

030-20447

<p>NRC Form 313 I (12-81) 10 CFR 80</p> <p style="text-align: center;">U.S. NUCLEAR REGULATORY COMMISSION</p> <p style="text-align: center;">APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL</p>	<p>1. APPLICATION FOR: <i>(Check and/or complete as appropriate)</i></p> <p style="text-align: right; font-size: 1.5em;">WL 23276</p> <p><input checked="" type="checkbox"/> a. NEW LICENSE</p>
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See attached instructions for details.

Completed applications are filed in duplicate with the Division of Fuel Cycle and Material Safety, Office of Nuclear Material Safety, and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555 or applications may be filed in person at the Commission's office at 1717 H Street, NW, Washington, D. C. or 7915 Eastern Avenue, Silver Spring, Maryland.

	<p><input type="checkbox"/> b. AMENDMENT TO LICENSE NUMBER</p> <p><input type="checkbox"/> c. RENEWAL OF LICENSE NUMBER</p>
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2. APPLICANT'S NAME (Institution, firm, person, etc.)

Greens Creek Mining Company

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION
907-789-4171

3. NAME AND TITLE OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION

Tracy T. Morris-Mill Manager

TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION
907-789-4171

4. APPLICANT'S MAILING ADDRESS (Include Zip Code)
(Address to which NRC correspondence, notices, bulletins, etc., should be sent.)

3000 Vintage Blvd, Suite 200
Juneau, Alaska 99801

5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED
(Include Zip Code)

Admiralty Island
Greens Creek Mine/Mill Site
18 air miles S.W. of Juneau, Alaska

(IF MORE SPACE IS NEEDED FOR ANY ITEM, USE ADDITIONAL PROPERLY KEYED PAGES.)

6. INDIVIDUAL(S) WHO WILL USE OR DIRECTLY SUPERVISE THE USE OF LICENSED MATERIAL
(See Items 16 and 17 for required training and experience of each individual named below)

FULL NAME	TITLE
a. <u>Tracy T. Morris</u>	<u>Mill Manager</u>
b.	
c.	

7. RADIATION PROTECTION OFFICER

Ben W. Sheppard

Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.

B. LICENSED MATERIAL

LINE NO.	ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	NAME OF MANUFACTURER AND MODEL NUMBER <i>(If Sealed Source)</i>	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTIVITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME
A	B	C	D	
(1)	CS-137	Sealed Source	Ohmart	
(2)	Americium-241	Sealed Source	Amersham Corp. Model AMC-A1	100 MCI (3.7GBq)
(3)		"Testing for proper operation of off/on mechanism of the Ohmart device not to exceed 6 month intervals".		
(4)		Wipe test interval-not to exceed 3 years		

DESCRIBE USE OF LICENSED MATERIAL
E

(1)	CS-137	Used as bin level indicator and slurry density gauge in Ohmart devices which have been evaluated and approved for licensing purposes and authorized for distribution under authority of Ohmart's license #34-00639-01		
(2)				
(3)				
(4)	AM-241	The purpose of the sealed source/device combination is to measure concentrations of specific elements in slurry streams.		

70695

INFORMATION REQUIRED FOR ITEMS 15, 16 AND 17

Describe in detail the information required for items 15, 16 and 17. Begin each item on a separate page and key to the application as follows:

15. **RADIATION PROTECTION PROGRAM.** Describe the radiation protection program as appropriate for the material to be used including the duties and responsibilities of the Radiation Protection Officer, control measures, bioassay procedures (if needed), day-to-day general safety instruction to be followed, etc. If the application is for sealed source, also submit leak testing procedures, or if leak testing will be performed using a leak test kit, specify manufacturer and model number of the leak test kit.

16. **FORMAL TRAINING IN RADIATION SAFETY.** Attach a resume for each individual named in Items 6 and 7. Describe individual's formal training in the following areas where applicable. Include the name of person or institution providing the training, duration of training, when training was received, etc.
 - a. Principles and practices of radiation protection.
 - b. Radioactivity measurement standardization and monitoring techniques and instruments.
 - c. Mathematics and calculations basic to the use and measurement of radioactivity.
 - d. Biological effects of radiation.

17. **EXPERIENCE.** Attach a resume for each individual named in Items 6 and 7. Describe individual's work experience with radiation, including where experience was obtained. Work experience or on-the-job training should be commensurate with the proposed use. Include list of radioisotopes and maximum activity of each used.

