Directions

Review the attached information regarding prenatal radiation exposure. Complete the form on the last page by entering the information requested and send to:

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Instruction Concerning Prenatal Radiation Exposure

Questions and Answers Concerning Prenatal Radiation Exposure

**1. Why am I receiving this information?**

California Code of Regulations, Title 17, Section 30253 requires that licensees or registrants instruct individuals working with licensed or registered radioactive materials in radiation protection, as appropriate for the situation. The instruction below describes information that occupational workers and their supervisors should know about the radiation exposure of the embryo/fetus of pregnant women.

State regulationsallows a pregnant woman to decide whether she wants to formally declare her pregnancy. This instruction provides information to help women make an informed decision whether to declare a pregnancy.

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

No. The choice whether to declare your pregnancy is completely voluntary. If you choose to declare your pregnancy, you must do so in writing and a lower radiation dose limit will apply to your embryo/fetus. If you choose not to declare your pregnancy, you and your embryo/fetus will continue to be subject to the same radiation dose limits that apply to other occupational workers.

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

If you choose to declare your pregnancy in writing, the licensee or registrant must take measures to limit the dose to your embryo/fetus to 5 millisievert (500 mrem) during the entire pregnancy. This is one-tenth of the dose that an occupational worker may receive in a year. If you have already received a dose exceeding 5 mSv (500 mrem) in the period between conception and the declaration of your pregnancy, an additional dose of 0.5 mSv (50 mrem) is allowed during the remainder of the pregnancy. In addition, California Code of Regulations, Title 17, Section 30253 “Dose to an Embryo/Fetus,” requires licensees or registrants to make efforts to avoid substantial variation above a uniform monthly dose rate so that all the 5 mSv (500 mrem) allowed dose does not occur in a short period during the pregnancy. This may mean that, if you declare your pregnancy, the licensee or registrant may not permit you to do some of your normal job functions if those functions would have allowed you to receive more than 5 mSv (500 mrem) and you may not be able to have some emergency response responsibilities.

**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?**

A lower dose limit for the embryo/fetus of a declared pregnant woman is based on a consideration of greater sensitivity to radiation of the embryo/fetus and the involuntary nature of the exposure. Several scientific advisory groups have recommended (References 1 and 2) that the dose to the embryo/fetus be limited to a fraction of the occupational dose limit.

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

The occurrence and severity of health effects caused by ionizing radiation are dependent upon the type and total dose of radiation received, as well as the time period over which the exposure was received. The main concern is embryo/fetal susceptibility to the harmful effects of radiation such as cancer.

**6. Are there any risks of genetic defects?**

Although radiation injury has been induced experimentally in rodents and insects, and in the experiments, was transmitted and became manifest as hereditary disorders in their offspring, radiation has not been identified as a cause of such effect in humans. Therefore, the risk of genetic effects attributable to radiation exposure is speculative. For example, no genetic effects have been documented in any of the Japanese atomic bomb survivors, their children, or their grandchildren.

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

You may ask your employer for a job that does not involve any exposure at all to occupational radiation dose, but your employer is not obligated to provide you with a job involving no radiation exposure. Even if you receive no occupational exposure at all, your embryo/fetus will receive some radiation dose [(on average (0.75 mSv (75 mrem))] during your pregnancy from natural background radiation. The California DPH has reviewed the available scientific literature and concluded that the 5 mSv (500 mrem) limit provides an adequate margin of protection for the embryo/fetus. This dose limit reflects the desire to limit the total lifetime risk of leukemia and other cancers. If this dose limit is exceeded, the total lifetime risk of cancer to the embryo/fetus may increase incrementally. However, the decision on what level of risk to accept is yours. More detailed information on potential risk to the embryo/fetus from radiation exposure can be found in References 2-10.

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

Only the licensee or registrant can tell you what effect a written declaration of pregnancy will have on your job status. As part of your radiation safety training, the licensee or registrant should tell you the company's policies with respect to the job status of declared pregnant women. In addition, before you declare your pregnancy, you may want to talk to your supervisor or your radiation safety officer and ask what a declaration of pregnancy would mean specifically for you and your job status. In many cases you can continue in your present job with no change and still meet the dose limit for the embryo/fetus. For example, most commercial power reactor workers (approximately 93%) receive, in 12 months, occupational radiation doses that are less than 5 mSv (500 mrem) (Reference 11). The licensee or registrant may also consider the likelihood of increased radiation exposures from accidents and abnormal events before making a decision to allow you to continue in your present job. If your current work might cause the dose to your embryo/fetus to exceed 5 mSv (500 mrem), the licensee or registrant has various options. It is possible that the licensee or registrant can and will make a reasonable accommodation that will allow you to continue performing your current job, for example, by having another qualified employee do a small part of the job that would otherwise account for some of your radiation exposure.

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

You should provide, in writing, your name, a declaration that you are pregnant, the estimated date of conception (only the month and year need be given), and the date that you give the letter to the licensee or registrant. A form letter that you can use is included at the end of these questions and answers. You may use that letter, a form letter the licensee or registrant has provided to you, or write your own letter.

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

DHS’s rule does not require that you provide medical proof of your pregnancy. However, CDPH does not preclude the licensee or registrant from requesting medical documentation of your pregnancy, especially if a change in your duties is necessary in order to comply with the 5 mSv (500 mrem) dose limit.

**11. Can I tell the licensee or registrant orally rather than in writing that I am pregnant?**

No. The regulations require that the declaration must be in writing.

