REPORTING GUIDELINE:
EXAMPLE FORMAT FOR EXCESSIVE RADIATION DOSE REPORTS

R 333.5088 requires that a written report of excessive radiation dose be sent to the Michigan Department of Licensing and Regulatory Affairs, Radiation Safety Section, P.O. Box 30643, Lansing, MI 48909, within 30 days of the date of occurrence. In addition, R 333.5089 requires that the registrant also provide a report of exposure data to the individual exposed. The report to the individual must be provided no later than the date the report required by R 333.5088 is sent to the Department.

The excessive dose reporting format itemized below can meet the requirements of the Rules. Other formats which meet the requirements are also possible and acceptable.

Each item below should be on a separate line or should constitute a separate paragraph or paragraphs.

1. Date this report prepared.
2. Facility name, address, and facility registration number.
3. Date of discovery of excessive dose (e.g., date of receipt of film badge report).
4. Body part affected (e.g., lens of the eye, whole body, etc.).
5. Dosimeter identification data (e.g., film badge number).
6. Time period during which the excessive dose occurred.
7. A narrative description of the radiation dose involved and the method of determining this dose.
8. A description of the levels of radiation involved.
9. A narrative description of the cause of the excessive dose.
10. A narrative detailing the corrective action taken or planned to prevent a recurrence.
11. Name and signature of the individual preparing the report.

The following three items should appear as a separate page of the report:

12. Name of the individual who received the excessive dose or whose radiation monitoring dosimeter indicated an excessive dose.
13. Date of birth of the individual.
14. Estimate of the extent of radiation dose (e.g., a deep dose equivalent of 0.1 sievert during 2015).

A copy of the statement page described below must be attached to the report mailed to this Department.

15. A statement dated and signed by the individual who received the excessive dose, indicating that he or she has received a copy of the report, as required by R 333.5089. This statement should indicate that the individual understands the descriptions and conclusions of the report, although the statement should not require the individual to agree with the descriptions or conclusions.
16. Include verification that the individual has received the following statement along with his or her copy of the excessive dose report: "This report is provided to you pursuant to Part 4 of the Michigan Department of Licensing and Regulatory Affairs rules entitled 'Ionizing Radiation Rules Governing the Use of Radiation Machines'. You should keep this report for future reference."

A listing of applicable Rules for excessive radiation dose reporting is on the backside of this guideline. If additional information is needed contact the Lansing office of the Radiation Safety Section at (517) 284-7820 or the Detroit district office at (313) 456-4660.

MIOSHA-RSS-860 (Rev. 5/16)
Authority; 1978 PA 368, as amended
Completion: Mandatory by R 333.5088

OCCUPATIONAL DOSE LIMITS

R 333.5057 Occupational dose limits for adults.

Rule 57. (1) A registrant shall control the occupational dose to individual adults, to the following dose limits:

- **(a)** An annual limit, which is the more limiting of the following:
  - **(i)** The effective dose equivalent of 0.05 sievert (5 rem).
  - **(ii)** The deep dose equivalent to an individual organ or tissue other than the lens of the eye of 0.5 sievert (50 rem).
- **(b)** The annual limits to the lens of the eye, to the skin of the whole body, and to the skin of the extremities which are the following:
  - **(i)** A lens dose equivalent of 0.15 sieverts (15 rem).
  - **(ii)** A shallow dose equivalent of 0.5 sievert (50 rem) to the skin of the whole body or to the skin of an extremity.

(2) For exposure determined by measurement with an external individual monitoring device, the deep-dose equivalent shall be used in place of the effective dose equivalent, unless the effective dose equivalent is determined by a dosimetry method approved by the department.

(3) The assigned deep dose equivalent shall be for the part of the body receiving the highest exposure. The assigned shallow-dose equivalent shall be the dose averaged over the contiguous 10 square centimeters of skin receiving the highest exposure.

