



BERKELEY LAB

Environment, Health and Safety

RADIATION PROTECTION

Questions and Answers Concerning Prenatal Radiation Exposure

Adapted from Nuclear Regulatory Commission Guide 8.13

1. Why am I receiving this information?

You are receiving this because you work in an area where occupational radiation exposure is possible. Regulations require that workers be informed of potential health risks from radiation exposure, including risks to an embryo or fetus. If you are pregnant or planning to become pregnant, it's important to understand how radiation exposure may affect a developing embryo/fetus.

This information explains your option to formally declare your pregnancy, which enables application of a lower radiation dose limit. It is provided to help you make an informed decision about whether to submit a declaration.

2. If I become pregnant, am I required to declare my pregnancy?

No. Declaring your pregnancy is completely voluntary. If you choose to declare, you must do so in writing. Once declared, a lower radiation dose limit will apply to your embryo/fetus to provide additional protection.

You may also withdraw your declaration at any time and for any reason, at which point you will return to the standard occupational dose limits.

3. If I declare my pregnancy in writing, what happens?

If you choose to formally declare your pregnancy in writing, the Lawrence Berkeley National Laboratory (LBNL) Radiation Protection Group (RPG) will limit occupational radiation exposure to your embryo/fetus to no more than 500 mrem (5 mSv) over the entire pregnancy. This is one-tenth of the annual dose limit for occupational radiation workers.

If you received more than 500 mrem (5 mSv) between conception and the date of your declaration, you may receive no more than an additional 50 mrem (0.5 mSv) for the remainder of the pregnancy. In addition, 10 CFR 835.206 requires that the dose to the embryo/fetus be delivered as uniformly as possible throughout the pregnancy – efforts must be made to avoid large doses over short time periods.

As a result, if you declare your pregnancy, your supervisor may modify your work assignments to help keep your dose within these limits. These modifications could include restricting certain tasks or limiting participation in emergency response duties that might lead to higher radiation exposure.

4. Why do the regulations have a lower dose limit for the embryo/fetus of a declared pregnant woman than for a pregnant worker who has not declared?

The lower dose limit is based on two main factors: the greater sensitivity of the embryo/fetus to radiation and the fact that the radiation exposure is involuntary – that is, the embryo/fetus cannot choose to accept occupational risks.

Scientific advisory groups have recommended that radiation dose to the embryo/fetus be limited to a small fraction of the occupational dose limit to help protect against potential developmental effects.

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5. What are the potentially harmful effects of radiation exposure to my embryo/fetus?

The potential health effects of radiation exposure depend on the dose, type of radiation, and timing of the exposure during pregnancy. The embryo/fetus is generally more sensitive to radiation than adults, and their sensitivity to radiation changes at different stages of development.

The primary concern at occupational dose levels is a potential increased risk of cancer. At much higher doses (well above occupational limits), there could also be risks of developmental effects. However, such effects are not expected at the dose levels typically encountered in occupational settings such as those at LBNL.

6. Are there any risks of genetic defects?

Although radiation-induced genetic effects have been observed in animal studies (such as rodents and insects), no hereditary effects have been confirmed in humans. The risk of radiation-induced genetic disorders in humans remains theoretical. For example, no genetic effects have been observed in the children or grandchildren of Japanese atomic bomb survivors, despite extensive long-term studies.

7. What if I decide that I do not want any radiation exposure at all during my pregnancy?

You may request reassignment to duties that involve no occupational radiation exposure. However, employers are not required to provide a position that guarantees zero occupational radiation exposure, especially if doing so is not feasible based on operational needs.

Even if you are not occupationally exposed to radiation, your embryo/fetus will still receive some radiation from natural background sources such as the air, soil, food, and cosmic rays. This background exposure typically results in a dose of about 75 mrem (0.75 mSv) over the course of a pregnancy.

Scientific studies have concluded that the 500 mrem (5 mSv) dose limit for declared pregnant workers provides a large margin of protection, and is designed to keep any increase in cancer risk extremely small. Ultimately, the decision about what level of exposure is acceptable to you is yours to make.

