

FORM - NRC-313 I (1-79) 10 CFR 30		U.S. NUCLEAR REGULATORY COMMISSION		1. APPLICATION FOR: (Check and/or complete as appropriate)		
APPLICATION FOR BYPRODUCT MATERIAL LICENSE INDUSTRIAL				<input checked="" type="checkbox"/>	a. NEW LICENSE	
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.				<input type="checkbox"/>	b. AMENDMENT TO: LICENSE NUMBER	
				<input type="checkbox"/>	c. RENEWAL OF: LICENSE NUMBER	
2. APPLICANT'S NAME (Institution, firm, person, etc.) Michigan Sugar Company TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 517-799-7300			3. NAME OF PERSON TO BE CONTACTED REGARDING THIS APPLICATION Leif L. Nielsen TELEPHONE NUMBER: AREA CODE - NUMBER EXTENSION 517-799-7300 ext. 203			
4. APPLICANT'S MAILING ADDRESS (Include Zip Code) P. O. Box 1348 Saginaw, MI 48605			5. STREET ADDRESS WHERE LICENSED MATERIAL WILL BE USED (Include Zip Code) 159 South Howard Street Croswell, MI 48422			
(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. Leif L. Nielsen			General Process Engineer			
b. Robert C. McAlpine			Tech. Asst. to General Factory Manager			
c. Robert Parker			Factory Manager			
7. RADIATION PROTECTION OFFICER Leif L. Nielsen			Attach a resume of person's training and experience as outlined in Items 16 and 17 and describe his responsibilities under Item 15.			
8. LICENSED MATERIAL						
LINE NO.	ELEMENT AND MASS NUMBER	CHEMICAL AND/OR PHYSICAL FORM	NAME OF MANUFACTURER AND MODEL NUMBER (If Sealed Source)	MAXIMUM NUMBER OF MILLICURIES AND/OR SEALED SOURCES AND MAXIMUM ACTI- VITY PER SOURCE WHICH WILL BE POSSESSED AT ANY ONE TIME		
(1)	CS-137	Applicant: Leif L. Nielsen Check No. 100-10097 Amount/Fee Category 1250 Type of Fee 31 days Date Check Rec'd 8/12/85 Received By [Signature]	85 JUL 31 1985 FEE \$100 D. H. C. BRANCH Combined w/CD-77791	100	RECEIVED	
DESCRIBE USE OF LICENSED MATERIAL						
(1)	The licensed material (CS-137) will be used as a source for the detection of					
(2)	the density of a milk-of-lime slurry.					

9. STORAGE OF SEALED SOURCES

LINE NO.	CONTAINER AND/OR DEVICE IN WHICH EACH SEALED SOURCE WILL BE STORED OR USED. A.	NAME OF MANUFACTURER B.	MODEL NUMBER C.
(1)	Source Holder	Ohmart	SH-100
(2)			
(3)			
(4)			

10. RADIATION DETECTION INSTRUMENTS

LINE NO.	TYPE OF INSTRUMENT A	MANUFACTURER'S NAME B	MODEL NUMBER C	NUMBER AVAILABLE D	RADIATION DETECTED (alpha, beta, gamma, neutron) E	SENSITIVITY RANGE (milliroentgens/hour or counts/minute) F
(1)	Analysis of wipe tests will be done by outside contractors.					
(2)						
(3)						
(4)						

11. CALIBRATION OF INSTRUMENTS LISTED IN ITEM 10

<input type="checkbox"/> a. CALIBRATED BY SERVICE COMPANY NAME, ADDRESS, AND FREQUENCY NA	<input type="checkbox"/> b. CALIBRATED BY APPLICANT Attach a separate sheet describing method, frequency and standards used for calibrating instruments.
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12. PERSONNEL MONITORING DEVICES

TYPE (Check and/or complete as appropriate.) A	SUPPLIER (Service Company) B	EXCHANGE FREQUENCY C
<input type="checkbox"/> (1) FILM BADGE NA <input type="checkbox"/> (2) THERMOLUMINESCENCE DOSIMETER (TLD) <input type="checkbox"/> (3) OTHER (Specify): _____ _____ _____		<input type="checkbox"/> MONTHLY <input type="checkbox"/> QUARTERLY <input type="checkbox"/> OTHER (Specify): _____ _____ _____

13. FACILITIES AND EQUIPMENT (Check where appropriate and attach annotated sketch(es) and description(s).)

- ☐ a. LABORATORY FACILITIES, PLANT FACILITIES, FUME HOODS (Include filtration, if any), ETC.
☐ b. STORAGE FACILITIES, CONTAINERS, SPECIAL SHIELDING (fixed and/or temporary), ETC.
☐ c. REMOTE HANDLING TOOLS OR EQUIPMENT, ETC. NA
☐ d. RESPIRATORY PROTECTIVE EQUIPMENT, ETC.