Dec-1-87

6307
#230
30

amp
12/10/87
Tracy T. Morris

18. CERTIFICATE

(This item must be completed by applicant)

The applicant and any official executing this certificate on behalf of the applicant named in Item 2, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 30, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

WARNING.—18 U.S.C., Section 1001; Act of June 25, 1948; 62 Stat. 749, makes it a criminal offense to make a willfully false statement or representation to any department or agency of the United States as to any matter within its jurisdiction.

a. LICENSE FEE REQUIRED
(See Section 170.31, 10 CFR 170)

b. CERTIFYING OFFICIAL *(Signature)*

Tracy T. Morris

c. NAME *(Type or print)*

Tracy T. Morris

(1) LICENSE FEE CATEGORY:

d. TITLE

Mill Manager

(2) LICENSE FEE ENCLOSED: \$230.00

e. DATE

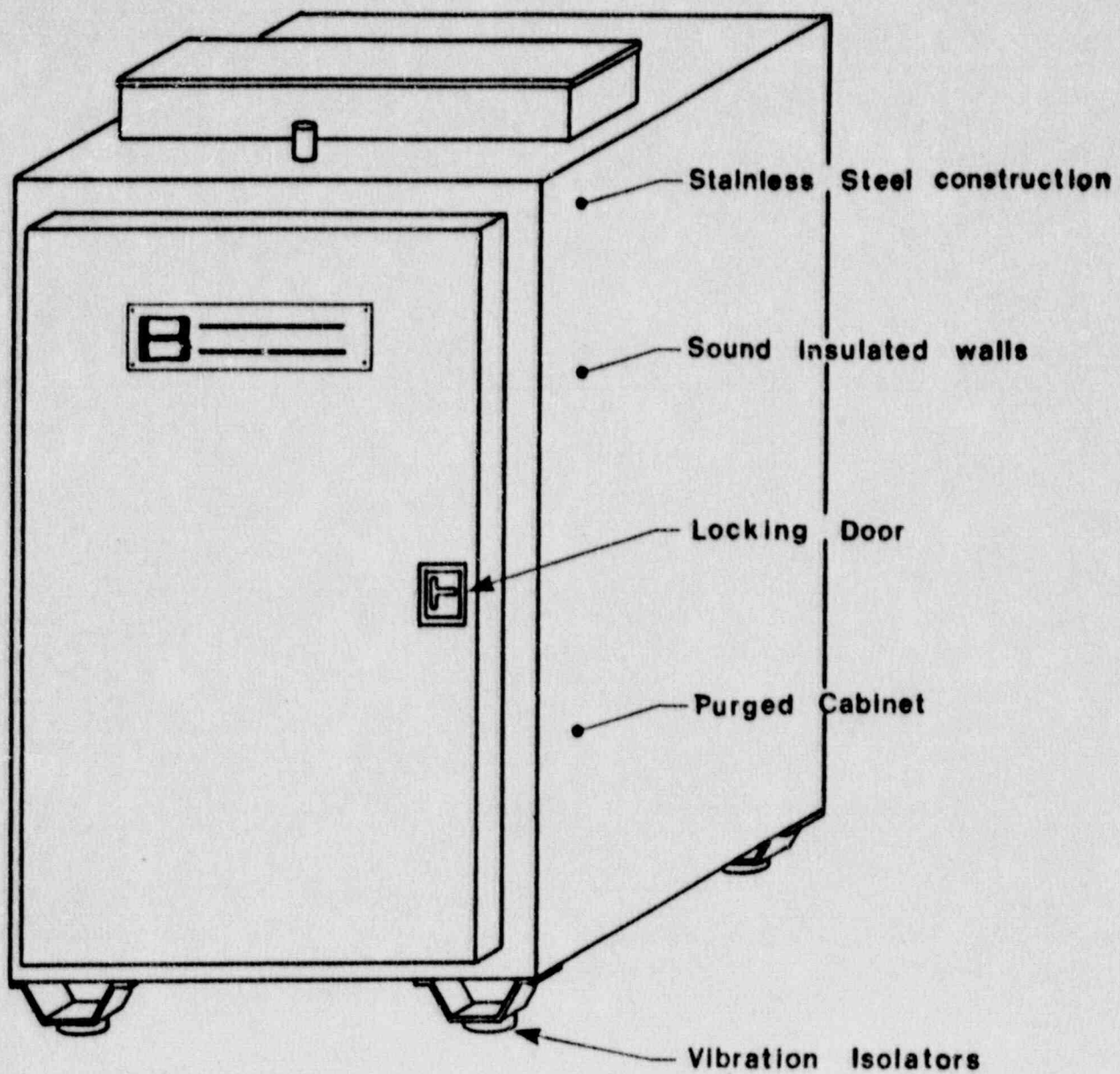
12/10/87



ITEM 9

RAMSEY REC LTD DEVICE

SOURCE	HOLDER	DRAWINGS
SS 85214		Sample Station
C-004014	Rev A	Collimator-G.A.
D 002000	Rev A	Slurry Head Assembly
D 002424		Sample Station-G.A.
B 002413	Rev A	Slurry Head-Radiation Shield
B-004012		Collimator-Bottom Shield
B-004011	Rev B	Collimator-Top Shield



SS 852/4 SAMPLE STATION



ITEM 15

RADIATION PROTECTION PROGRAM

The source/source holders will be received and stored pending arrival of Manufacturer's Field Engineer. The source/source holders will be installed in the closed position under the supervision of the representative. A written procedure for prevention of entry into the vessel when the source is in the open (source exposed) position will be prepared. This program will be developed in consultation with the manufacturer's representative.