8. What effect will formally declaring my pregnancy have on my job status?

Submitting the declared pregnancy form will not directly affect your benefits, seniority, or potential for promotion.

Your management is in the best position to determine how declaring your pregnancy might affect your work assignments, particularly if changes are needed to help reduce your radiation dose. They can work with you to explore whether your current role can be continued as-is or if adjustments may be necessary to meet the regulatory dose limits for the embryo/fetus.

In many cases, no job changes are needed, and you can continue in your present role while remaining within dose limits. If your work is likely to exceed those limits, management may consider reasonable accommodations such as modified duties, scheduling changes, or temporary reassignment.

If you are not comfortable discussing these options directly with your management, LBNL Human Resources is available as a resource to support you and help navigate accommodations in a confidential manner.

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9. What information must I provide in my written declaration of pregnancy?

To formally declare your pregnancy, you must complete RP-0082, Declared Pregnant Worker (DPW) Form. This form requires the following information:

- Your name
- Estimated date of conception (month and year only)
- Your signature
- The date you complete the form

Once completed, submit the form to Dosimetry, Mail Stop 75-113 or to dosimetry@lbl.gov. The form can be accessed at <https://sites.google.com/lbl.gov/radiationprotectionforms/home> or by emailing dosimetry@lbl.gov.

10. To declare my pregnancy, do I have to have documented medical proof that I am pregnant?

No. LBNL does not require any medical documentation to declare your pregnancy. Your declaration is accepted based on your voluntary written statement.

11. Can I tell LBNL orally rather than in writing that I am pregnant?

No. Regulations require that pregnancy declarations be submitted in writing. A verbal statement is not sufficient to initiate the dose limits for a declared pregnant worker.

12. Is my pregnancy declaration kept confidential?

Yes. Your pregnancy declaration and any related discussions or accommodations will be handled confidentially and respectfully.

Information is shared only with those who need it to support your health, safety, and work environment. This typically includes:

- Radiation Protection Group (RPG) staff responsible for managing your radiation safety (e.g., your assigned Health Physicist, the Radiological Control Manager, and the Dosimetry Technical Lead)
- Occupational Health Services
- Your direct manager or others only if needed to implement necessary accommodations

13. If I have not declared my pregnancy in writing, but LBNL suspects that I am pregnant, do the lower dose limits apply?

No. The lower dose limits for the embryo/fetus only apply if you have formally declared your pregnancy in writing.

Under federal law, the decision to declare a pregnancy is entirely voluntary and personal. In *United Automobile Workers v. Johnson Controls, Inc.* (1991), the U.S. Supreme Court ruled that employers may not make decisions about job assignments based on assumptions about pregnancy or potential risks to future children. This means your employer cannot apply the lower limits or restrict your job duties unless you have chosen to declare your pregnancy in writing.

14. If I am planning to become pregnant but am not yet pregnant and I inform LBNL of that in writing, do the lower dose limits apply?

No. The requirement for lower limits applies only if you declare in writing that you are already pregnant.

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15. What if I have a miscarriage or find out that I am not pregnant?

If you have formally declared your pregnancy in writing, you should notify LBNL RPG in writing that you are no longer pregnant so that the declared pregnant worker protections can be discontinued. To withdraw, you must complete RP-0083, Declared Pregnant Worker Withdrawal Form and submit the form to Dosimetry, Mail Stop 75-113 or to dosimetry@lbl.gov. The form can be accessed at <https://sites.google.com/lbl.gov/radiationprotectionforms/home> or by emailing dosimetry@lbl.gov.

If you did not submit a written declaration, no further action or notification is required.

16. How long is the lower dose limit in effect?

The lower dose limit for the embryo/fetus remains in effect until you either withdraw your declaration in writing or inform LBNL RPG in writing that you are no longer pregnant. To withdraw, you must complete RP-0083, Declared Pregnant Worker Withdrawal Form and submit the form to Dosimetry, Mail Stop 75-113 or to dosimetry@lbl.gov. The form can be accessed at <https://sites.google.com/lbl.gov/radiationprotectionforms/home> or by emailing dosimetry@lbl.gov.

