RETCHEN WHITMER
GOVERNOR

STATE OF MICHIGAN
DEPARTMENT OF
ENVIRONMENT, GREAT LAKES, AND ENERGY
LANSING

EGLE

LIESL EICHLER CLAR
DIRECTOR

June 12, 2020

Materials Licensing Branch
United States Nuclear Regulatory Commission
Region III
2443 Warrenville Road, Suite 210
Lisle, Illinois 60532-4352

Dear Sir/Madam:

SUBJECT: NRC License Number: 21-05199-02

We are requesting an amendment to our license to:

1. Remove two Sources
2. Remove two Authorized Users
3. Minor amendments to two documents in Enclosure 4 of the license renewal
4. Complete rewrite of two documents in Enclosure 4 of the license renewal
5. Complete rewrite of an emergency response procedure included in the "Response for Additional Information" of the license renewal

Two copies of this letter, NRC Form-313, NRC Form-531, and all attachments are enclosed.

If you have any questions, please contact me via phone; quinlanm@michigan.gov; or at the Michigan Department of Environment, Great Lakes, and Energy, P.O. Box 30241, Lansing, Michigan 48909-7741.

Sincerely,

Marcus Quinlan
Radiation Safety Officer
Radiological Protection Section
Materials Management Division
(517) 230-5940

Enclosures

NRC FORM 313 **U.S. NUCLEAR REGULATORY COMMISSION**
(10-2017)
10 CFR 30, 32, 33, 34, 35, 36, 37, 39, and 40

APPLICATION FOR MATERIALS LICENSE

APPROVED BY OMB: NO. 3150-0120 **EXPIRES: 06/30/2019**

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE CURRENT VOLUMES OF THE NUREG-1556 TECHNICAL REPORT SERIES ("CONSOLIDATED GUIDANCE ABOUT MATERIALS LICENSES") FOR DETAILED INSTRUCTIONS FOR COMPLETING THIS FORM: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/. SEND TWO COPIES OF THE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

MATERIALS SAFETY LICENSING BRANCH
DIVISION OF MATERIAL SAFETY, STATE, TRIBAL AND RULEMAKING PROGRAMS
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,

SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

IF YOU ARE LOCATED IN:

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING,

SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
1600 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S. NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- ☐ A. NEW LICENSE
- ☑ B. AMENDMENT TO LICENSE NUMBER 21-05199-02
- ☐ C. RENEWAL OF LICENSE NUMBER

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include zip code)*

State of Michigan
PO Box 30241
Lansing, MI 48909

3. ADDRESS WHERE LICENSED MATERIALS WILL BE USED OR POSSESSED

815 Filley St
Lansing, MI 48906

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Marcus Quinlan

BUSINESS TELEPHONE NUMBER	BUSINESS CELLULAR TELEPHONE NUMBER
	517-230-5940

BUSINESS E-MAIL ADDRESS
QuinlanM@michigan.gov

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL
   a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.
6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.
7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.
8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.
9. FACILITIES AND EQUIPMENT.
10. RADIATION SAFETY PROGRAM.
11. WASTE MANAGEMENT.

12. LICENSE FEES (Fees required only for new applications, with few exceptions*)
(See 10 CFR 170 and Section 170.31)
***Amendments/Renewals that increase the scope of the existing license to a new or higher fee category will require a fee.**

FEE CATEGORY: 8A AMOUNT ENCLOSED: $ 0.00

PER THE DEBT COLLECTION IMPROVEMENT ACT OF 1996 (PUBLIC LAW 104-134), YOU ARE REQUIRED TO PROVIDE YOUR TAXPAYER IDENTIFICATION NUMBER. PROVIDE THIS INFORMATION BY COMPLETING NRC FORM 531: https://www.nrc.gov/reading-rm/doc-collections/forms/nrc531info.html.

13. CERTIFICATION. *(Must be completed by applicant)* *THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.*

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35, 36, 37, 39, AND 40, AND THAT ALL INFORMATION CONTAINED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR 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.

CERTIFYING OFFICER – TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
Marcus Quinlan, Radiation Safety Officer	Marcus Quinlan	6/12/2020

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED $	CHECK NUMBER	COMMENTS

APPROVED BY	DATE

NRC FORM 531 (05-2017)
NRC MD 12.3

U.S. NUCLEAR REGULATORY COMMISSION

REQUEST FOR TAXPAYER IDENTIFICATION NUMBER

APPROVED BY OMB: NO. 3150-0188 EXPIRES: 02/28/2019

In accordance with the Debt Collection Improvement Act of 1996, you are required to provide your taxpayer identification number. This number may be used to make payments (refunds) or for purposes of collecting and reporting on any delinquent amounts arising out of your relationship with the Federal Government.

Please complete the applicable blocks and fax the completed form to (301) 415-4135. Thank you for your assistance and cooperation. If you have any questions, please contact us. Our telephone number is (301) 415-7554.

Indicate the status of your business:

- ☐ CORPORATION
- ☑ CITY/STATE GOVERNMENT
- ☐ PARTNERSHIP
- ☐ FEDERAL GOVERNMENT
- ☐ INDIVIDUAL
- ☐ OTHER (Specify in box below)

TAXPAYER IDENTIFICATION NUMBER	NRC LICENSE OR REGISTRATION NUMBER(S)
SOCIAL SECURITY NUMBER ___ - ___ - ____	21-05199-02
OR	
EMPLOYER IDENTIFICATION NUMBER 68 - 6000134	

Under penalties of perjury, I certify that the number shown on this form is my correct taxpayer identification number.

SIGNATURE - TAXPAYER REPRESENTATIVE	NRC LICENSEE OR VENDOR
[signature]	State of Michigan

BILLING ADDRESS

State of Michigan
P.O. Box 30241
Lansing, MI 48909

BILLING TELEPHONE NUMBER	BILLING EMAIL ADDRESS
(517) 230-5940	quinlanm@michigan.gov

PRIVACY ACT STATEMENT
NRC FORM 531
REQUEST FOR TAXPAYER IDENTIFICATION NUMBER

Pursuant to 5 U.S.C. 552a(e)(3), enacted into law by Section 3 of the Privacy Act of 1974 (Public Law 93-579), the following statement is furnished to individuals who supply information to the Nuclear Regulatory Commission (NRC) on NRC Form 531. This information is maintained in a system of records designated as NRC-32 and described at 81 *Federal Register* 81342 (November 17, 2016), or the most recent *Federal Register* publication of the NRC's Systems of Records Notices that is located in the NRC's Agencywide Documents Access and Management System (ADAMS).

1. **AUTHORITY:** U.S.C. 552a; 5 U.S.C. 5514; 15 U.S.C. 1681; 26 U.S.C. 6103; 31 U.S.C. chapter 37; 31 U.S.C. 6501 -6508; 42 U.S.C. 2201; 42 U.S.C. 5841; 31 CFR 900 -904; 10 CFR parts 15, 16, 170, 171; Executive Order (E.O.) 9397, as amended by E.O. 13478; and E.O. 12731.