The initial radiation survey will be made by the representative at the time the device is placed in service. An occupancy evaluation will be made by the representative and if film badges appear to be required, they will be obtained. Form NRC-3 will be posted and if the radiation survey with the vessel(s) empty reveals radiation fields in excess of 5 mr/hr at 12 inches from the surface of the vessels, appropriate warning signs will be posted. Procedures will be adjusted to reduce the total dose to personnel to the minimum reasonably achievable. A copy of the radiation survey and written procedures will be kept on file for future reference.

In case of malfunction of the source holder or damage thereto, the services of the manufacturer's representative will be obtained for repair or to supervise removal and proper packaging for return to the manufacturer for repair or replacement as required.

In case of emergency such as fire or explosion involving apparent damage to the source holder, the appropriate Regional Office of



Inspection and Enforcement (10 CFR 20 Appendix D), USNRC, will be contacted for assistance. The area around the source holder will be barricaded. The services of a manufacturer's representative will be obtained to assist in inspection for damage and local health authorities will also be notified.

Ohmart Wipe Test Procedure- A test will be performed on the surface of the source holder at the appropriate interval by the licensee in accordance with the instructions of the manufacturer's representative and contained in the gauge instruction manual. The wipe test kit to be used is the Ohmart Model LT and the wipe will be evaluated for leakage by The Ohmart Corporation. Should the presence of 0.005 microcuries of removable contamination be detected, the source holder will be withdrawn from service, the Regional Office of the USNRC notified and the device repaired or replaced by the manufacturer.

Ramsey REC Leak Test Procedure- A standard leak test kit (No model number) is available from Ramsey Rec Ltd. and will be used at the appropriate interval by the licensee in accordance with the instructions of the manufacturer's representative and contained in the instruction manual.

ITEM 17

EXPERIENCE

Attached, Ben W. Sheppard's resume describing work experience dealing with radiation.

Tracy T. Morris has not had any experience working with radioactive material but will receive adequate training from the manufacturer's representative before using any of the devices.



ITEM 16

FORMAL TRAINING

Training in the use and operation of the Ohmart and Ramsey devices will be given at the time of installation by the respective supplier to the individuals named in items 6 and 7 along with subsequent employees hired after the application date who may have use or supervise use of the licensed material.

Ohmart provides radiation safety school on a regular basis which is recognized by the NRC.

December 9, 1987

To Whom It May Concern:

I served as the Radiation Safety Officer for the Troy Unit Mine in North West Montana from 1980 through 1986.

I have had radiation management training, given by the Civil Defense, and National Emergency Medical Technician Registry.

I am qualified to do underground radiation monitoring, and give training in mine radiation hazards as required by the Mine Safety and Health Administration.

I have received training, and given training for radiation emergencies and first aid, and I have been instrumental in developing a community disaster plan for a radiation emergency.

Sincerely,

Ben W. Sheppard
Director of Safety, Training
and Security
Greens Creek Mining Company

cc: Tracy Morris

BWS/mb/2A.16



ENVIRONMENTAL CONDITIONS

The Ohmart level switch will operate in an open, unheated area but will be well protected by the truck dump structure, apron feeder chutes and its own protective cover. The temperature extremes of -15°F to 92°F are within the operating limits of -40°F to 158°F . The atmosphere will contain small amounts of particulate but will not be corrosive and will be a relatively clean area.

All the other instruments will operate in the heated concentrator building. The atmosphere is non-corrosive but will have small amounts of dust particles. Build up of scale and sludge could occur from launder spills or pipe leaks but will be kept to a minimum by location, clean up and maintenance of the instrument.

COOLING REQUIREMENTS

No cooling of the source is required for either the Ohmart or Ramsey devices. Ramsey units require cooling of the detector using liquid nitrogen but failure of the cooling system would not affect the nuclear source.



MAINTENANCE SCHEDULE

The Ramsey promox will require weekly checks for slurry window maintenance or replacement. The units will require regular cleaning and assay calibration to insure accurate data output as well as to maintain safe working conditions. A lock out procedure is not applicable to this device and any adjustments to the source will be made by the manufacturer's representative.

Ohmart devices will be supplied with manual shutter levers which will be tested at less than 6 month intervals. The density gauge will be cleaned daily during a regular mill clean up schedule while the lever indicator will be cleaned as required since its location is isolated and in a relatively clean environment.

Any materials in which the devices may come in contact with are non-corrosive and will not affect the protective covering of the sources.

