

Form AEC-313 (2-73) 10 CFR 30	UNITED STATES ATOMIC ENERGY COMMISSION APPLICATION FOR BYPRODUCT MATERIAL LICENSE	Form approved Budget Bureau No. 38-20027
<p>INSTRUCTIONS.—Complete Items 1 through 16 if this is an initial application or an application for renewal of a license. Information contained in previous applications filed with the Commission with respect to Items 8 through 15 may be incorporated by reference provided references are clear and specific. Use supplemental sheets where necessary. Item 16 must be completed on all applications. Mail two copies to: U.S. Atomic Energy Commission, Washington, D.C., 20545, Attention: Materials Branch, Directorate of Licensing. Upon approval of this application, the applicant will receive an AEC Byproduct Material License. An AEC Byproduct Material License is issued in accordance with the general requirements contained in Title 10, Code of Federal Regulations, Part 30, and the Licensee is subject to Title 10, Code of Federal Regulations, Part 20, and the license fee provisions of Title 10, Code of Federal Regulations, Part 170. The license fee category should be stated in Item 16 and the appropriate fee enclosed. (See Note in Instruction Sheet).</p>		
1. (a) NAME AND STREET ADDRESS OF APPLICANT. (Institution, firm, hospital person, etc. include ZIP Code and telephone number.) CARGILL, INC. DOMESTIC SOYBEAN CRUSHING DIV. 122ND & TORRENCE AVE. CHICAGO, ILL. 60617 <div style="text-align: right;">(312) 375-7353</div>		(b) STREET ADDRESS(ES) AT WHICH BYPRODUCT MATERIAL WILL BE USED. (If different from 1(a). Include ZIP Code.)
2. DEPARTMENT TO USE BYPRODUCT MATERIAL EXTRACTION PLANT	3. PREVIOUS LICENSE NUMBER(S). (If this is an application for renewal of a license, please indicate and give number.) <div style="text-align: right;"> NEW L4L 12-18671-01 030-14019 </div>	
4. INDIVIDUAL USER(S). (Name and title of individual(s) who will use or directly supervise use of byproduct material. Give training and experience in Items 8 and 9.) GREG LOFSTEDT - PLANT SUPT. JAY BONSE - ASST. SUPT. STEVE PINNEY - PRODUCTION SUPERVISOR	5. RADIATION PROTECTION OFFICER. (Name of person designated as radiation protection officer if other than individual user. Attach resume of his training and experience as in Items 8 and 9.) GREG LOFSTEDT - PLANT SUPT.	
6. (a) BYPRODUCT MATERIAL (Elements and mass number of each.) Cs-137	(b) CHEMICAL AND/OR PHYSICAL FORM AND MAXIMUM NUMBER OF MILLICURIES OF EACH CHEMICAL AND/OR PHYSICAL FORM THAT YOU WILL POSSESS AT ANY ONE TIME. (If sealed source(s), also state name of manufacturer, model number, number of sources and maximum activity per source.) 1 x 50 millicuries, TEXAS NUCLEAR MODEL 570-57157C	
<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="border: 1px solid black; padding: 5px; transform: rotate(-5deg);"> <p>Applicant: 6715848</p> <p>Check No. 16110132</p> <p>Amount/Fee Category: Application</p> <p>Type of Fee: 28</p> <p>Date Check Rec'd: 2/15/79</p> <p>Received By: [Signature]</p> </div> <div style="border: 1px solid black; padding: 5px; transform: rotate(-5deg);"> <p>RECEIVED BY LONG</p> <p>DATE: FEB 28 1979</p> <p>LOG: Feb 28 15 11</p> <p>BY: [Signature]</p> <p>3/1/79</p> </div> </div>		
7. DESCRIBE PURPOSE FOR WHICH BYPRODUCT MATERIAL WILL BE USED. (If byproduct material is for "human use," supplement A (Form AEC-313a) must be completed in lieu of this item. If byproduct material is in the form of a sealed source, include the make and model number of the storage container and/or device in which the source will be stored and/or used.) 1 - TEXAS NUCLEAR MODEL 5180A SOURCE HOLDER. THE SOURCE HOLDER IS A COMPLETE STORAGE CONTAINER FOR THE SOURCE, BOTH PRIOR AND SUBSEQUENT TO INSTALLATION OF THE GAUGE.		
<div style="display: flex; justify-content: space-between;"> <div> 8506070015 850517 REG3 LIC30 12-18671-02 PDR </div> <div style="text-align: right;"> B 22 1979 </div> </div>		