2. **PRINCIPLE PURPOSE(S):** To obtain taxpayer identification number/social security number/individual taxpayer identification number to enable the NRC to process payments and collect/report delinquent debts.

3. **ROUTINE USES**: Information from this form may be transmitted to: debt collection contractors and/or Federal agencies for collecting delinquent debts and/or collection action on such debts; any Federal, State or local agencies to conduct authorized computer matching programs and to credit reporting agencies; Treasury on past due nontax debts for the purpose of locating the debtor and/or effecting offset under Treasury Offset Program. Information may be publicly disseminated regarding the identity of delinquent nontax debtors and the existence of nontax debts under the provisions of the Debt Collection Improvement Act of 1996. Information may be disclosed in accordance with any of the Routine Uses listed in the Prefatory Statement of General Routine Uses, including to an appropriate Federal, State, local or Foreign agency in the event the information indicates a violation or potential violation of law; in the course of an administrative or judicial proceeding; to an appropriate Federal, State, local and foreign agency to the extent relevant and necessary for an NRC decision about you or to the extent relevant and necessary for that agency's decision about you; in the course of discovery under a protective order issued by a court of competent jurisdiction, and in presenting evidence; to a Congressional office to respond to their inquiry made at your request; to NRC-paid experts, consultants, and others under contract with the NRC, on a need-to-know basis; or to appropriate persons and entities for purposes of response and remedial efforts in the event of a suspected or confirmed breach of data from this system of records.

4. **WHETHER DISCLOSURE IS MANDATORY OR VOLUNTARY AND EFFECT ON INDIVIDUAL OF NOT PROVIDING INFORMATION:** It is mandatory that you furnish the requested information pursuant to the Debt Collection Improvement Act of 1996 (Public Law 104-134). If you do not provide the requested information, we may no longer be able to conduct business with you, and if you are due a refund, you may give up your rights to your refund.

5. **SYSTEM MANAGER AND ADDRESS:** Controller, Division of the Controller, Office of the Chief Financial Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-001.

Attachment to Amendment Request for Material License 21-05199-02

We respectfully request amendments to Material License 21-05199-02 as follows:

1. Remove the following sources in Conditions 6-9:

6. Byproduct, source, and/or special nuclear material	Chemical and/or physical form	Maximum amount that licensee may possess at any one time under this license	Authorized use
A. Cesium-137	Sealed sources (3M, Model 4P6E, 4F6S, 4F6H, 4D6L; Amersham Corp, Model CDC. 192; Industrial Reactor Laboratories, Model 2-4, 2-10; Isotope Products Laboratories, Model 193; J.L. Shepherd and Associates, Model 6810; U.S. Nuclear Corporation Model 375	One source not to exceed 1 curie	For use in J.L. Shepherd Model 28-6a calibrator for calibration of survey instruments
G. Radium-226	Plated source (Radiac set AN/PDR-27P, Model MX-1083B)	One source not to exceed 8 microcuries	For use in calibration of instruments and training

References in Condition 10B and Condition 12 to Items B-F should be changed to A-E, respectively, and Items H-K should be changed to F-I, respectively.

Through Solutient Technologies, Inc. as a broker, and transported by Chase Environmental, the two sources listed above, along with many other sources falling under former Items C, H, I, and J were disposed of. Item inventory and manifests are included in this amendment request. The Cs-137 source and Ra-226 source were sent to Alaron Corp in Wampum, PA 16157 under transportation ID's AL-SS-W-20-127 and AL-SS-W-20-115m respectively.

2. Amend Condition 12 to read:

Licensed material listed in Item 6 above is authorized for use by, or under the supervision of, the following individuals for the materials and uses indicated:

Isreal O'Boyle	Subitem 6.A.
David Asselin	All
Donald Parry	Subitems 6.C., 6.D., and 6.E.
Jeff Tavormina	Subitems 6.C., 6.D., and 6.E.
Theodore Wentworth	All
Greg Gothard	All
Todd Trygier	All
David Skutt	All
Marcus Quinlan	All

Nadir Chaudhry All

Removal of two Authorized Users

Both Mr. Neller and Mr. Fisher have left our program.

The changes to material authorized for use by Isreal O'Boyle, Donald Parry, and Jeff Tavormina are reflective of the changes made to Conditions 6-9 as addressed in Section 1 of this enclosure.

3. A) Within Enclosure 4, Procedure for Ordering Radioactive Material, Section 5 states:

"Non-alpha emitting radionuclides may be purchased in quantities not exceeding the exempt concentrations and quantities specified in 10 CFR 30.71 Schedule A and Schedule B, respectively. No more than 1 microcurie of each of the following alpha emitting radionuclides may be ordered in one month: Ra-226, Ra-228, U-238, and Am-241."

We would like to amend this to say:

Non-alpha emitting radionuclides may be purchased in quantities not exceeding the exempt concentrations and quantities specified in 10 CFR 30.70 Schedule A and 10 CFR 30.71 Schedule B. No more than 1 microcurie of each of the following radionuclides may be ordered in one month: Sr-90, Ra-226, Ra-228, Th-230, Th-232, U-238, and Am-241.

This fixes references to 10 CFR. Additionally, Sr-90, Th-230, and Th-232 are commonly purchased lab standards for calibration, spikes, and quality control. Marked-up and clean versions of the amended document are included with this enclosure.

B) Within Enclosure 4, Reporting Abnormal Events Involving Licensed Radioactive Material, the following Notification List is given:

Notification List – Start at the top and work down in list order		
Position	Name	Phone #
RSO	Marcus Quinlan	517-230-5940
RSO	Marcus Quinlan	269-924-7059
RAM Unit Supervisor	Theodore Wentworth	517-915-8881
RPS Manager	Michael Neller	517-512-5859
REP Unit Supervisor	David Asselin	517-614-9913
RSO	Marcus Quinlan	quinlanm@michigan.gov

We would like to amend this to say:

Notification List – Start at the top and work down in list order		
Position	Name	Phone #
RSO	Marcus Quinlan	517-230-5940
RSO	Marcus Quinlan	269-924-7059
RPS Manager	Theodore Wentworth	517-915-8881

REP Unit Supervisor	David Asselin	517-614-9913
RSO	Marcus Quinlan	quinlanm@michigan.gov

This accounts for the departure Michael Neller and the promotion of Theodore Wentworth to Section Manager. Marked-up and clean versions of the amended document are included with this enclosure.