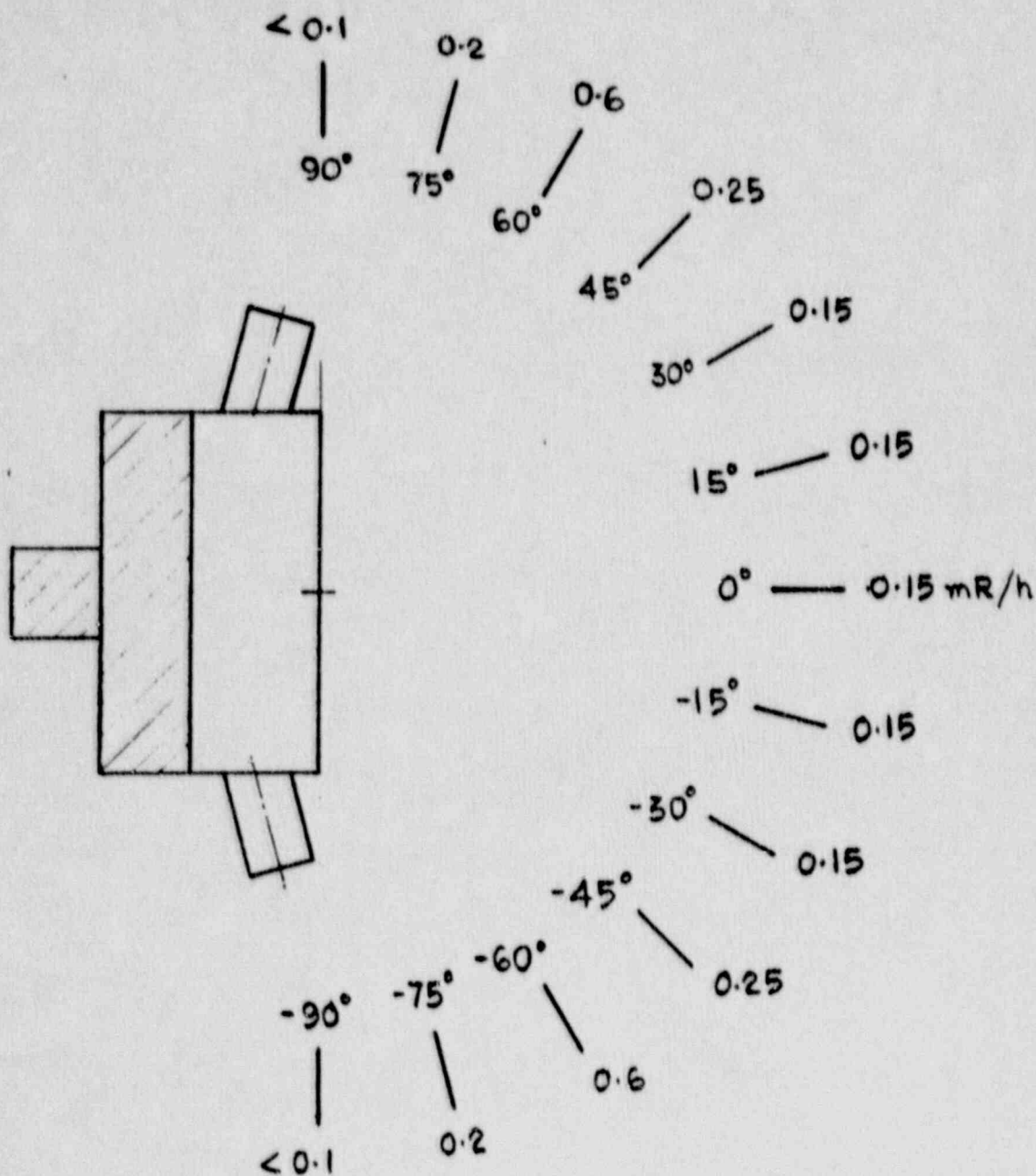


NUCLEAR GAUGE LOCATIONS

DWGS	300-11-06	Concentrator Building Plan
	300-17-05	Grinding Area-piping G.A.
	200-10-01	Apron Feeder Discharge Chute G.A.
	300-10-12	Flotation Area-G.A.