(Continued on reverse side)

Control No. 01360

TRAINING AND EXPERIENCE OF EACH INDIVIDUAL NAMED IN ITEM 4 (Use supplemental sheets if necessary)

8. TYPE OF TRAINING	WHERE TRAINED	DURATION OF TRAINING	ON THE JOB (Circle answer)	FORMAL COURSE (Circle answer)
a. Principles and practices of radiation protection	SEE ATTACHED SHEET		Yes No	Yes No
b. Radioactivity measurement standardization and monitoring techniques and instruments			Yes No	Yes No
c. Mathematics and calculations basic to the use and measurement of radioactivity			Yes No	Yes No
d. Biological effects of radiation			Yes No	Yes No

9. EXPERIENCE WITH RADIATION (Actual use of radioisotopes or equivalent experience)

ISOTOPE	MAXIMUM AMOUNT	WHERE EXPERIENCE WAS GAINED	DURATION OF EXPERIENCE	TYPE OF USE
		SEE ATTACHED SHEET #8		

10. RADIATION DETECTION INSTRUMENTS (Use supplemental sheets if necessary)

TYPE OF INSTRUMENTS (Include make and model number of each)	NUMBER AVAILABLE	RADIATION DETECTED	SENSITIVITY RANGE (mr/hr)	WINDOW THICKNESS (mg/cm ²)	USE (Monitoring, surveying, measuring)
NO RADIATION DETECTION INSTRUMENTATION IS NECESSARY TO SAFELY POSSESS AND UTILIZE THESE DEVICE.					

11. METHOD, FREQUENCY, AND STANDARDS USED IN CALIBRATING INSTRUMENTS LISTED ABOVE.

NONE REQUIRED

12. FILM BADGES, DOSIMETERS, AND BIO-ASSAY PROCEDURES USED. (For film badges, specify method of calibrating and processing, or name of supplier.)

NONE REQUIRES - SEE ATTACHED SHEET

INFORMATION TO BE SUBMITTED ON ADDITIONAL SHEETS IN DUPLICATE

13. FACILITIES AND EQUIPMENT. Describe laboratory facilities and remote handling equipment, storage containers, shielding, fume hoods, etc. Explanatory sketch of facility is attached. (Circle answer) ☒ Yes ☐ No SEE ATTACHED SHEET

14. RADIATION PROTECTION PROGRAM. Describe the radiation protection program including control measures. If application covers sealed sources, submit leak testing procedures where applicable, name, training, and experience of person to perform leak tests, and arrangements for performing initial radiation survey, servicing, maintenance and repair of the source. SEE ATTACHED SHEET

15. WASTE DISPOSAL. If a commercial waste disposal service is employed, specify name of company. Otherwise, submit detailed description of methods which will be used for disposing of radioactive wastes and estimates of the type and amount of activity involved. SEE ATTACHED SHEET

CERTIFICATE (This item must be completed by applicant)

16. 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 30, AND THAT ALL INFORMATION CONTAINED HEREIN, INCLUDING ANY SUPPLEMENTS ATTACHED HERETO, IS TRUE AND CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF.

License Fee Category \$ 110

Fee Enclosed \$ _____

Date FEBRUARY 9, 1979CARGILL, IND.

Applicant named in item 1

By: [Signature]PLANT SUPERINTENDENT

Title of certifying official

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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(8) TYPE OF TRAINING

Greg Lofstedt - Training in safety and use procedures were obtained in/on the job training with use of Ohmart Level Indicator at soybean extraction plants in Memphis, Tenn.