14. WASTE DISPOSAL

a. NAME OF COMMERCIAL WASTE DISPOSAL SERVICE EMPLOYED

b. IF COMMERCIAL WASTE DISPOSAL SERVICE IS NOT EMPLOYED, SUBMIT A DETAILED DESCRIPTION OF METHODS WHICH WILL BE USED FOR DISPOSING OF RADIOACTIVE WASTES AND ESTIMATES OF THE TYPE AND AMOUNT OF ACTIVITY INVOLVED. IF THE APPLICATION IS FOR SEALED SOURCES AND DEVICES AND THEY WILL BE RETURNED TO THE MANUFACTURER, SO STATE.

Sealed source will be returned to manufacturer for disposal.

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's 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.

See enclosed sheets 1 through 3.

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)*

c. NAME *(Type or print)*

Leif L. Nielsen

d. TITLE

General Process Engineer

e. DATE

July 24, 1985

(1) LICENSE FEE CATEGORY:

(2) LICENSE FEE ENCLOSED: \$ 230.00

Item 15: Radiation Protection Program - Croswell Plant

Milk-of-lime slurry density

The density measuring unit is of the vertical pipeline, clamp-on type. It will be located in the lime kiln where the closest operator will be more than 20 feet from the source, and in an area where there is no traffic.

The normal operating season of the plant is October through February. During the non-operating season the source shutter is closed.

The instrument technician will be instructed not to work on the detection system unless accompanied by a supervisor who will lock the source shutter closed before work may begin.

Radiation warning signs will be posted near the unit.

Leak testing will be done by using Ohmart Wipe Test Kit.

Sheet 2 of 3

Item 16: Formal Training in Radiation Safety - Croswell Plant

Leif L. Nielsen has received formal training by Ohmart Corporation's Radiation Safety Course, July 9 and 10, 1985. Prior to this he has also received instruction during his military training as a specialist in atomic warfare (mid-1950's).

Robert C. McAlpine and Robert Parker have no formal training in radiation safety, but are familiar with the manufacturer's safety recommendations.

Sheet 3 of 3

Item 17: Experience - Croswell Plant

Robert Parker is the Factory Manager of the Croswell Plant and as such responsible for the plant safety programs.

Robert McAlpine, oversees the Company's instrumentation requirements. He is a senior member of the Instrument Society of America. He has been plant Chief Chemist and later, the Company's General Chemist. He too, is involved in a positive manner in the Company's safety program as well as process and operations trouble shooting.

Leif Nielsen, as General Process Engineer, oversees the Company's program of process improvement and the design and implementation of process control systems. He is a graduate chemical engineer.

CONVERSATION RECORD

TIME 2:57 PM

DATE 6/5/85

TYPE

☐ VISIT☐ CONFERENCE☒ TELEPHONE☒ INCOMING☐ OUTGOING

ROUTING

NAME/SYMBOL

INT

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

LIEF NIELSEN

ORGANIZATION (Office, dept., bureau, etc.)

MICHIGAN SUGAR COMPANY

TELEPHONE NO.

(517) 799-7300

SUBJECT

ADDITIONAL INFORMATION NEEDED TO COMPLETE RENEWAL.

SUMMARY

REQUESTED THE FOLLOWING INFORMATION:

- ① EXPLAIN HOW & WHO WILL AUDIT THE 4 PLANTS. ^{- discussed in 8/8/85 letter}
- ② SEND A COPY OF THE EMERGENCY PROCEDURES.
- ③ SEND A SKETCH OF THE LOCATION OF GAUGES. ^{NA - installing survey has been completed as in 8/8/85 letter}
- ④ SYSTEM USED TO SUPPORT GAUGE IF POSITIONED OVER 4 FEET. ^{- Addressed in Incl. 17.}
- ⑤ NEED TO APPOINT A NEW RADIATION SAFETY OFFICER. ^{Any del. other in 8/11/85 app.}
- ⑥ NEED TO TRAIN AN INDIVIDUAL TO INSTALL, PERFORM INITIAL RADIATION SURVEYS, AND RELOCATE GAUGES.

Note from P. Vacheron 9-18-85: I was assigned the completion of this action when W. Ruchhold was transferred to inspection. Please see notes on back.

note: ~~see~~ Lief Nielsen has had instruction in installing & relocating of mount gauge. ^{- see 8/14/85 app. + Attached app. for concur} ASm 11/6/85

ACTION REQUIRED

FILE

NAME OF PERSON DOCUMENTING CONVERSATION

W.P. RUCHHOLD

SIGNATURE

W.P. Ruchhold

DATE

6/5/85

ACTION TAKEN

SIGNATURE

TITLE

DATE

1. Application ~~of~~ June 10, 1983 and subsequent letter dated Aug. 8, 1983, addresses this matter. Licensee states RSO will oversee all plants. See item 7.