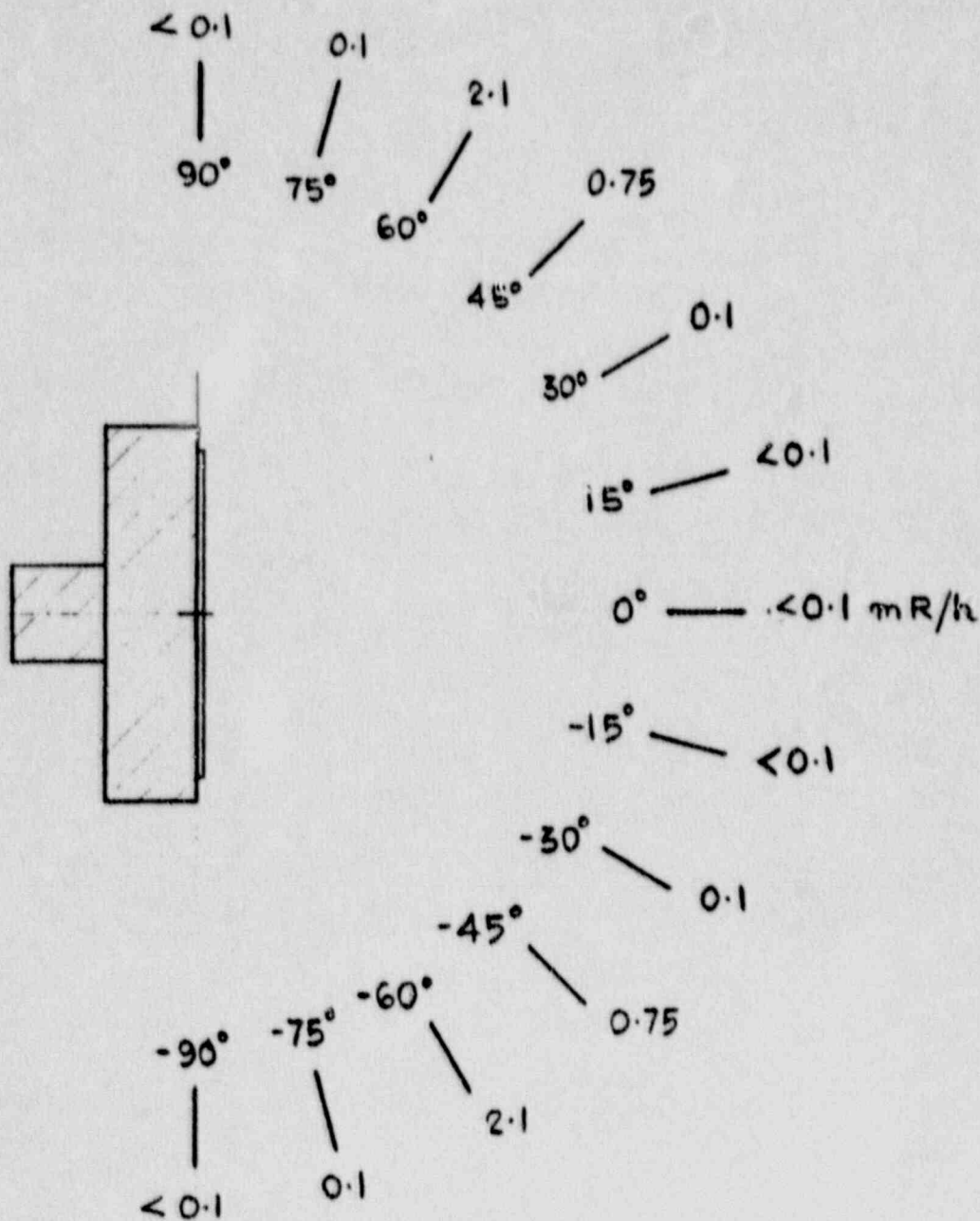
MEASURED RADIATION FIELD

DEVICE : SH11 SLURRY HEAD - NO SLURRY
SOURCE : Am 241 (100 mCi)
DISTANCE : 12" (30 cm) FROM FACE
SURVEY METER : TEXAS NUCLEAR MODEL 2652 6/11/87 P, 260
DATE OF MEAS'NT : Nov. 5-87