Jay Bonse - No prior training

Steven Pinney - No prior training

Note:

The manufacturer will furnish us with detailed instructions on the proper precautions to be taken in utilizing these devices. Specific items of design detail, shutter operation, beam geometry, radiation levels, and regulatory compliance will be presented by trained personnel of Texas Nuclear at the time these devices are installed.

(12) PERSONNEL MONITORING

No additional personnel monitoring devices need be utilized due to the presence of these gauging devices. The source holder is designed such that radiation levels will be less than 5 mR/h one foot from any accessible surface at the maximum source loading for the device with the device in the OFF position. With the shutter open, a collimated beam of radiation exists between the source head and detector traversing the vessel being monitored. It is not likely, when consideration is given to the design of the device, the precautions to be taken itemized below and the minimal accessibility, that any individual will receive a radiation exposure in excess of 0.125 rem per calendar quarter.

(13) The Texas Nuclear device will be used in the Nuclear Continuous Level Monitoring System (CLMS) on our Crown **Iron Works** soybean extractor. The radiation source will be located on the inlet hopper of the extractor, and it will send a signal to a detector on the other side of the hopper. Raw soybean flakes enter the extractor thru the hopper. The level of flakes will block the radiation beam: therefore, the level of flakes determines the radiation at the detector. This radiation level is converted into an electronic (milliamps) signal which, in turn, is converted into an air pressure signal. The air signal operates a variable speed drive on the extractor itself.

Increases and decreases in flakes entering the extractor will vary the speed of the extractor and maintain a good flake seal.

There are no severe environmental conditions that can affect the integrity of the source and shielding. All environmental factors have been presented to the manufacturer for evaluation prior to specifying these devices.

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(14) RADIATION PROTECTION

- a) Based on working condition and physical accessibility, nobody would routinely be within three feet of any of these devices at any time during the week. Normal walkways and work platforms are further away than the platform used to inspect the radiation source.

See attached drawings showing location of radiation source and platforms and walkways around the source.

Our personnel will be instructed as to the size and location of the beam, the radiation levels in the beam and will be cautioned that unless the shutter is closed these radiation levels are significant. These devices have the capability of producing high level radiation between the source holder and the detector. However, the combination of:

- i. during normal operation no individual has access to the vessel. The contained material and operating parameters preclude the access of any major portion of the body to the radiation field. Only authorized personnel are allowed to change the operating parameters and/or authorize access;
- ii. personnel are instructed to close the gauge shutter when the operation is stopped and/or work must be done in any vessel being monitored;
- iii. if the operation is to be shutdown for any period of time or extensive work is to be done on the vessel, the radiation safety officer will be notified to insure that the shutter is locked during this period of time;
- iv. signs displaying "Caution Radiation" and the standard symbol stating that the shutter must be closed and the radiation safety officer notified prior to entering the vessel being monitored will be posted and installed.
- v. the general inaccessibility of these devices. The vessel under normal operation contains hexane vapors. A human being cannot survive the atmosphere in the area where the radiation source and detector are located;

should be sufficient to prevent unauthorized entry to the radiation beam and preclude any unintentional radiation exposure.

- b) Texas Nuclear personnel will perform the initial radiation survey and leak testing at the time of installation. Additionally,

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(14) RADIATION PROTECTION - cont'd

our personnel will receive specific training at the time of installation. This training will include construction features of the device, source integrity, beam geometry and intensity and operating details of the device. Any precautionary steps like the addition of shielding, signs, or precautions to be taken will be covered at the time in accordance with Texas Nuclear installation procedures and training.

- c) The source holder will be tested for source integrity: Model 5180A at least once every three years.

Leak testing will be performed by Texas Nuclear Procedure QT/LK.

- d) i. In the event some catastrophic emergency occurs and this device may be involved, we will notify Texas Nuclear and await further instructions.
- ii. Any repair, relocation or removal of the source holder will be done by Texas Nuclear personnel.

(15) No waste disposal is involved. In the event that the gauge is damaged or its use discontinued, we shall notify Texas Nuclear for removal and return the gauge for repair or disposal of the source material.

