400	63.7	.30
28	150	42.8	.10

HALLWAY

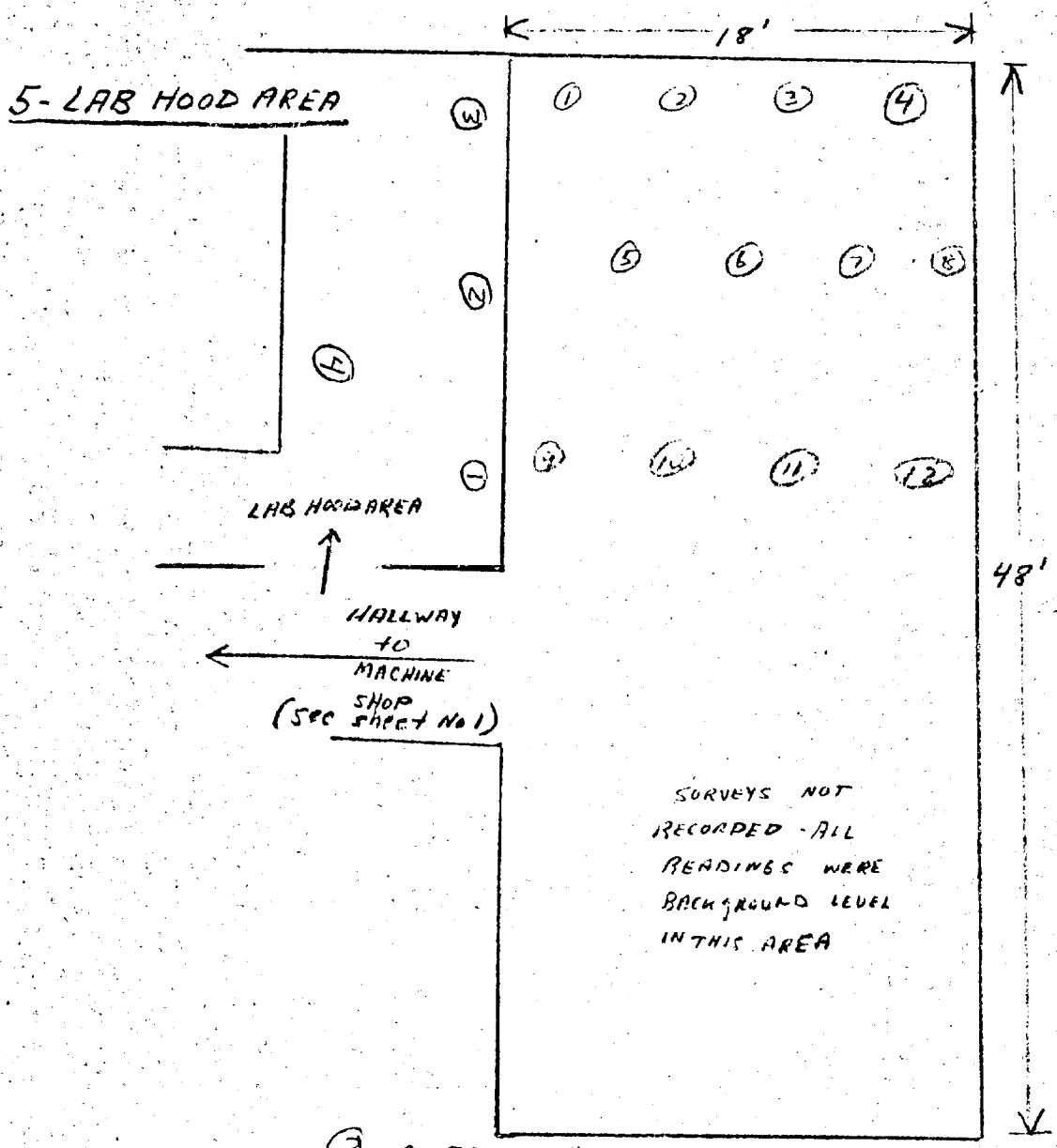
	Fixed alpha	Beta-gamma
29	250	.03
30	250	.03