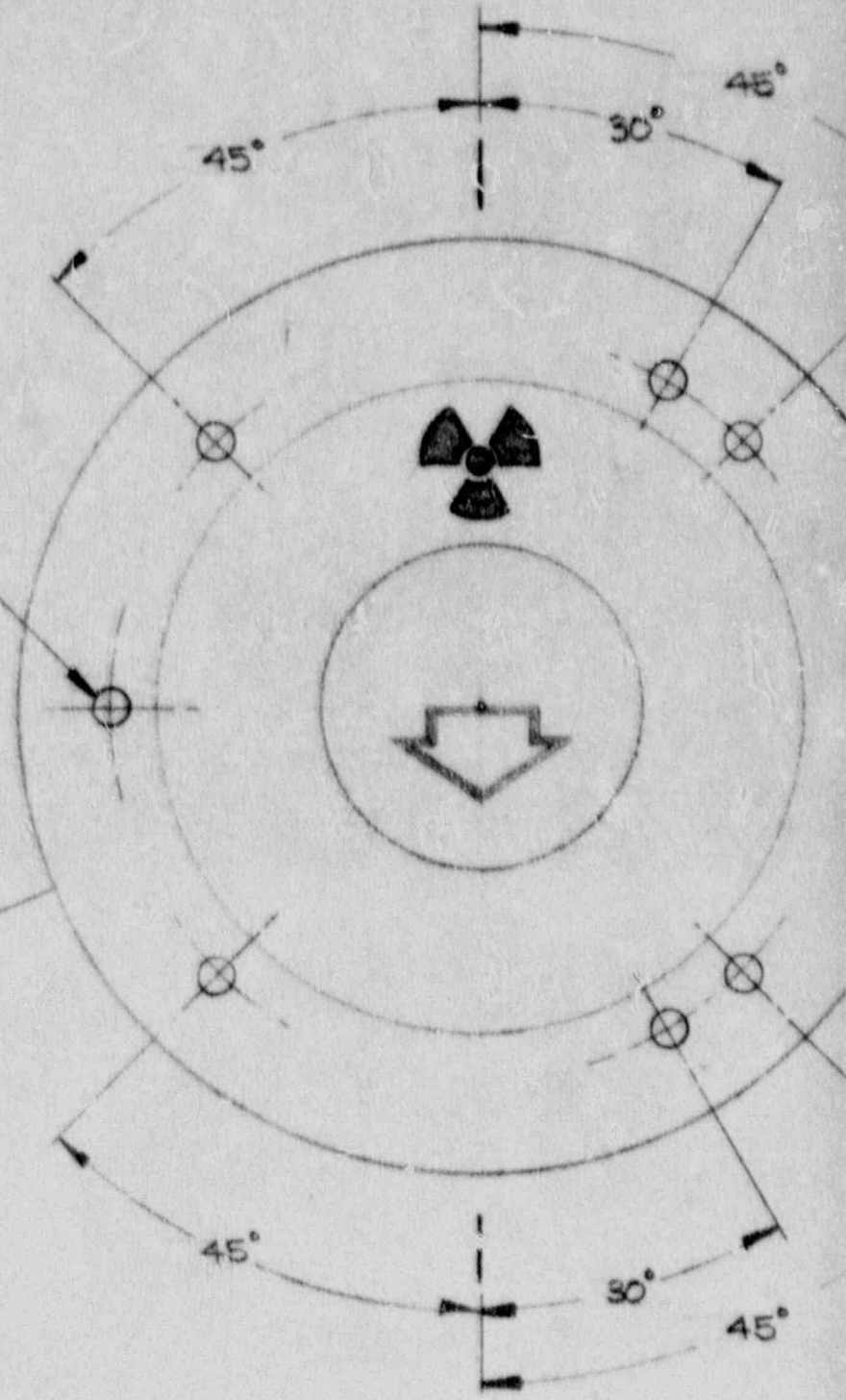
MEASURED RADIATION FIELD


DEVICE : SH. 11 SLURRY HEAD, WITHOUT SLURRY CELL
SOURCE : Am 241 (100 mCi)
DISTANCE : 12" (30 cm) FROM FACE
SURVEY METER : TEXAS NUCLEAR MODEL 2652 S/N# B260
DATE OF MEAS'MT : NOV. 5-87



.200 DIA.
7 HOLES REQ'D
4.00 P.C.D.

5.00 DIA.



	RAMSEY REC Ltd. RICHMOND HILL ONTARIO	SLI RA
		SCALE FULL MAT'L. NOTED FINISH

REVISIONS		
REV	DESCRIPTION	DATE
A	- 7 HOLES REQ'D WAS 3 HOLES REQ'D - ADDITION OF ARROW TO ARTWORK	27 JAN 83

★

.125

3

FINISH
 PLATE - CLEAR ANODIZE
 AND PAINT ALLOVER
 MUSTARD YELLOW
 LETTERING - BLACK

SI
 APERTURE
 CARD

Also Available On
 Aperture Card

3	500' EA.		DOUBLE SIDE TAPE
2	1	B002544	ARTWORK
1	1	B002413	PLATE (ALUM.)
DETAIL	QTY	PART NUMBER	NAME

8911300239-01

PARTS LIST

JERRY HEAD
 DIATION SHIELD.

DR'N.
 S. LAZUK

TOLERANCE
 .XXX ± .005
 .XX ± .010
 .X ± .015

ENG.
[Signature]

DWG. NO.
 B002413

REV.
 A

NOTED

NO. REQ'D. 1

DATE 25 NOV 81

CH'D.
[Signature]

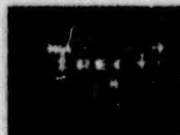
#42 (.093) DIA. DRILL 4 HOLES EQ SPACED @ 2.500 P.C.D.

0.472 I.D.

2.600 Q.D.

45°

DRILL 0.09 DIA
CSK. 82° x 0.1
DIA. 4 HOLES
EQ SPACED @ 1.5



RAMSEY REC Ltd.