TEXAS NUCLEAR
MODEL 5180 A
SOURCE HOLDER

CARGILL, INC DSC
CHICAGO, ILL.

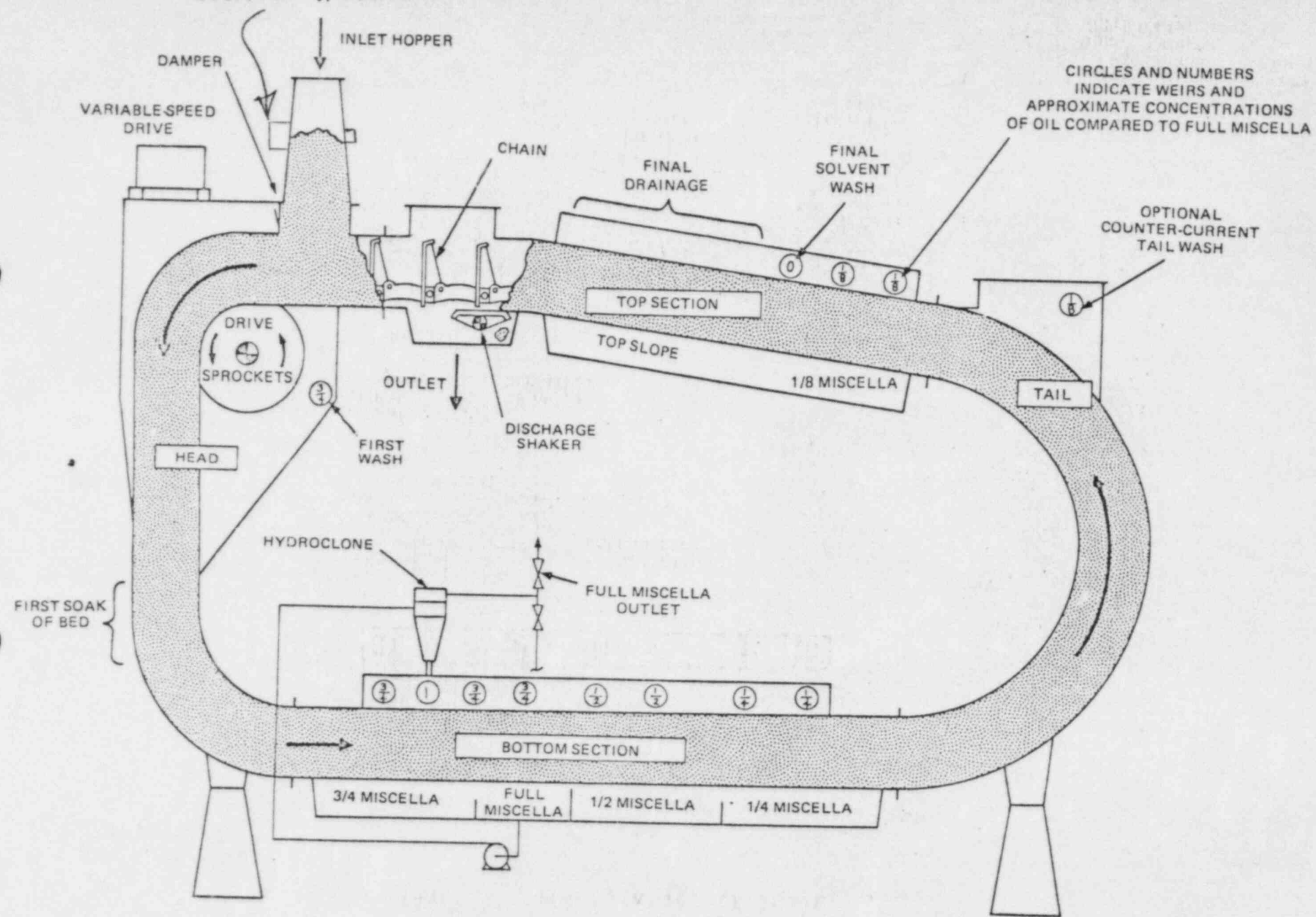