4. Within Enclosure 4, we would like to amend, in full, the following documents with accompanying justifications:

   A) Procedure for Receiving and Opening Packages Containing Radioactive Material
   The purpose of this rewrite is to more closely follow 10 CFR 20.1906. Previously, all packages were required to be inspected, regardless of markings, within a 3-hour period. 10 CFR 20.1906 indicates this is only necessary for packages exceeding an isotopes Type A quantity.

   B) Radioactive Shipment Receipt Form
   The radioactive shipment form is supplemental to the "Opening" portion of the "Procedure for Receiving and Opening Packages Containing Radioactive Material". The new form captures the changes made to the opening procedure and is laid out to capture the necessary useful information in a more easily understood format.

5. In the Request for Additional Information for our license renewal in 2017, Question 3f asked "Describe the emergency procedure for response to a stuck source in the open position, if applicable". The response given was:

   "In the event that a source becomes stuck in the exposed position, we will follow the manufacturer's recommended "Emergency Recovery Procedure" as follows:

   Emergency Recovery Procedures

   If the source does not return to the shielded position as shown by the indicator lights, an emergency recovery procedure needs to be implemented to assure the system is returned to a safe condition so that no one is inadvertently exposed to excessive radiation. At a minimum, the following steps should be implemented.

   1. Contact Hopewell Designs, Inc. for assistance. Do not open the door without contacting the radiation safety officer.

   2. A radiation survey should be taken around the irradiator, and through the exposure ports, prior to opening the enclosure door, to determine if the source is still in the exposed position.

   3. If the source is still exposed, remove the system air pressure, remove the rear cover of the tower, and manually slide the air cylinders to the fully extended position.

4. Recheck the indicator lights and radiation levels.

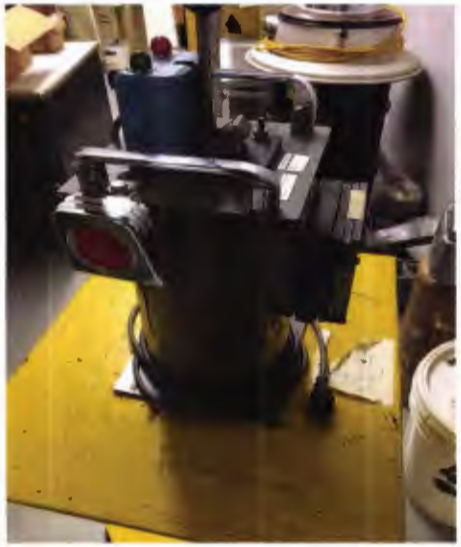
5. If the source is still exposed, secure the irradiator and contact the radiation safety officer before proceeding. Contact Hopewell Designs, Inc. for assistance. No additional work should be performed without preparing a radiation work permit

At the time, our calibration lab did not have a permanent area monitor (now a Ludlum Model 375, calibrated annually) nor did it have an option to clear indicator lights that did not properly turn off once the source was returned. The reference to exposure port should be "wall penetration" as the exposure port is where the beam exits the irradiator which cannot be done before opening the enclosure door which separates the irradiator from the control room. Additionally, it instructed employees to enter the beam room and tamper with hardware on the irradiator without clear guidance on how to do this safely.

The new version of the procedure, in addition to using the proper terminology when referencing parts of the calibration suite, focuses on first determining if the system errors correctly identified the source's failure to return through a series of systematic checks that ensures that the Authorized User is keeping their radiation dose as low as reasonably achievable. Should the source truly be still exposed, the Authorized User is instructed to put the system into as safe a state as possible and with the RSO, get further instructions from the manufacturer, Hopewell, on how to safely return the source.

A copy of the new GC-60 emergency response procedure has been attached.

RID	Isotope	Open	Close	Activity	Form	Listed Date	Note	Transportation ID
185	Ra-226	NT	93000	7 uCi			MX1083B/PDR27 Ra-226 SN 65055 Open face not taken, concerned about over-ionization	AL-SS-W-20-115
280	Cs-137	8000	6000	1 Ci (curie)	calibration source	8/28/1981	JL-Shepherd 28-6a Irradiator Readings taken on outside of containment	AL-SS-W-20-127



NRC FORM 540

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST
SHIPPING PAPER

1. EMERGENCY TELEPHONE NUMBE (INCLUDE AREA CODE)
800-424-9300

ORGANIZATION
CHEMTREC WSDS #: CHEN01RAD Customer #: 4395

2. IS THIS AN "EXCLUSIVE USE" SHIPMENT?
[ ] YES
[x] NO

3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST: 2

4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT?
[ ] YES
[x] NO

EPA MANIFEST NUMBER: N/A

5. SHIPPER- NAME AND FACILITY
Chase Environmental Group, Inc.
11450 Watterson Court
Louisville, KY 40299

USER PERMIT NUMBER: T-KY003-L20
SHIPMENT #: N/A

CONTACT: Seb Cannata

6. CARRIER NAME AND ADDRESS
SJ Transportation Co., Inc.
PO Box 169
Woodstown, NJ 08098

CONTACT: Vince Mroz

SIGNATURE: [signature]

SHIPPER ID #: N/A
[X] COLLECTOR
[ ] PROCESSOR

GENERATOR TYPE (SPECIFY)

TELEPHONE #: 860-306-0192

EPA ID #: NJD071629976

SHIPPING DATE: 5/14/2020

TELEPHONE #: 856-994-5118

DATE: 5-14-2020

7. NRC FORM 540 AND 540A PAGE 1 1 PAGE(S)
NRC FORM 541 AND 541A OF 1 PAGE(S)
NRC FORM 542 AND 542A 1 PAGE(S)
ADDITIONAL INFORMATION None PAGE(S)

9. CONSIGNEE-NAME AND FACILITY ADDRESS
Alaron Corporation
2138 State Route 18
Wampum, PA 16157

SIGNATURE-Authorized consignee acknowledging waste reciept

8. Manifest Number
(Use this number on all continuation pages)
AL-2020-111

Contact: Mike Otlowski
Telephone Number (include area code): 724-535-5777
Date

10. Certification

This is to certify that the herein-named materials are acceptable for disposal, are properly classified, described, packaged, marked, and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation and the Commission.

AUTHORIZED SIGNATURE: [signature] TITLE: Tech DATE: 5-14-2020

HM	11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)	12 DOT LABEL "RADIOACTIVE"	13 TRANSPORT INDEX	14 PHYSICAL AND CHEMICAL FORM	15 INDIVIDUAL RADIONUCLIDES	16 TOTAL PACKAGE ACTIVITY IN MBq	17 LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME m^3	19. ID NUMBER OF PACKAGE
X	UN2915 Radioactive material, Type A package, 7 One drum with sealed sources for disposal	Yellow-II	0.2	Solid/Oxide	Am-241; Bi-207; C-14; Cd-109; Cl-36; Co-60; Cs-137; Eu-152; Pb-210; Ra-226; Sr-90; Th-230; Tl-204	5.698E+00	N/A	0.019	AL-SS-W-20-115
X	UN2915 Radioactive material, Type A package, 7 One drum with Cs-137 Irradiator for disposal	Yellow-II	0.2	Solid/Oxide	Cs-137	1.522E+04	N/A	0.038	AL-SS-W-20-127

Emergency Response Guide Reference: 163
Generator: Michigan EGLE

Generator Certification Statement:
The constituents of the waste manifested herein are known to the generator. There are no EPA RCRA, pathogenic or other hazards present other than those specifically listed on the Form 541.