2 - METAL STORAGE AREA



	Alpha d/m/100 cm² Fixed	Alpha d/m/100 cm² Removable	mRAD/hr Beta-gamma
1	50	0.5	0
2	500	71.4	0
3	100	18.6	0
4	100	1.0	0
5	300	9.3	.05
6	200	45.0	0
7	400	47.8	0
8	200	—	.05
9	200	112.0	0
10	150	7.1	0
11	200	28.0	0
12	400	12.6	.05
13	200	14.2	.05
14	400	27.4	.15
15	700	60.9	.30
16	300	39.0	.05
17	200	18.6	0
18	700	52.7	.10
19	200	19.7	.05
20	100	12.6	0
21	150	14.2	.30
22	150	30.7	.30

3 - CUTTING - GRINDING ROOM



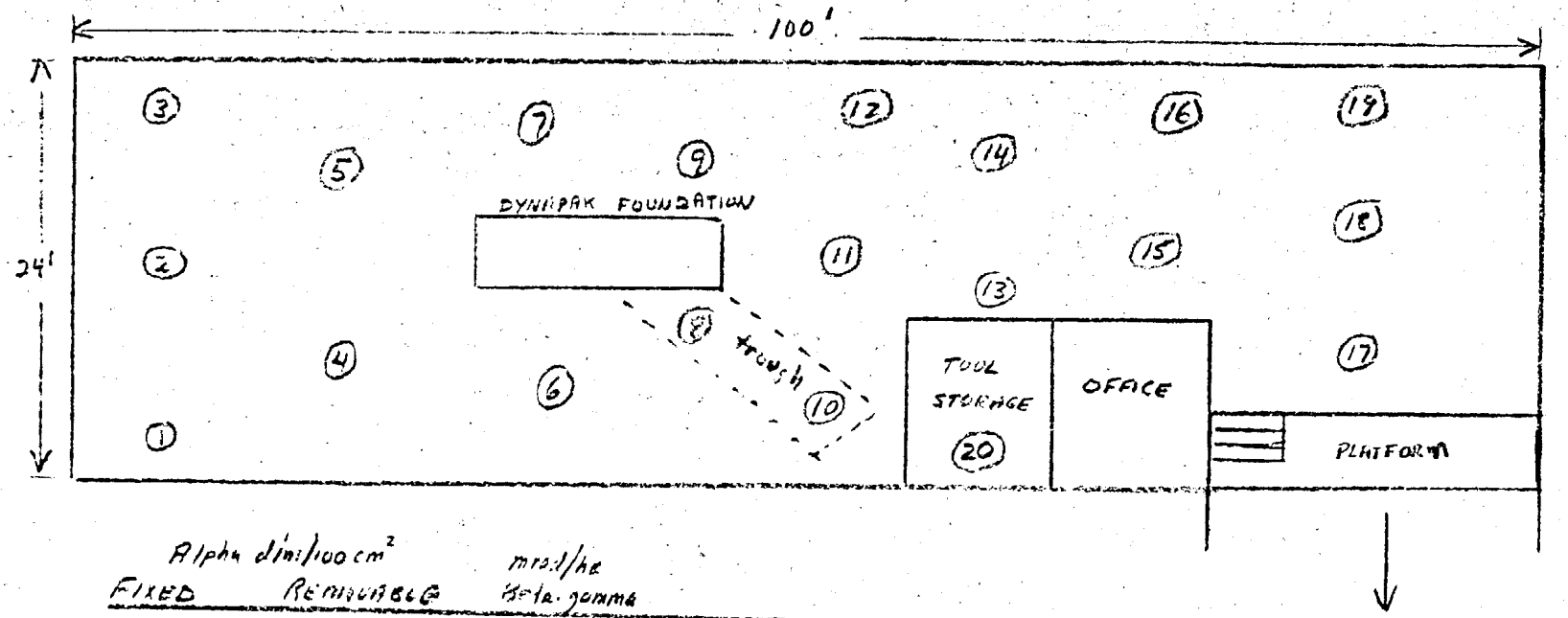
(3) CUTTING - GRINDING ROOM

	ALPHA d/m/100cm² FIXED	ALPHA d/m/100cm² REMOVABLE	MRAD/HR BETA-GAMMA
1	275	60	.05
2	275	21	.05
3	450	50	.45
4	150	25	0
5	150	20	.05
6	200	28	0
7	200	31	0
8	350	18	.05
9	100	14	0
10	150	31	0
11	50	20	0
12	50	32	0