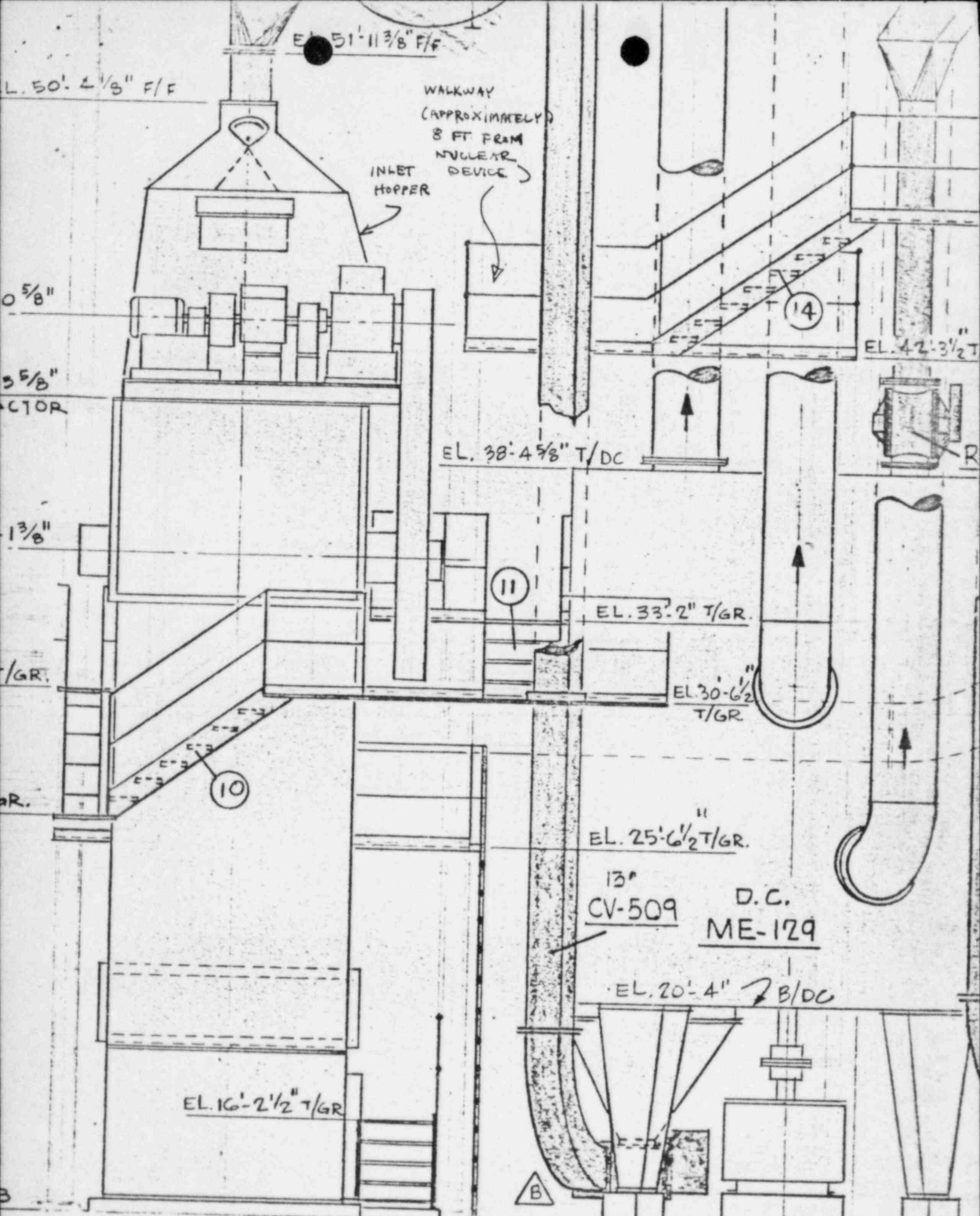
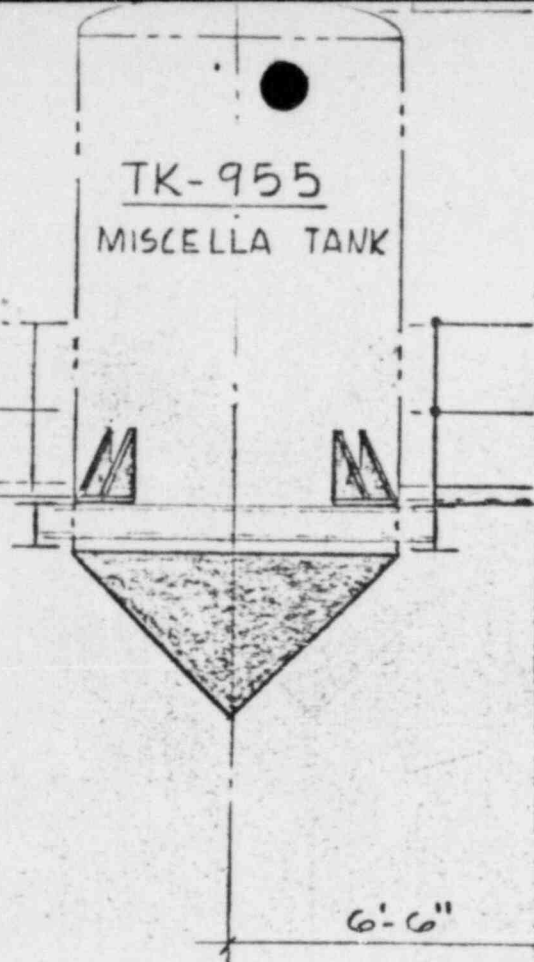