Marcus Quigley (Print name) [signature] (Signature) 5/14/2020 (Date)

CONSIGNEE ORIGINAL (MUST ACCOMPANY WASTE IN TRANSIT)

NRC FORM 541 US NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

1. MANIFEST TOTALS

NUMBER OF PACKAGES	NET WASTE VOL. m3/ft3	NET WASTE WGHT kg	SPECIAL NUCLEAR MATERIAL (grams) U-233	U-235	Pu	TOTAL
2	0.057 2.0	87.0	NP	NP	NP	NP

ACTIVITY (MBq/mCi) ALL NUCLIDES	TRITIUM	C-14	Tc-99	I-129	SOURCE (kg)
1.522E+04 MBq 4.114E+02 mCi	NP	4.18E-04 1.13E-05	NP	NP	6.76E-09

2. MANIFEST NUMBER: AL-2020-111

3. PAGE 1 OF 1 PAGE(S)

4. SHIPPER NAME: Chase Environmental Group

SHIPPER ID NUMBER: NA

DISPOSAL CONTAINER DESCRIPTION / WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER

5. CONTAINER IDENTIFICATION NUMBER/ GENERATOR NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL _X_ uSv/hr ___mSv/hr	10. SURFACE CONTAMINATION MBq/100 cm2 ALPHA	BETA-GAMMA	11. WASTE DESCRIPTOR (See Note 2)	12. Approximate WASTE VOLUME(S) IN CONTAINER (m3)	13. SORBENT SOLIDIFICATION STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM / CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT Nuclide	MBq	mCi	16. WASTE CLASS AS-A STABLE AU-A UNSTABLE B-CLASS B C-CLASS C
AL-SS-W-20-115 2085	4	0.019	6.0	110	<3.67E-5	<3.67E-5	36	0.019	100	Oxide/NP	NP	Am-241 Bi-207 C-14 Cd-109 Cl-36 Co-60 Cs-137 Eu-152 Pb-210 Ra-226 Sr-90 Th-230 [6.76E-09 kg] Tl-204 **Package total**	7.40E-01 3.70E-01 4.18E-04 3.33E-05 5.18E-04 1.85E-01 3.59E+00 5.55E-02 5.37E-03 6.44E-01 6.33E-02 5.25E-03 3.70E-02 **5.699E+00**	2.00E-02 1.00E-02 1.13E-05 9.00E-07 1.40E-05 5.01E-03 9.71E-02 1.50E-03 1.45E-04 1.74E-02 1.71E-03 1.42E-04 1.00E-03 **1.540E-01**	NA
AL-SS-W-20-127 2085	4	0.038	81.0	51.4	<3.67E-6	<3.67E-5	36	0.038	100	Oxide/NP	NP	Cs-137 **Package total**	1.52E+04 **1.52E+04**	4.11E+02 **4.11E-02**	NA

NOTE 1: Container Description Codes. For containers/ waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP".

1. Wooden Box or Crate	9. Demineralizer
2. Metal Box	10. Gas Cylinder
3. Fiberboard Box	11. Bulk, Unpackaged Waste
4. Metal Drum or Pail	12. Unpackaged Components
5. Metal Tank or Liner	13. High Integrity Container
6. Concrete Tank or Liner	14. Other, describe in Item 8, or additional page
7. Polyethylene Tank or Liner	
8. Fiberglass Tank or Liner	

Note 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal	29. Demolition Rubble	38. Evaporator Bottoms/Sludges/ Concentrates
21. Incinerator Ash	30. Cation Ion Exchange Media	39. Compactible Trash
22. Soil	31. Anion Ion Exchange Media	40. Noncompactible Trash
23. Gas	32. Mixed Bed Ion Exchange Media	41. Animal Carcass
24. Oil	33. Contaminated Equipment	42. Biological Material (Except Animal Carcass
25. Aqueous Liquid	34. Organic Liquid (Except Oil)	43. Activated Material
26. Filter Media	35. Glassware or Labware	50. Other, Describe in Item 11, or Additional Page
27. Mechanical Filter	36. Sealed Source/Device	
28. EPA or State Hazardous	37. Paint or Plating	

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "-S."
For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 13. Code 100 = NONE REQUIRED.

Sorption				Solidification	
60. Speedi Dri	66. Floco	73. Diasorb HP500	86. Other. Describe in Item 13. or additional page	80. Cement	100. None Required
61. Celetom	67.Floco X	74. Petroset		81. Concrete (Encapsulation)	
62. Floor Dry/ Superfine	68. Solid-A-Sorb	75. Petroset S		82. Bitumen	
	69. Chemsit 20	76. Aquaset		83. Vinyl Chloride	
63. HI Dri	70. Chemsit 50	77. Aquaset S		84. Vinyl Ester Styrene	
64. Sale-T-Sorb	71. Chemsit 3030			90. Other. Describe in Item 13, or Additional Page	
65. Sale-N-Dri	72. Diasorb HP250				

NRC FORM 542 (5-1998) — U.S. NUCLEAR REGULATORY COMMISSION

UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST

MANIFEST INDEX AND REGIONAL COMPACT TABULATION

List all original "PROCESSED WASTE" before "COLLECTED WASTE".

1. WASTE COLLECTOR/PROCESSOR

NAME: Chase Environmental Group, Inc.

