

UNITED STATES ATOMIC ENERGY COMMISSION

APPLICATION FOR SOURCE MATERIAL LICENSE

Pursuant to the regulations in Title 10, Code of Federal Regulations, Chapter 1, Part 40, application is hereby made for a license to receive, possess, use, transfer, deliver or import into the United States, source material for the activity or activities described.

1. (Check one) <input checked="" type="checkbox"/> (a) New license <input type="checkbox"/> (b) Amendment to License No. <input type="checkbox"/> (c) Renewal of License No. <input type="checkbox"/> (d) Previous License No.		2. NAME OF APPLICANT EARL G. SURENBY	
		3. PRINCIPAL BUSINESS ADDRESS 1061 GRANT - BOULDER, COLORADO	
4. STATE THE ADDRESS(ES) AT WHICH SOURCE MATERIAL WILL BE POSSESSED OR USED Marion Mill - Located 5 mi. West of Boulder on Boulder Canyon Road, then 2 1/2 mi. Northwest on Sugar Loaf Road.			
5. BUSINESS OR OCCUPATION Milling and Refining		6. (a) IF APPLICANT IS AN INDIVIDUAL, STATE CITIZENSHIP U. S.	(b) AGE 56
7. DESCRIBE PURPOSE FOR WHICH SOURCE MATERIAL WILL BE USED A titanate of Columbium-Uranium produced in treating by-products from Climax Molybdenum Co. Principal products are tin and tungsten. Another by-product which will be produced is Monazite.			
8. STATE THE TYPE OR TYPES, CHEMICAL FORM OR FORMS, AND QUANTITIES OF SOURCE MATERIAL YOU PROPOSE TO RECEIVE, POSSESS, USE, OR TRANSFER UNDER THE LICENSE			
(a) TYPE	(b) CHEMICAL FORM	(c) PHYSICAL FORM (Including SO. HAV. % U or Th.)	(d) MAXIMUM AMOUNT AT ANY ONE TIME (in pounds)
NORMAL URANIUM		Concentrate of Betafite	50,000 lbs. U ₃ O ₈
URANIUM DEPLETED IN THE U-235 ISOTOPE		Concentrate of Monazite	50,000 lbs. ThO ₂
(e) MAXIMUM TOTAL QUANTITY OF SOURCE MATERIAL YOU WILL HAVE ON HAND AT ANY TIME (in pounds) 500 lb. per month of U ₃ O ₈ and 500 lb. per month of ThO ₂ will have to be stockpiled until a market can be found. Estimate 50,000 lbs. maximum of each.			
9. DESCRIBE THE CHEMICAL, PHYSICAL, METALLURGICAL, OR NUCLEAR, PROCESS OR PROCESSES IN WHICH THE SOURCE MATERIAL WILL BE USED, INDICATING THE MAXIMUM AMOUNT OF SOURCE MATERIAL INVOLVED IN EACH PROCESS AT ANY ONE TIME, AND PROVIDING A THOROUGH EVALUATION OF THE POTENTIAL HAZARDS ASSOCIATED WITH EACH STEP OF THOSE OPERATIONS. Material as received is a gravitic concentrate, grain size minus 80 plus 250 mesh with slime and dust removed. About 25 ton per month each of Monazite and Uranium bearing material. Magnetic, Hi Tension Electric, and Gravity Concentration. No regrinding required. No water is allowed to run back into creek. Buildings are well ventilated. No fine dust produced. Finished product is stored in steel drums outside. Not in a closed building.			
10. DESCRIBE THE MINIMUM TECHNICAL QUALIFICATIONS INCLUDING TRAINING AND EXPERIENCE THAT WILL BE REQUIRED OF APPLICANT'S SUPERVISORY PERSONNEL INCLUDING PERSON RESPONSIBLE FOR RADIATION SAFETY PROGRAM (OR OF APPLICANT IF APPLICANT IS AN INDIVIDUAL). Applicant has been in milling and refining for 20 yrs., including buying and milling Thorite ore for Wah Chang Corp. in this same mill for 18 months, before I bought the mill from them in 1949. Have designed and built 3 mills and remodeled many more. Was close to Wah Chang research program on Thorium and Rare Earths.			
11. DESCRIBE THE EQUIPMENT AND FACILITIES WHICH WILL BE USED TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE OR PROPERTY AND RELATE THE USE OF THE EQUIPMENT AND FACILITIES TO THE OPERATIONS LISTED IN ITEM 9. INCLUDE (a) RADIATION DETECTION AND RELATED INSTRUMENTS (including film badges, dosimeters, counters, air-monitoring and other survey equipment as appropriate. The description of radiation detection instruments should include the type of radiation detected and the range(s) of each instrument.) A 20 tube Bismatron is used for radiation control. Mill was checked by A.E.C., State Health Dept., State Bureau of Mines, on the Thorite operation which made a 20% ThO ₂ concentrate by grinding and concentration. Radiation and dust produced was much higher, but was considerably below maximum allowed.			
(b) METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED IN (a) ABOVE (for film badges specify method of calibrating and processing, or name supplier.) A metal standard is used in calibrating the Bismatron.			