Figure 1. The Solvent Extractor

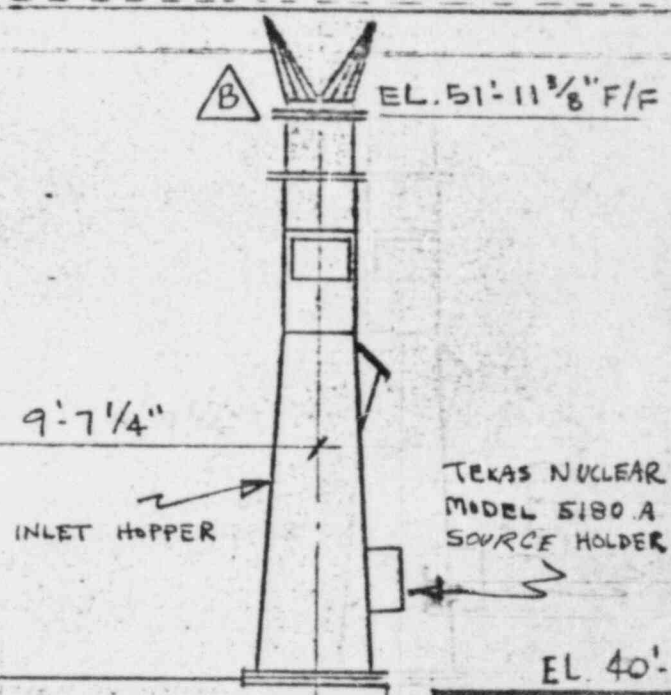
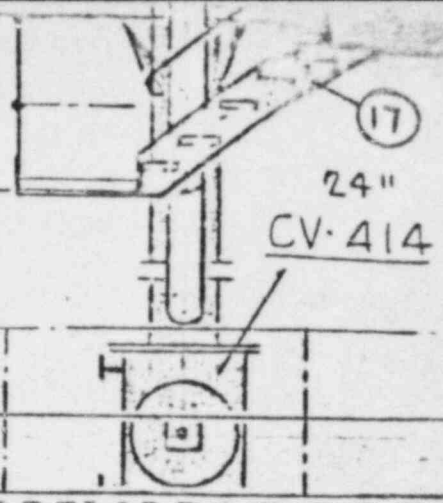


"ELEVATION"

Control No. 01360



EL. 60'-8"
T/GR.
@ ENTRANCE



EL. 36'-15 5/8" F/FLG.

EL. 31'-7 5/8" F/F

EL. 28'-7 3/4"
B/CONVEYOR