RICHMOND HILL ONTARIO

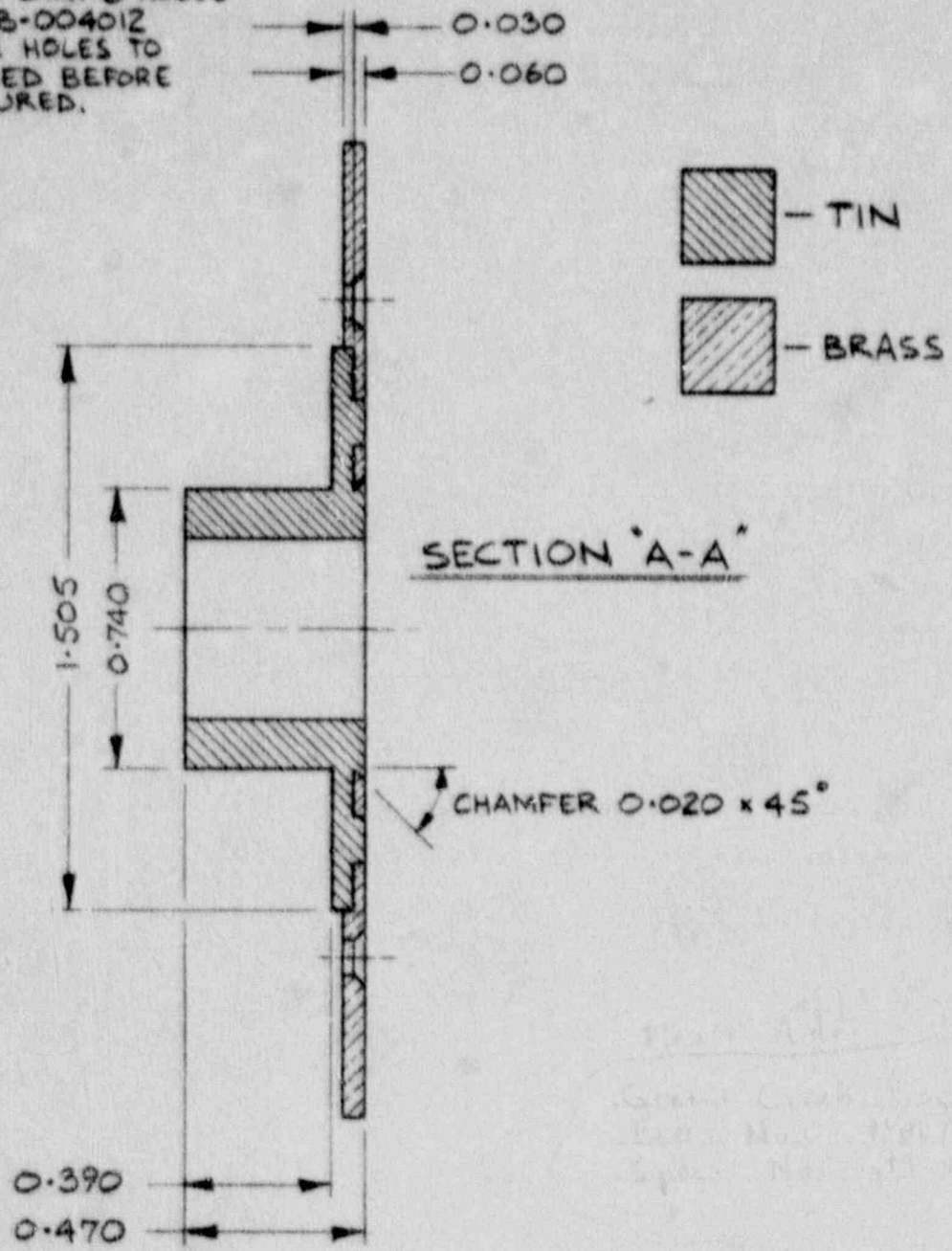
SCALE 2:1

MAT'L. NOTED

FINISH

REVISIONS		
REV	DESCRIPTION	DATE

DRILL 0.125 DIA. 8 HOLES
 USE JIG # B-004012
 NOTE: THESE HOLES TO
 BE DRILLED BEFORE
 TIN IS POURED.



SI
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 CARD
 Also Available On
 Aperture Card