(5) LAB HOOD AREA

	FIXED ALPHA	BETA-GAMMA
1	150	.03
2	200	.02
3	300	.03
4	200	.02

4 - DYNAPAK AREA



	Alpha dis/100 cm² FIXED	Alpha dis/100 cm² REMOVABLE	mrad/hr Beta-gamma
1	100	35.7	0
2	100	8.7	0
3	150	1.6	0
4	200	1.6	0
5	250	13.1	0
6	350	63.7	0
7	350	6.0	0
8	100	8.2	0
9	100	7.1	0
10	—	—	0
11	—	8.7	0
12	—	1.6	0

TO GENERAL STORAGE AND URANIUM STORAGE AREAS (SEE SHEET NO 2)

August 27, 1962

U.S. Atomic Energy Commission
Oak Ridge Operations Office
Feed Materials Division
P.O. Box E
Oak Ridge, Tennessee

Attention: Mr. J. W. Ruch, Director

Subject: Health-Safety Inspection of Seymour Site and Decontamination of Havens Laboratory

Gentlemen:

Reference is made to your letter of June 13, 1962, subject as above, reference symbol OF:DEL.

Please be advised that final cleanup and removal of contamination has been accomplished in all areas of the Havens Laboratory which were formerly used for AEC work. No major problems were encountered in decontamination, and all areas are presently below acceptable surface contamination limits for uncontrolled occupancy.

Also enclosed, as requested, are five (5) prints each of the Seymour facility exhaust systems and floor plans of the building, with the AEC Areas outlined.

It is suggested that the follow-up survey of the Seymour Site be scheduled for the week of September 24, 1962. Further details on the exact date may be coordinated directly with Mr. A.W. Grella.

Very truly yours,

BRIDGEPORT BRASS COMPANY
A DIV. OF NAT'L. DIST. & CHEM. CORP.

D. R. Jefferson
AEC Contract Manager

DRJ/AWG/rmt
Enclosures
c/c M.R. Schaeffer-Ashtabula (w/o encls.) - A.W. Grella-Seymour (w/o encls.)

DRAFT

Mr. William E. Sides
Director of Manufacturing
Brass Mill Products
Bridgeport Brass Company
30 Grand Street
Bridgeport, Connecticut 06602

Dear Mr. Sides:

RADIOLOGICAL CLEARANCE: FACILITIES OPERATED UNDER FORMER AEC CONTRACT

In May 1976 ~~several~~ about 20 sites were identified in the press as locations being reviewed by ERDA to reassess the significance of any radioactivity which might have been left at the conclusion of work under an Atomic Energy Commission (AEC) contract. Bridgeport Brass Company was so identified.

Review of available records and a confirmatory check survey of the Seymour site on January 26, 1977, by ERDA indicate those Bridgeport Brass facilities formerly utilized for AEC contract work involving uranium meet current radiological guidelines for unrestricted use. At that time, no inspection was made of the former Havens Laboratory site, since it is no longer owned by Bridgeport Brass Company; however, our review of facility decommissioning records found in Reactive Metals, Inc., files provides satisfactory assurance that any radioactivity residuals there represent no potential radiation safety problem~~, of concern~~.

~~May I express sincere regret for any inconvenience or apprehension caused your company~~ in this matter. If you request, a press release will be issued in the Bridgeport area clearing Bridgeport Brass facilities.

If you have questions on this matter, do not hesitate to call Mr. W. T. Thornton of my staff (615) 483-8611, extension 3-4113.

Your assistance has been greatly appreciated.

Sincerely,

R. J. Hart
Manager

OSH:WTT

cc: E. N. Luddington, Conn.
E. F. Rich, Conn.