IDENTIFICATION NUMBER: T-KY003-L20

SHIPPING DATE: 5/14/2020

SHIPPER USE ONLY

2. MANIFEST NUMBER: AL-2020-111

3. PAGE_1_OF _1_PAGE(S)

4. GENERATOR IDENTIFICATION NUMBER	5. GENERATOR NAME PERMIT NUMBER AND TELEPHONE NUMEER	6. GENERATOR FACILITY ADDRESS	7. PREPROCESSED WASTE (OR MATERIAL) VOLUME (m3)	8. MANIFEST NUMBER UNDER WHICH WASTE (OR MATERIAL) RECEIVED AND DATE OF RECEIPT	9. WASTE CODE (PREPROCESS 0=UNLISTED)	10. ORIGINATING COMPACT OR STATE	11. AS PROCESSED/COLLECTED TOTAL A. SOURCE MATERIAL (kg)	B. SNM (g)	C. ACTIVITY (MBq)	D. VOLUME (m3)
2085	Michigan EGLE 517-230-5940	815 Filley St. Lansing, MI 48906	0.057	NA	C	MI	6.76E-09	NP	1.52E+04	0.057
TOTALS OF ALL PAGES (NRC FORMS 542 AND 542A)							6.76E-09	0.00E+00	1.52E+04	5.70E-02

TEXAS
LOW LEVEL RADIOACTIVE WASTE DISPOSAL
COMPACT COMMISSION

TX VT

GENERATOR AUTHORIZATION

DATE: 5-14-2020

NAME OF ORIGINAL GENERATOR: Michigan Dept Environment, Great Lakes, and Energy

Authorizes

NAME OF BROKER/PROCESSOR: Alaron Nuclear Services

to be our Broker and/or Processor for disposal of our radioactive material and/or sealed sources into the State of Texas Compact Disposal Facility in Andrews, Texas, operated by Waste Control Specialists, LLC. By signing this Generator Authorization, the Generator is also verifying that there is no waste of international origin contained in this shipment.

NAME OF AUTHORIZED ORIGINAL GENERATOR REPRESENTATIVE: Marcus Quinlan
(PRINT NAME)

TITLE: Radiation Safety Officer
(PRINT TITLE)

MAILING ADDRESS: 815 Filley St
Lansing, MI 48906

SIGNATURE: Marcus Quinlan

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
MATERIALS MANAGEMENT DIVISION
Radiological Protection Section

Procedure for Ordering Radioactive Material

1. The Radiation Safety Officer (RSO) has the overall responsibility for placing all orders for radioactive materials. The RSO will ensure that the requested materials and quantities are authorized by the license and that possession limits are not exceeded.

2. Requests to order radioactive material shall be made in writing to the RSO. The request shall specify the radionuclide, compound, activity, supplier, etc. and the reason for the order. A returned copy of the request signed and dated by the RSO will authorize purchase.

3. Approval for ordering the radioactive material shall be obtained before initiating the purchasing process. All other applicable requirements relating to non-radiological aspects of ordering or purchasing materials shall be complied with separately.

4. The RSO may authorize individuals to order routinely-used materials such as laboratory standards, etc. The memorandum shall specify the designated individual, the radionuclides, the maximum activity per radionuclide that the individual is authorized to order per month, or any other restrictions deemed necessary. The RSO shall be notified when material is ordered and when material is received.

Authorized Users are authorized to order and/or acquire check-sources with quantities not exceeding the exempt limit specified in 10 CFR 30.71 Schedule B.

Laboratory Scientists and the Radioactive Materials Unit Supervisor, if also Authorized Users, are authorized to order and/or acquire radioactive materials routinely used in the Radiological Protection Laboratory such as laboratory standards, materials from the U.S. Environmental Protection Agency's Environmental Radioactivity Laboratory Intercomparison Studies Program, etc. Non-alpha emitting radionuclides may be purchased in quantities not exceeding the exempt concentrations and quantities specified in 10 CFR 30.70~~1~~ Schedule A and 10 CFR 30.71 Schedule B~~, respectively.~~. No more than 1 microcurie of each of the following ~~alpha emitting~~ radionuclides may be ordered in one month: Sr-90, Ra-226, Ra-228, Th-230, Th-232, U-238, and Am-241.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
MATERIALS MANAGEMENT DIVISION
Radiological Protection Section

Procedure for Ordering Radioactive Material

1. The Radiation Safety Officer (RSO) has the overall responsibility for placing all orders for radioactive materials. The RSO will ensure that the requested materials and quantities are authorized by the license and that possession limits are not exceeded.

2. Requests to order radioactive material shall be made in writing to the RSO. The request shall specify the radionuclide, compound, activity, supplier, etc. and the reason for the order. A returned copy of the request signed and dated by the RSO will authorize purchase.

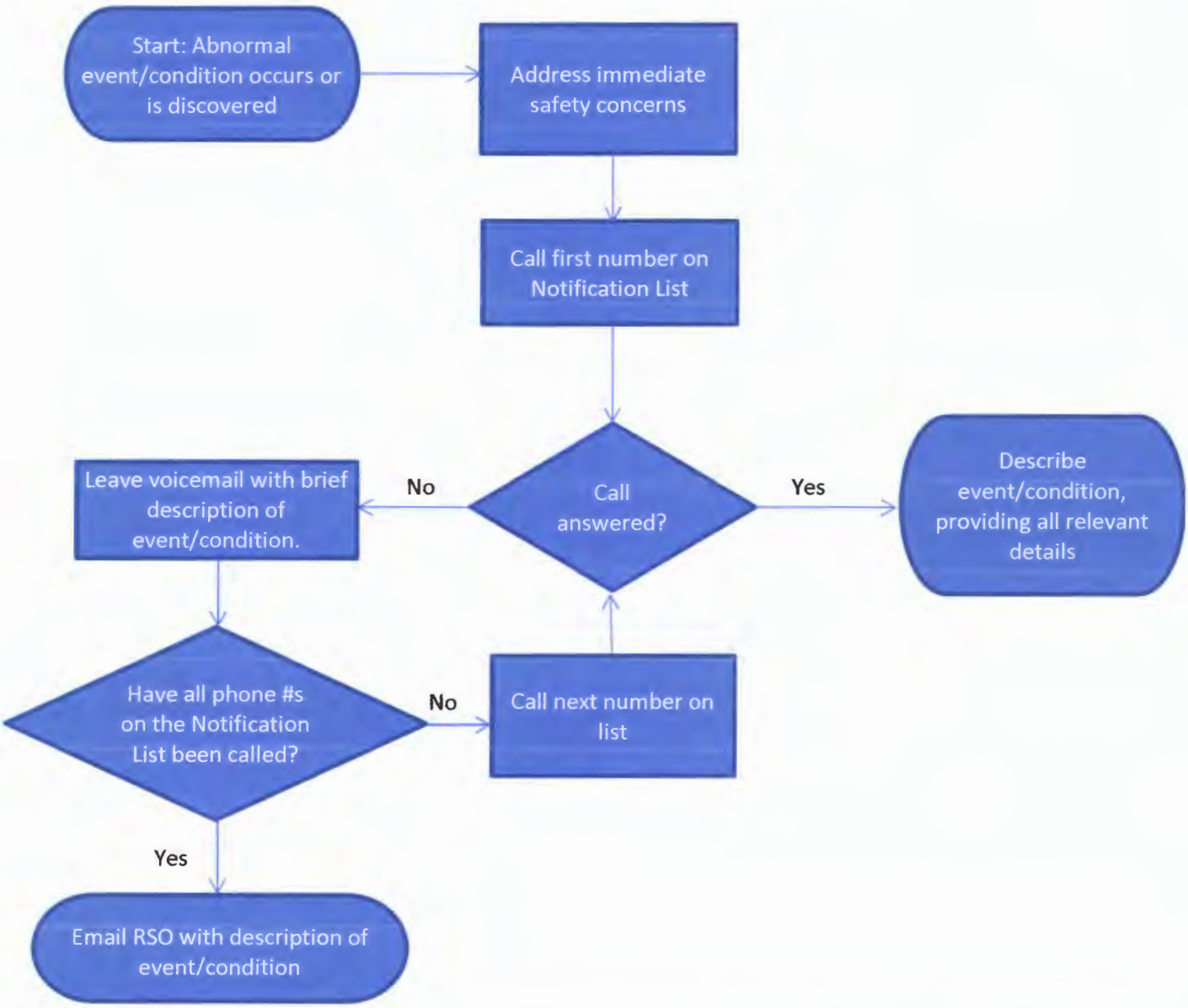
3. Approval for ordering the radioactive material shall be obtained before initiating the purchasing process. All other applicable requirements relating to non-radiological aspects of ordering or purchasing materials shall be complied with separately.