- **(a)** If the individual monitoring device was not in the region of highest potential exposure or the results of individual monitoring are unavailable, the deep dose equivalent, lens dose equivalent, and shallow dose equivalent may be assessed from surveys or other radiation measurements to demonstrate compliance with the occupational dose limits.
- **(b)** When a protective apron is worn while working with medical fluoroscopic equipment and monitoring is conducted as specified in R 333.5065, the effective dose equivalent shall be determined by any of the following:
  - **(i)** When only 1 individual monitoring device is used and it is located at the neck (collar) outside the protective apron, the reported deep dose equivalent shall be the effective dose equivalent for external radiation.
  - **(ii)** When only 1 individual monitoring device is used and it is located at the neck outside the protective apron, and the reported dose exceeds 25% of the limit specified in subrule (1) of this rule, the reported deep dose equivalent value multiplied by 0.3 shall be the effective dose equivalent for external radiation.
  - **(iii)** When 2 individual monitoring devices are worn, 1 under the protective apron at the waist and the other outside the protective apron at the neck, the effective dose equivalent for external radiation shall be assigned the value of the sum of the deep dose equivalent reported for the individual monitoring device located at the waist under the protective apron multiplied by 1.5 and the deep dose equivalent reported for the individual monitoring device located at the neck outside the protective apron multiplied by 0.04.

(4) The registrant shall reduce the dose that an individual may be allowed to receive in the current year by the amount of occupational dose received while employed by another person during the current year. Requirements for determining prior occupational exposure are provided in R 333.5080.

R 333.5058 Occupational dose limits for minors.

Rule 58. The annual occupational dose limits for a minor are 10% of the annual occupational dose limits specified for an adult worker in R 333.5057.

R 333.5059 Dose equivalent to embryo or fetus.

Rule 59. (1) The registrant shall ensure that the dose equivalent to the embryo or fetus during the entire pregnancy, due to the occupational exposure of a declared pregnant woman, does not exceed 5 millisieverts (500 mrem). Records for doses to the embryo or fetus shall be kept according to R 333.5081(4).

(2) The registrant shall make efforts to avoid substantial variation above a uniform monthly exposure rate to a declared pregnant woman to satisfy the limit in subrule (1) of this rule.

(3) The dose equivalent to the embryo or fetus is the deep dose equivalent to the declared pregnant woman.

(4) If the dose equivalent to the embryo or fetus has exceeded 4.5 millisieverts (450 mrem), when the woman declares the pregnancy to the registrant, the registrant shall be considered in compliance with subrule (1) of this rule if the additional dose equivalent to the embryo or fetus does not exceed 0.5 millisievert (50 mrem) during the remainder of the pregnancy.

RADIATION DOSE LIMITS FOR INDIVIDUAL MEMBERS OF THE PUBLIC

R 333.5060 Dose limits for individual members of the public.

Rule 60. (1) A registrant shall conduct operations in compliance with both of the following:

- **(a)** The dose equivalent to a member of the public from the registered operation does not exceed 1 millisievert (100 mrem) in a year, excluding dose contributions from both of the following:
  - **(i)** Medical administrations the individual has received.
  - **(ii)** Voluntary participation in medical research programs.
- **(b)** The dose in an unrestricted area from radiation machines does not exceed 0.02 millisievert (2 mrem) in any 1 hour.

(2) If a registrant allows members of the public to have access to controlled areas, the dose limits for members of the public shall apply to those individuals.

(3) The department may impose additional restrictions on radiation levels in unrestricted areas to restrict the collective dose.

R 333.5088 Reports of exposures and radiation levels exceeding limits.

Rule 88. (1) In addition to the notification required by R 333.5087, a registrant shall submit a written report to the department within 30 days after learning of any of the following occurrences:

- **(a)** An event requiring notification under R 333.5087.
- **(b)** A dose exceeding any of the following:
  - **(i)** The occupational dose limits for adults in R 333.5057.
  - **(ii)** The occupational dose limits for a minor in R 333.5058.
  - **(iii)** The limit for an embryo or fetus of a declared pregnant woman in R 333.5059.
  - **(iv)** The limits for a member of the public in R 333.5060.
  - **(v)** Any applicable limit in the registration.
- **(c)** Levels of radiation in either of the following conditions:
  - **(i)** A restricted area exceeding an applicable limit in the registration.
  - **(ii)** An unrestricted area exceeding 10 times an applicable limit in this part or in the registration, whether or not this involves a dose to an individual in excess of the limits in R 333.5060.