**12. If I have not declared my pregnancy in writing, but the licensee or registrant suspects that I am pregnant, do the lower dose limits apply?**

No. The lower dose limits for pregnant women apply only if you have declared your pregnancy in writing. The United States Supreme Court has ruled (in *United Automobile Workers International Union v. Johnson* *Controls, In*c., 1991) that “Decisions about the welfare of future children must be left to the parents who conceive, bear, support, and raise them rather than to the employers who hire those parents” (Reference 7). The Supreme Court also ruled that your employer may not restrict you from a specific job “because of concerns about the next generation.” Thus, the lower limits apply only if you choose to declare your pregnancy in writing.

**13. If I am planning to become pregnant but am not yet pregnant and I inform the licensee or registrant 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.

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

If you have declared your pregnancy in writing, you should promptly inform the licensee or registrant in writing that you are no longer pregnant. However, if you have not formally declared your pregnancy in writing, you need not inform the licensee or registrant of your non-pregnant status.

**15. How long is the lower dose limit in effect?**

The dose to the embryo/fetus must be limited until you withdraw your declaration in writing or you inform the licensee or registrant in writing that you are no longer pregnant. If the declaration is not withdrawn, the written declaration will be considered expired one year after submission.

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

Yes, you may. The choice is entirely yours. If you revoke your declaration of pregnancy, the lower dose limit for the embryo/fetus no longer applies.

**17. What if I work under contract at a registered or licensed facility?**

The regulations state that you should formally declare your pregnancy to the licensee or registrant in writing. Once declared the licensee or registrant has the responsibility to limit the dose to the embryo/fetus.

**18. Where can I get additional information?**

The references in this Appendix contain helpful information, especially Reference 3, *WISREG* “Instructions Concerning Occupational Risk from Radiation Exposure” for general information on radiation risks. The licensee or registrant should be able to give this document to you or you may contact the California Department of Public Health at (936) 327-5106.

For information on legal aspects, see Reference 7, “The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children—What Can the Employer Do?” which is an article in the journal *Radiation Protection Managemen*t.

You may also telephone the California Department of Public Health Radiologic Health Branch at (936) 327-5106 for further information.

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**REFERENCES FOR APPENDIX**

1. National Council on Radiation Protection and Measurements, *Limitation of Exposure to Ionizing Radiatio*n, NCRP Report No. 116, Bethesda, MD, 1993.

2. International Commission on Radiological Protection, *1990 Recommendations of the International Commission on Radiological Protectio*n, ICRP Publication 60, Ann. ICRP 21: No. 1-3, Pergamon Press,Oxford, UK, 1991.

3. *WISREG* “Instructions Concerning Occupational Risk from Radiation Exposure”, June 2002.

4. Committee on the Biological Effects of Ionizing Radiations, National Research Council, *Health Effects of Exposure to Low Levels of Ionizing Radiation* (BEIR V), National Academy Press, Washington, DC, 1990.

5. United Nations Scientific Committee on the Effects of Atomic Radiation, *Sources and Effects of Ionizing Radiatio*n, United Nations, New York, 1993.

6. R. Doll and R. Wakeford, “Risk of Childhood Cancer from Fetal Irradiation,” *The British Journal of Radiolog*y, 70, 130-139, 1997.

7. David Wiedis, Donald E. Jose, and Timm O. Phoebe, “The Rock and the Hard Place: Employer Liability to Fertile or Pregnant Employees and Their Unborn Children—What Can the Employer Do?” *Radiation* *Protection Managemen*t, *11,* 41-49, January/February 1994.

8. National Council on Radiation Protection and Measurements, *Considerations Regarding the Unintended Radiation Exposure of the Embryo, Fetus, or Nursing Chil*d, NCRP Commentary No. 9, Bethesda, MD,1994.

9. National Council on Radiation Protection and Measurements, *Risk Estimates for Radiation Protectio*n, NCRP Report No. 115, Bethesda, MD, 1993.

10. National Radiological Protection Board, *Advice on Exposure to Ionising Radiation During Pregnanc*y, National Radiological Protection Board, Chilton, Didcot, UK, 1998.

11. M.L. Thomas and D. Hagemeyer, “Occupational Radiation Exposure at Commercial Nuclear Power Reactors and Other Facilities, 1996,” Twenty-Ninth Annual Report, NUREG-0713, Vol. 18, USNRC, 1998.

Declaration of Pregnancy Form

Name (Please Print): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Employee/ Student ID#: \_\_\_\_\_\_\_\_\_\_\_\_\_ Birth Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

PI Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Department: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Building/ Room:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Phone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

In accordance with the California Code of Regulations, Title 17, Section 30253, which incorporates by reference the Nuclear Regulatory Commission’s regulations in 10 CFR 20.1208, “Dose Equivalent to an Embryo / Fetus,” I am declaring that I am pregnant. . I believe that I became pregnant in \_\_\_\_\_\_\_\_\_\_\_\_\_ (only the month and year need to be provided).

I understand that the radiation dose to my embryo / fetus during my entire pregnancy will not be allowed to exceed 0.5 rem(5 millisievert) (unless that dose has already been exceeded between the time of conception and submitting this letter). I also understand that meeting the lower dose limit may require a change in job or job responsibilities during my pregnancy.

Radiation Safety contacts individuals who exceed the following administrative ALARA (As Low As Reasonably Achievable) limits of 50 mRem during the gestational period.

Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_