Applications dated July 24, 1985 and letter dated August 14, 1985 address other concerns.



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SAFETY SCHOOL

AGENDA

RADIATION SAFETY

12 HOURS

TIME	TOPIC - DAY 1	LOCATION	MANUAL SECTION
9:30	Welcome and Introduction	Class	i
9:45	Principles and Practices of Radiation Protection* A. Basic Atomic Theory B. Radioactive Materials C. Radiation Interaction with Matter	Class	1
10:30	Radioactivity Measurement Standardization* A. Terms and Definitions	Class	2
11:00	Monitoring Instruments and Techniques* A. Detection Instruments B. Personnel Dosimetry	Class	2
12:00	Mathematics and Calculations Basic to the Use & Measurement of Radioactivity*	Class	3
1:00	- LUNCH -		
2:00	Biological Effects of Radiation* A. Internal Radiation Hazard B. Protection from Internal Radiation Hazard C. External Radiation Hazard D. Protection from External Radiation Hazard E. Review of Regulatory Guide 8.29	Class	4
3:00	Source Holder Handling Procedures A. Verification of Device Integrity B. Installation Requirements C. Lock Out Procedures D. Removal and Reinstallation Procedures. E. Storage	Class	5,9
3:30	Lab Session (Density, Level and Belt Weigh Devices) A. Leak Test and Shutter Check B. Surveys C. Removal and Reinstallation		
4:30	Plant Tour	Plant	-
5:00	SESSION ENDS FOR THE DAY		

* These items are listed in item 16 of US-NRC (Formal Training in Radiation Safety).



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SAFETY SCHOOL

AGENDA

RADIATION SAFETY

12 HOURS

TIME	TOPIC - DAY 2	LOCATION	MANUAL SECTION
9:30	US - NRC Regulations and License Interpretation* A. Regulations for Users of Nuclear Gages B. Excerpts from Title 10, Chapter 1, Code of Federal Regulations	Class Class	5 9
9:30	Lab Session* US - NRC By Product Material License A. NRC Required Information B. License Application Information	Class	10
10:00	Radio Active Material Waste Disposal Procedures*	Class	5, 9
10:30	Shipping Radioactive Materials* A. Classification B. Labeling C. Shipping Containers D. Bill of Lading Information	Class	6
11:00	Emergency Procedures* A. Guidelines B. Loss or Theft C. Fires and Explosions D. Incident Reports.	Class	7
11:30	Radiation Safety Examination *	Class	A11
1:00	SESSION ENDS FOR THE DAY		
	* These items are listed in item 16 of US-NRC (Formal Training in Radiation Safety).		

CONVERSATION RECORD

TIME 4:40 PM

DATE 1/29/85

TYPE

☐ VISIT

☐ CONFERENCE

☒ TELEPHONE

☐ INCOMING

☒ OUTGOING

ROUTING

NAME/SYMBOL

INT

Location of Visit/Conference:

NAME OF PERSON(S) CONTACTED OR IN CONTACT WITH YOU

ORGANIZATION (Office, dept., bureau, etc.)

TELEPHONE NO.

GEORGE W. COSSAIRT

MICHIGAN SURGE COMPANY

(517) 799-7300

SUBJECT

ADDITIONAL INFORMATION NEEDED TO

COMPLETE REVIEW.

SUMMARY

REQUESTED THE FOLLOWING INFORMATION

- ① EXPLAIN AUDIT SYSTEM OF 4 PLANTS
 - ② EMERGENCY PROCEDURES.
 - ③ STORAGE AREA AT CROSWELL PLANT
 - ④ SKETCH OF LOCATION OF GAUGES, AND STORAGE AREA.
 - ⑤ MANUFACTURER OF SURVEY METER.
 - ⑥ SYSTEM OF SUPPORT TO PREVENT GAUGE FROM FALLING. NOT TESTED ABOVE 4 FT. DROP.
 - ⑦ WEAR FILM BADGES WHEN RELOCATING GAUGES.
- LICENSEE WILL SEND REPLY. I WILL SEND HIM GUIDE FOR NON PORTABLE GAUGES, APPENDIX D FOR SURVEY METER CALIBRATIONS AND INFORMATION ON FILM BADGE COMPANIES.

ACTION REQUIRED

FILE

NAME OF PERSON DOCUMENTING CONVERSATION

SIGNATURE

DATE

W.P. REICHHOLD

W.P. Reichhold

29 January 1985

ACTION TAKEN

SIGNATURE

TITLE

DATE