4. The RSO may authorize individuals to order routinely-used materials such as laboratory standards, etc. The memorandum shall specify the designated individual, the radionuclides, the maximum activity per radionuclide that the individual is authorized to order per month, or any other restrictions deemed necessary. The RSO shall be notified when material is ordered and when material is received.

Authorized Users are authorized to order and/or acquire check-sources with quantities not exceeding the exempt limit specified in 10 CFR 30.71 Schedule B.

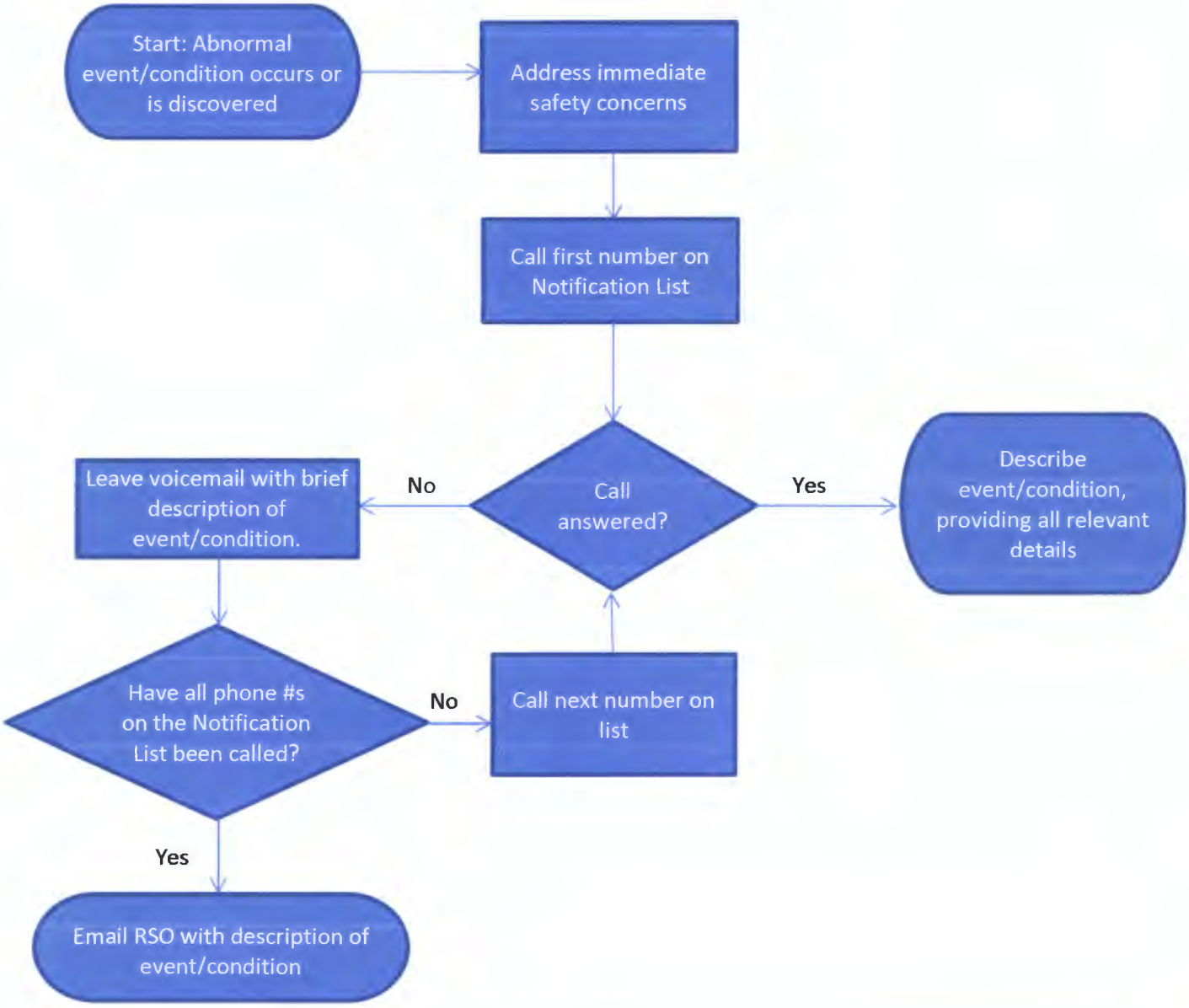
Laboratory Scientists and the Radioactive Materials Unit Supervisor, if also Authorized Users, are authorized to order and/or acquire radioactive materials routinely used in the Radiological Protection Laboratory such as laboratory standards, materials from the U.S. Environmental Protection Agency's Environmental Radioactivity Laboratory Intercomparison Studies Program, etc. Non-alpha emitting radionuclides may be purchased in quantities not exceeding the exempt concentrations and quantities specified in 10 CFR 30.70 Schedule A and 10 CFR 30.71 Schedule B. No more than 1 microcurie of each of the following radionuclides may be ordered in one month: Sr-90, Ra-226, Ra-228, Th-230, Th-232, U-238, and Am-241.