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11 (c). VENTILATION EQUIPMENT WHICH WILL BE USED IN OPERATIONS WHICH PRODUCE DUST, FUMES, MISTS, GASES, ETC.
No dust or fumes are produced. Mill is equipped with a Mueller Climatrol. Fourteen inch air ducts are used.

12. DESCRIBE PROPOSED PROCEDURES TO PROTECT HEALTH AND MINIMIZE DANGER TO LIFE AND PROPERTY AND RELATE THESE PROCEDURES TO THE OPERATIONS LISTED IN ITEM 9; INCLUDE:
(a) PROCEDURES FOR USE OF NUCLEAR MATERIALS AND SAFETY FEATURES AND PROCEDURES TO AVOID NONNUCLEAR ACCIDENTS, SUCH AS FIRE, EXPLOSION, ETC., IN SOURCE MATERIAL STORAGE AND PROCESSING AREAS.

There is no danger from radiation resulting in fire, explosion, etc., in this type operation. The usual procedures required by the Bureau of Mines Inspector and fire insurance inspectors are followed.

(b) EMERGENCY PROCEDURES IN THE EVENT OF ACCIDENTS WHICH MIGHT INVOLVE SOURCE MATERIAL.
There are no accidents possible which would involve source material.

(c) DETAILED DESCRIPTION OF RADIATION SURVEY PROGRAM AND PROCEDURES.
Daily radiation count is made in normal mill product control.

13. WASTE PRODUCTS: If none will be generated, state "None" opposite (a), below. If waste products will be generated, check here and explain on a supplemental sheet:
(a) Quantity and type of radioactive waste that will be generated. **None**
(b) Detailed procedures for waste disposal. **Tailings are held in tailings pond.**

14. IF PRODUCTS FOR DISTRIBUTION TO THE GENERAL PUBLIC UNDER AN EXEMPTION CONTAINED IN 10 CFR 40 ARE TO BE MANUFACTURED, USE A SUPPLEMENTAL SHEET TO FURNISH A DETAILED DESCRIPTION OF THE PRODUCT, INCLUDING:
(a) PERCENT SOURCE MATERIAL IN THE PRODUCT AND ITS LOCATION IN THE PRODUCT.
(b) PHYSICAL DESCRIPTION OF THE PRODUCT INCLUDING CHARACTERISTICS, IF ANY, THAT WILL PREVENT INHALATION OR INGESTION OF SOURCE MATERIAL THAT MIGHT BE SEPARATED FROM THE PRODUCT.
(c) BETA AND BETA PLUS GAMMA RADIATION LEVELS (Specify instrument used, date of calibration and calibration technique used) AT THE SURFACE OF THE PRODUCT AND AT 12 INCHES.
(d) METHOD OF ASSURING THAT SOURCE MATERIAL CANNOT BE DISASSOCIATED FROM THE MANUFACTURED PRODUCT.

CERTIFICATE

(This item must be completed by applicant)

15. The applicant, and any official executing this certificate on behalf of the applicant named in Item 1, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

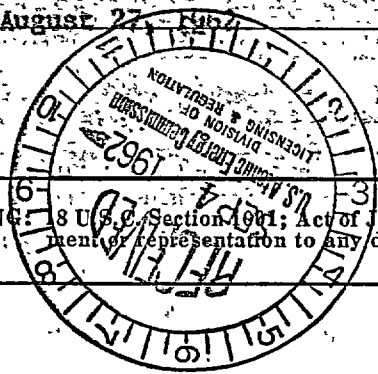
Paul J. Swaney
(Applicant named in Item 1)

Dated August 27, 1967

BY: *Paul J. Swaney*

Owner-Manager
(Title of certifying official authorized to act on behalf of the applicant)

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.



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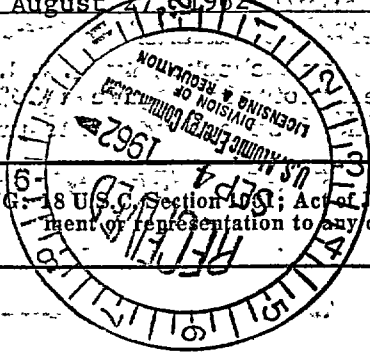
15. The applicant, and any official executing this certificate on behalf of the applicant named in Item 1, certify that this application is prepared in conformity with Title 10, Code of Federal Regulations, Part 40, and that all information contained herein, including any supplements attached hereto, is true and correct to the best of our knowledge and belief.

Paul G. Swaney
(Applicant named in Item 2)

Dated August 27, 1962

BY: *Paul G. Swaney*

Owner-Manager
(Title of certifying official authorized to act on behalf of the applicant)

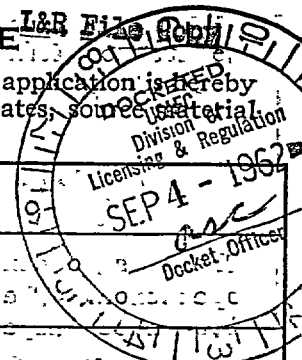


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URANIUM DEPLETED IN THE U-235 ISOTOPE			
THORIUM		Concentrate of Monazite 4% ThO ₂	50,000 lbs. ThO ₂
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