

INFORMATION FOR OCCUPATIONALLY EXPOSED WOMEN OF CHILDBEARING AGE

The U.S. Nuclear Regulatory Commission (NRC) has an established dose limit of 0.5 rem for the embryo/fetus of pregnant radiation workers for the entire gestation period. In support of this dose limit, Yale University has a written policy regarding the safe use of radiation by pregnant personnel. A copy of this policy follows. Please review the current policy and direct any questions or information requests to the Radiation Safety Officer, Tammy Stemen, at (203) 737-2140.

Since many pregnancies are not identified or confirmed until well into the first trimester (the first three months of pregnancy), women of childbearing age planning a pregnancy and working with radioactive materials or x-ray producing equipment, should practice "ALARA". That is, exposures to radiation should be maintained "As Low As Reasonably Achievable". Rigorous adherence to radiation safety procedures should minimize risks to the fetus and the mother. See Yale's written ALARA Program or call the EHS Radiation Safety section at (203) 785-3550 for more information.

YALE UNIVERSITY

Policy Regarding the Safe Use of Radiation by Pregnant Personnel

Yale University strives to keep the radiation exposure of every employee as low as practicable. The United States Nuclear Regulatory Commission (NRC) has an established, basic whole body exposure limit of 5 rems per year for all occupationally exposed adults. No clinical evidence of harm would be expected in an adult receiving this dose every year over a working lifetime. In the past, all Yale employees' exposures have been well below the 5 rem/year whole body exposure limit. In fact, in 2018 all whole body external exposures for radiation workers at Yale were below 0.5 rem/year or ten percent of the exposure limit and the majority of workers consistently receive less than 10 mrem/year.

The developing fetus may be more sensitive to radiation than adults. Therefore, the National Council on Radiation Protection and Measurements (NCRP) has recommended that fetal radiation dose as a result of occupational exposure of the mother should not exceed 0.5 rem during the entire gestation period. The Nuclear Regulatory Commission concurs with this recommendation and therefore enacted the separate exposure limit for the embryo/fetus. According to NRC regulations, "The limit for the embryo/fetus of a declared pregnant woman is 0.5 rem over the entire gestation period."¹ The NRC defines a declared pregnant woman as "a woman who has voluntarily informed the licensee, in writing, of her pregnancy and the estimated date of conception."² To help ensure the safety of the pregnant woman and her fetus, the EHS/Radiation Safety Office is staffed with professionals who can assist pregnant women in evaluating their work requirements and exposure conditions. All pregnant women working with radioactive materials, or frequenting laboratories where radioactive materials are used, are encouraged to contact the EHS/Radiation Safety Office for more information.

When a pregnancy is made known to the EHS/Radiation Safety Office, a health physicist will review which radiation sources are approved for use in the woman's laboratory. The radiation exposure history of the worker will also be reviewed, if applicable. If the review determines that the individual works in the PET Center, or that iodinations are done in the laboratory, or that high activity sealed or unsealed sources and/or x-ray equipment are in use, the worker will be consulted. Recommendations will then be made on an individual basis.

According to Federal regulations, "It is the fundamental responsibility of the pregnant worker to decide when or whether she will formally declare her condition to her employer."¹ If a woman chooses not to declare her pregnancy, Yale University is not required under the regulations to limit her dose to the 0.5 rem limit. However, "undeclared pregnant women are protected under the NRC regulations for all workers."¹ The normal occupational dose limit of 5 rem/year would still be in effect, and the woman's dose would also have to be maintained as low as is reasonably achievable (ALARA). Any woman who has questions or concerns about declaring her pregnancy is strongly encouraged to contact the EHS/Radiation Safety Office for a confidential discussion of this issue.

A provision does exist in the regulations so that an additional small incremental dose of 0.05 rem is available. This additional dose provides a "means of ensuring continued employment for the woman, and also removes the threat of inadvertent noncompliance."¹ "The 0.05 rem dose increment is available as an additional dose if the embryo/fetal dose at the time of declaration is greater than 0.45 rem."¹

The information received by the RSO and the records required to be maintained under this policy will be kept confidential and protected from public disclosure. Yale University is required to maintain the records of dose to the embryo/fetus, with the records of dose to the declared pregnant woman. To assist the woman in declaring her pregnancy, the form on the next page may be used to notify the Radiation Safety Officer of a pregnancy. Notification will assist the EHS/Radiation Safety Office in dose assessment and evaluation, and in making possible safety recommendations. Pregnant women are strongly encouraged to communicate about their pregnancy with their supervisor in addition to the Radiation Safety Officer.

Any individual having questions related to the radiation protection of the embryo/fetus is encouraged to contact the Radiation Safety Officer. NRC Regulatory Guide 8.13, "Instruction Concerning Prenatal Radiation Exposure" and its Appendix, "Questions and Answers Concerning Prenatal Radiation Exposure" are both available to all persons at Yale who work with or frequent laboratories using radioactive materials or radiation producing devices. Please find this regulatory guide on the NRC's website at <https://www.nrc.gov/docs/ML0037/ML003739505.pdf> or contact the EHS/Radiation Safety Office at (203) 785-3550 for copies.

¹ Federal Register, Volume 56, No. 98, Tuesday, May 21, 1991, Rules and Regulations.

² Code of Federal Regulations, Standards for Protection Against Radiation - 10 CFR 20.1003

YALE UNIVERSITY
Notification of Declared Pregnancy

DATE: _____

TO: Tammy Stemen, Radiation Safety Officer - EHS Office, 135 College Street

FROM: _____

NETID: _____

DEPARTMENT: _____

ADDRESS: _____

SIGNATURE: _____

I have completed and submitted this form to inform you that I am pregnant. The estimated date of conception* was on or about (month/year)
_____. I understand that the exposure limit for the embryo/fetus is 0.5 rem for the entire gestation period.

I also understand that meeting the lower dose limit may require a change in job or job responsibilities during my pregnancy.

Please check one of the following:

_____ I have questions related to the radiation protection of the embryo/fetus and would like a professional from the EHS/Radiation Safety Office to contact me at:

Home or Work Phone Number

_____ If I have questions related to the radiation protection of the embryo/fetus, I will contact the Radiation Safety Officer at (203) 737-2140 or (203) 785-3550.

*The NRC defines a declared pregnant woman as " a woman who has voluntarily informed the licensee, in writing, of her pregnancy and the estimated date of conception.." Only the month and year need be provided.

Note that you may "undeclare" your pregnancy by notifying the EHS/Radiation Safety Office.

If the declaration is not withdrawn, it will be considered expired one year after submission.

Dec. 2019