Notification Flow Diagram



Notification List – Start at the top and work down in list order		
Position	Name	Phone #
RSO	Marcus Quinlan	517-230-5940
RSO	Marcus Quinlan	269-924-7059
RPS Manager~~RAM Unit Supervisor~~	Theodore Wentworth	517-915-8881
REP Unit Supervisor	David Asselin	517-614-9913
RSO	Marcus Quinlan	quinlanm@michigan.gov

Notification Flow Diagram



Notification List – Start at the top and work down in list order		
Position	Name	Phone #
RSO	Marcus Quinlan	517-230-5940
RSO	Marcus Quinlan	269-924-7059
RPS Manager	Theodore Wentworth	517-915-8881
REP Unit Supervisor	David Asselin	517-614-9913
RSO	Marcus Quinlan	quinlanm@michigan.gov

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION DIVISION
Radiological Protection Section

Procedure for Receiving and Opening Packages Containing Radioactive Material

June 2017 - Original

March 2020 - Complete Rewrite

Package Receipt

1. All incoming packages shall be visua)) or appropriately trained delegate as soo ot later than 3 hours after the package i working hours. A package received ally examined and, if necessary, surveye

   If a package is received after workir ithin the first 3 hours of the next working

2. All incoming packages containing radioactiv ining radioactive material shall be visually examined is damaged or leaking, an individual specifically trained in package receipt procedures and authorized by the RSO will measure radiation levels with an appropriate survey meter and take other appropriate action as necessary. The package shall also be monitored for contamination by performing a wipe test on the exterior of the package. The wipe shall be forwarded to the Radiological Protection Laboratory (RPL) for analysis. The package shall be isolated until the wipe is analyzed.

3. All incoming packages labeled with a White I, Yellow II, or Yellow III label shall be surveyed at the surface and at 1 meter with an appropriate survey meter by an individual specifically trained in package receipt procedures and authorized by the RSO. The package shall also be monitored for contamination by performing a wipe test on the exterior of the package. The wipe shall be counted either with an appropriately-calibrated meter and probe or by forwarding to the RPL for counting. The package shall be isolated until the wipe is counted.

4. Packages that are exempt from NRC or US DOT radioactive material labeling requirements or packages marked "Radioactive LSA" or "Radioactive" without a White I, Yellow II, or Yellow III label are not required to be surveyed or wiped unless the package is damaged or leaking.

5. The RSO, or designee, shall be immediately notified of any package which is leaking or contaminated or any package with exterior radiation levels exceeding limits applicable limits or is significantly higher than the transportation index found the on the label.

6. The RSO, or designee, shall immediately notify the final delivery carrier and the NRC Operations Center (301-816-5100) by telephone and in writing, if:

A. removable radioactive surface contamination exceeds 22 dpm/cm^2 or 10 pCi/cm^2 for beta/gamma emitters, radionuclides with half-lives less than 10 days, natural uranium or thorium, U-235, U-238, Th-232, or Th-232 and Th-230 in ores; or

B. removable radioactive surface contamination exceeds 2.2 dpm/cm^2 or 1 pCi/cm^2 for all other alpha emitting radionuclides; or

C. 200 mrem/hr at the surface or 10 mrem/hr at 1 meter from the surface of the package.

Opening Leaking/Contaminated Packages or White I, Yellow II, or Yellow III Packages

7. For packages requiring a radiation survey or wipe as specified in items 2 or 3 above, the following additional steps for opening packages will be carried out by individuals specifically trained and authorized by the RSO:

A. Put on gloves to prevent hand contamination.

B. Survey and wipe exterior of package.

C. Open the package with the following precautionary steps:

1. Open the outer package (following manufacturer's directions, if supplied) and remove packing slip.

2. Open inner package and verify that contents agree with those on packing slip. Compare requisition, packing slip, and label on inner container.

3. Check integrity of final source container (i.e., inspect for breakage of seals or vials, loss of liquid, discoloration of packaging material, etc.).

D. Wipe external surface. The wipe shall be counted either with an appropriately-calibrated meter and probe or by forwarding to the RPL for analysis.

E. Monitor the packing material and packages for contamination before discarding.

1. If contaminated, treat as radioactive waste.

2. If not contaminated, obliterate radiation labels before discarding in regular trash.

Records

8. For packages requiring a radiation survey or wipe as specified in items 2 or 3 above, the RSO, or designee, will maintain records for each package containing radioactive material using the Radioactive Shipment Receipt Form.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Radiological Protection Section

Procedure for Receiving and Opening Packages Containing Radioactive Material

Package Receipt

1. All incoming packages labelled with a White-I, Yellow-II, Yellow-III shall be visually examined for damage and leakage by the RSO or delegate as soon as practicable after receipt of the packages, but not later than 3 hours after the package is received if the package is received during normal working hours.

   If a package is received after working hours, the package shall be visually examined within the first 3 hours of the next working day.

2. In the event that the package is damaged or leaking:

   a. The RSO or delegate will be notified immediately

   b. The package will be isolated until the RSO or delegate can open the package per the instructions in Steps 3-10.

Opening Leaking/Contaminated Packages or White I, Yellow II, or Yellow III Packages
The following steps should be followed for packages labelled White-I, Yellow-II, or Yellow-III and a Radioactive Shipment Receipt (RSR) Form should be filled out.

3. Fill out general package receipt, survey meter, and probe information (RSR #1-4)

4. Put on gloves and in a well-ventilated area, test for excessive radiation and contamination:

   a. Establish a background radiation rate using a side-window probe and pancake probe (RSR #4)

   b. With the side-window probe, survey the exterior of the package at the package's surface and at 1 meter away (RSR #5)

5. If a Class 7 package: Take a wipe sample at any points of interest (ie damaged/leaking areas) and/or a wipe sample on all 6 sides of the package.

   If a non-Class 7 package: Take a wipe sample at any points of interest (RSR #6)

6. Measure the wipe samples using the pancake probe. Send any above-background results to the Radiological Protection Lab (RPL) for more detailed testing. (RSR #6)

7. The RSO, or designee, shall immediately notify the final delivery carrier and the NRC Operations Center by telephone (301-816-5100) and in writing if the RPL wipe results show:

   a. removable radioactive surface contamination exceeds 22 dpm/cm^2 or 10 pCi/cm^2 for beta/gamma-emitters, radionuclides with half-lives less than 10 days, natural uranium or thorium, U-235, U-238, Th-232, or Th-232 and Th-230 in ores; or

   b. removable radioactive surface contamination exceeds 2,200 dpm/100cm^2 or 100 pCi/100cm^2 for all other alpha emitting radionuclides; or

   c. 200 mrem/hr at the surface or 10 mrem/hr at 1 meter from the surface of the package.

8. If the screening test in Steps 6-7 pass, proceed with the following precautionary steps:

   a. Open the outer package (following manufacturer's directions, if supplied) and remove packing slip.

   b. Open inner package and verify that contents agree with those on packing slip. Compare requisition, packing slip, and label on inner container.

   c. Check integrity of final source container (i.e., inspect for breakage of seals or vials, loss of liquid, discoloration of packaging material, etc.).

   d. Wipe external surface of the source container and send any above-background results to the RPL.

9. If source container has contamination, isolate the container and contact the RSO and manufacturer for further instructions.

10. Monitor the packing material and packages for contamination before discarding.

    a. If contaminated, dispose of in radwaste trashbag.

    b. If not contaminated, obliterate radiation labels before discarding in regular trash.