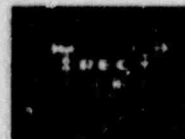
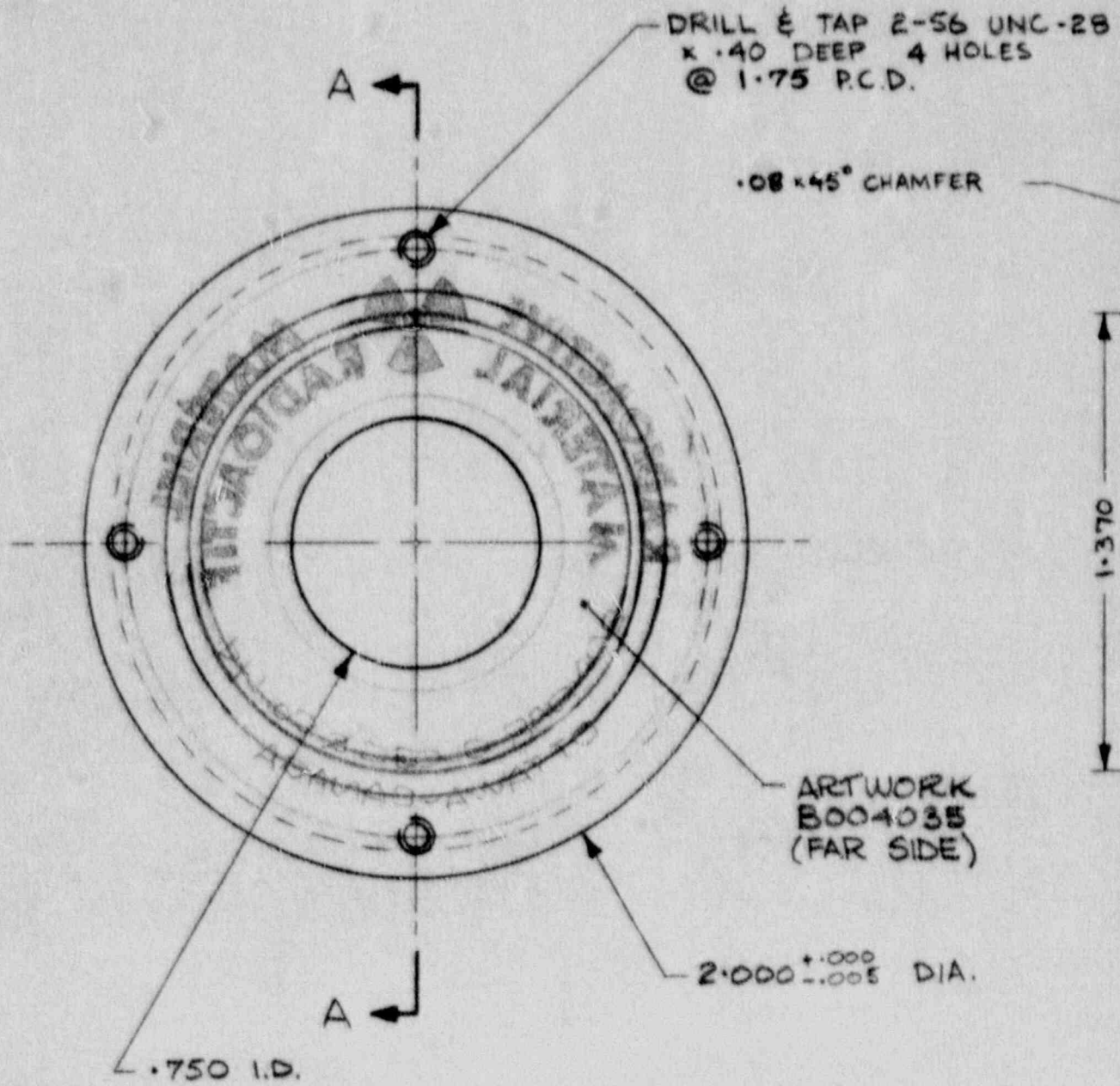
75 P.C.D.

8911300239-02

ASS'Y DWG. C-004014

BOTTOM SHIELD ON STREAM COLLIMATOR		DR'N. B. RUNNING	TOLERANCE .XXX ± .005 .XX ± .010 .X ± .015	
I ¹²⁵ - Am ²⁴¹ - Cd ¹⁰⁹		ENG. JWG	DWG. NO. B-004012	REV.
NATURAL	NO. REQ'D. 1	DATE 3/25/80	CH'D. <i>E.</i>	

①



RAMSEY REC Ltd.

RICHMOND HILL ONTARIO

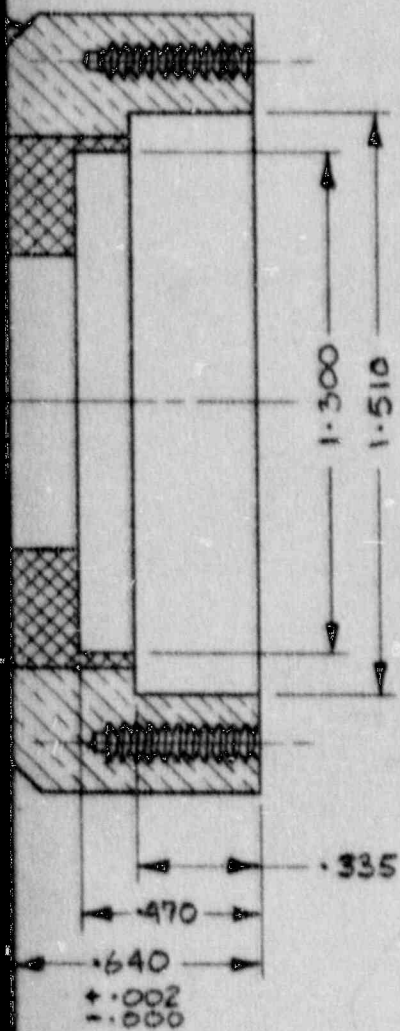
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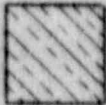
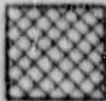
MAT'L. NOTED

FINISH

REVISIONS		
REV	DESCRIPTION	DATE
A	0.470 WAS 0.540 - ADD 2 #2-56 HOLES	10/10/78
B	SILK SCREEN FRONT WITH ARTWORK B004035	25 FEB 82

SECTION A-A



 - DENOTES BRONZE
 - DENOTES TIN

SI
APERTURE
CARD

Also Available On
Aperture Card

8911300239-03

STREAM COLLIMATOR TOP SHIELD I^{125} - Am^{241} - Cd^{109}		DR'N. B. RUNNING	TOLERANCE $.xxx \pm .005$ $.xx \pm .010$ $.x \pm .015$
(2)		ENG. JWB.	DWG. NO. B-004011
NATURAL	NO. REQ'D. 1	DATE 24/8/78	REV. B
		CH'D. A	

**OVERSIZE
DOCUMENT
PAGE PULLED**

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5

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