(2) A written report required by subrule (1) of this rule shall include, as appropriate, all of the following:

- **(a)** The registrant's name, address, and facility registration number.
- **(b)** A description of the event, including the possible cause and the manufacturer and model number, if applicable, of any equipment that failed or malfunctioned.
- **(c)** The location of the event.
- **(d)** The date and time of the event.
- **(e)** The results of any evaluations or assessments, including an estimate of each individual's dose and the levels of radiation involved.
- **(f)** Actions taken or planned to prevent a recurrence, including the schedule for achieving conformance with applicable limits and applicable registration conditions.

(3) After filing a report required by this rule, the registrant shall make an additional written report to the department containing any additional substantive information regarding the event within 30 days after the registrant learns of the new information.

(4) A report filed with the department under this rule shall include the name, a unique identification number or social security number as appropriate, and the date of birth of each overexposed individual. The report shall be prepared so that the information is contained in a separate and detachable part of the report and shall be clearly labeled "Protected Information: Not for Public Disclosure."

R 333.5089 Reports to individuals of exceeding dose limits.

Rule 89. When R 333.5088 requires a registrant to report to the department, the registrant shall also provide to any affected individual a report on his or her exposure data included in the report submitted to the department. This report shall be transmitted no later than the transmittal to the department.

R 333.5094 Notifications and reports to individuals.

Rule 94. (1) A registrant shall report radiation exposure data for an individual as specified in this rule. The information reported shall include data and results obtained pursuant to these rules, orders, or registration conditions, as shown in records kept by the registrant pursuant to R 333.5081. A notification and report shall be in writing and include all of the following:

- **(a)** The name of the registrant, the name of the individual, and the individual's unique identification number or social security number.
- **(b)** The individual's exposure information.
- **(c)** The following statement:

"This report is provided to you pursuant to Part 4 of the Michigan Department of Licensing and Regulatory Affairs rules entitled 'Ionizing Radiation Rules Governing the Use of Radiation Machines'. You should keep this report for future reference."

(2) A registrant shall make dose information available to workers as shown in records kept by the registrant pursuant to R 333.5081. A registrant shall provide an annual report to each individual monitored pursuant to R 333.5064 of the dose received in that monitoring year for either of the following reasons:

- **(a)** The individual's occupational dose exceeds 1 millisievert (100 mrem) effective dose equivalent or 1 millisievert (100 mrem) to an individual organ or tissue.
- **(b)** The individual requests his or her annual dose report.

(3) At the request of a worker formerly engaged in work controlled by the registrant, the registrant shall provide a written report of the worker's exposure to radiation machines. The report shall include the dose record for each year the worker was required to be monitored pursuant to R 333.5064. The report shall be provided within 30 days from the date of the request, or within 30 days after the dose of the individual has been determined by the registrant, whichever is later. The report shall cover the period of time the worker's activities involved exposure to radiation machines. The report shall include the dates and locations of work associated with radiation machines in which the worker participated during this period.

(4) When a registrant is required pursuant to R 333.5087 or R 333.5088 to report to the department an exposure of an individual to radiation, the registrant shall also provide the individual a written report of the exposure data included in the report. This report shall be transmitted at a time not later than the transmittal to the department.

(5) At the request of a worker who is terminating employment with the registrant in work involving exposure to radiation during the current year, or at the request of a worker who, while employed by another person, is terminating a work assignment involving radiation exposure in the registrant's facility during the current year, each registrant shall provide at termination to the worker, or to the worker's designee, a written report of the radiation dose received by that worker from operations of the registrant during the current year. If the most recent individual monitoring results are not available, a written estimate of the dose shall be provided. Estimated doses shall be clearly indicated as estimated doses.