Class 7 Placard	Class 7 Designation	Max Surface Exposure Rate (mR/hr)	Max 1m Exposure Rate (mR/hr)
	White-I	0.5	'---
	Yellow-II	50	1
	Yellow-III	200	10

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WASTE MANAGEMENT AND RADIOLOGICAL PROTECTION DIVISION
Radiological Protection Section

Radioactive Shipment Receipt Form

1. P.O. No.: _____ Survey Date: _____ Time:

   Surveyor:

2. Condition of Package: OK Punctured Wet Crushed Other

3. Label Information:

4. Measured Radiation Levels at Package Surface: _____ mR/hr

   At 1 meter: _____ mR/hr

   Meter Used: _____ Model _____ Serial # _____ Probe

5. Do Packing Slip and Contents Agree?

   Radionuclide: YES NO Amount: YES NO Chemical Form: YES NO

   Explain NO:

6. Wipe Results

   Outer Packaging: _____ CPM → _____ DPM efficiency = _____ %

   Final Source Container: _____ CPM → _____ DPM efficiency = _____ %

7. Survey Results of Packing Material and Cartons: _____ mR/hr or CPM

8. Disposition of Package after Inspection:

9. If NRC/Carrier Notification Required, Give Time, Date, and Persons Notified:

10. Signature: _____ Date:

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Radiological Protection Section

Radioactive Shipment Receipt Form

1. P.O. No.: _____ Survey Date: ___/___/___ Time: _____
2. Condition of Package: OK Punctured Wet Crushed Other: _____
3. Label/Placarding Information:
4. Meter Information:

   Model: _____ Serial # _____

   Side-window SN: _____ Background Rate: _____

   Pancake SN: _____ Background Rate: _____
5. Measured Radiation Levels at:

   Package Surface: _____ mR/hr 1 meter: _____ mR/hr
6. Wipe Sample Screening:

   Number of wipe samples taken: _____ Number of above-background results: _____

Any above-background results are sent to the Radiological Protection Lab for more detailed testing: See attached Special Samples Sheet

7. Screening Results

   Do the removable contamination results require NRC notification? YES NO

   Do the measured package exposure rates require NRC notification? YES NO
8. Do Packing Slip and Contents Agree?

   Radionuclide: YES NO Quantity: YES NO Chemical Form: YES NO

   Explain NO:

9. Source Container Wipes

Number of wipe samples taken: _____ Number of above-background results: _____

Any above-background results are sent to the Radiological Protection Lab for more detailed testing: See attached Special Samples Sheet

10. Survey Results of Packing Material and Cartons: _____ mR/hr or CPM

11. Disposition of Package after Inspection:

12. If NRC/Carrier Notification Required, Give Time, Date, and Persons Notified:

13. Signature: _____ Date:

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
MMD/RPS – RADIOLOGICAL PROTECTION LABORATORY

RPL RECEIPT: ___/___/___

SAMPLING INFORMATION:	**ANALYSIS INFORMATION:**
Collected By: _____	Radionuclide(s) of Interest: _____
Department: EGLE Program: _____	Analysis requested:
Collection Date: ___/___/___	Gross Alpha [X]
Site Location: _____	Gross Beta [X]
_____	Gamma Emitters [X]
_____	Specific Radionuclide(s) _____
ISSUE RESULTS TO:	**SAMPLE DISPOSITION:**
Name: _____	RPL Disposal [ ]
Department: _____ Program: _____	Pickup at RPL [ ]
Phone Number: (___) _____	By: _____
Email: _____	Phone Number: (___) _____

SAMPLE ID NUMBER	**FIELD READINGS**	**SAMPLE DESCRIPTION**	RPL LAB NUMBER
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -

RPL SAMPLE ANALYSIS RESULTS

SAMPLE ID NUMBER	Alpha pCi/wipe	Beta pCi/wipe	pCi/wipe	pCi/wipe	pCi/wipe	Total Amount of Sample ( )

Results Issued: ___/___/___ Analyst: _____

Additional Analytical Information or Analyst Remarks on the back of Form: [ ]

Final Sample Disposition: [ ] Disposed By RPL Staff [ ] Samples Picked Up Date ___/___/___

Instructions: Fill in shaded areas at top of form and deliver the samples along with the form to:

EGLE/MMD/RPS/Radiological Protection Laboratory
815 Filley Street
Lansing, Michigan 48906

April 2020

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
MMD/RPS – RADIOLOGICAL PROTECTION LABORATORY

SAMPLING INFORMATION:

Collected By:_____ Site Location: _____
Department:_____ Program:_____
Collection Date: ____/____/____

SAMPLE ID NUMBER	FIELD READINGS	SAMPLE DESCRIPTION	RPL LAB NUMBER
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -
			SS -

RPL SAMPLE ANALYSIS RESULTS

SAMPLE ID NUMBER	pCi/	pCi/	pCi/	pCi/	pCi/	Total Amount of Sample ( )

Results Issued: ____/____/____ Analyst: _____

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
Radiological Protection Section

GC-60 Emergency Response Procedure

If the source does not return to the shielded position as shown by the indicator lights, the software, or the area monitor, an emergency recovery procedure needs to be implemented to assure the system is returned to a safe condition so that no one is inadvertently exposed to excessive radiation. At a minimum, the following steps should be implemented.

I. Press the "reset indicator light" and reset any faults that might be displayed.
If the system returns to a normal state, continue work. No notification necessary. Otherwise,

II. Change the GC-60 attenuator to "None" and note the reading on the radiation area monitor

III. If the area monitor reads background:

   a. Use a survey meter and measure the radiation around the wall penetration and sidewall (close to RAM Storage Room door) with a scintillator or side-window probe.
      i. If positive, move to Item III with the awareness that the area monitor may be malfunctioning.
   b. If no radiation is detected, open the enclosure and with the survey meter, approach the beam.
      i. If positive, move to Item III with the awareness that the area monitor may be malfunctioning.
   c. If no radiation detected, leave the enclosure and turn the GC-60 software off and on again.
   d. Contact the RSO and/or the equipment manager if problem continues to persist.

IV. If the area monitor reads greater than 0, the source is stuck in the exposed position and the following steps should be followed:

   a. Try to re-expose and return the source. If the source is still stuck
   b. Turn off the compressor and open the compressor drain valve.
   c. Change the attenuator to x8000
   d. With the RSO, contact Hopewell for instructions on safely dropping the source*

* If Hopewell instructs to enter the beam room, insure that all attenuators are dropped in the shielded position, keep a survey meter in front of you and keep to the lower areas of exposure as indicated on the exposure maps posted on the inside of the enclosure door.

March 2020

EGLE
RADIOLOGICAL PROTECTION SECTION
MATERIALS MANAGEMENT DIVISION
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
PO BOX 30241
LANSING MI 48909-7741

MATERIALS LICENSING BRANCH
UNITED STATES NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

RECEIVED JUN 30 2020