If no written withdrawal is submitted, the declaration may be considered expired one year after the estimated date of conception provided on your form.

17. If I have declared my pregnancy in writing, can I revoke my declaration of pregnancy even if I am still pregnant?

Yes. You may revoke your declaration of pregnancy at any time and for any reason, even if you are still pregnant. The decision is entirely yours.

If you revoke your declaration in writing, the lower dose limit for the embryo/fetus no longer applies, and any work restrictions that were imposed as a result of your declaration will be lifted. To withdraw, you must complete RP-0083, Declared Pregnant Worker Withdrawal Form and submit the form to Dosimetry, Mail Stop 75-113 or to dosimetry@lbl.gov. The form can be accessed at <https://sites.google.com/lbl.gov/radiationprotectionforms/home> or by emailing dosimetry@lbl.gov.

18. When will I find out the radiation dose to my embryo/fetus, and how can I access that information?

Once you declare your pregnancy in writing, LBNL RPG will begin tracking the dose to your embryo/fetus based on your occupational exposure from the estimated date of conception forward.

You may request your cumulative embryo/fetal dose at any time at <https://rems.lbl.gov/>. Please allow time for results to become available, as dosimeters must be sent to an external processor and analyzed before dose reports can be issued. A final dose summary will also be provided after the declaration ends (either through withdrawal or automatically, one year after the estimated conception date) with your annual dosimetry results.

19. What if I work under contract at LBNL?

If you are a contract worker, you may still choose to formally declare your pregnancy in writing using RP-0082, Declared Pregnant Worker (DPW) Form. Once completed, submit the form to Dosimetry, Mail Stop 75-113 or to dosimetry@lbl.gov. The form can be accessed at <https://sites.google.com/lbl.gov/radiationprotectionforms/home> or by emailing dosimetry@lbl.gov.

Regardless of employment type, LBNL RPG is responsible for ensuring that the dose to your embryo/fetus is limited in accordance with regulatory requirements once a written declaration has been submitted.

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20. If I have more questions, where I can learn more?

- **LBNL Radiation Protection Group (RPG) Management and Health Physicists**
 - RPG is always available to answer questions or provide guidance related to radiation safety, declared pregnancy, or any other radiological concerns. Please don't hesitate to reach out; your questions are welcome and important to ensuring a safe and well-informed work environment. Please email us at dosimetry@lbl.gov.
- **Radiation Answers – Pregnancy and Radiation**
<https://www.radiationanswers.org/radiation-and-me.html>
 - Radiation Answers is a public education website developed by the Health Physics Society. It provides clear, science-based information about radiation, its uses, health effects, and common sources of exposure in everyday life.
- **Health Physics Society (HPS): Frequently Asked Questions**
<https://hps.org/publicinformation/ate/faqs/>
 - Expert responses to public questions about radiation and pregnancy; includes dose risk thresholds, medical exposures, and occupational concerns
- **International Commission on Radiological Protection (ICRP)**
Document: ICRP Publication 103 – “The 2007 Recommendations of the ICRP” (available through the UC Library)
 - Establishes the foundation for embryo/fetus dose limits and radiological protection principles worldwide.
- **National Council on Radiation Protection and Measurements (NCRP)**
Document: NCRP Report No. 174 – “Preconception and Prenatal Radiation Exposure: Health Effects and Protective Guidance” (available through the UC Library)
 - U.S.-focused source providing detailed science and risk models; widely used to inform Department of Energy and Nuclear Regulation Commission (NRC) policy.
- **United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR)**
Document: UNSCEAR 2000 Report, Volume II – Effects of Radiation on the Embryo and Fetus
https://www.unscear.org/unscear/en/publications/2000_2.html
 - Global scientific consensus on biological effects of radiation during pregnancy, with dose thresholds and data summaries.