1) Your report did not include any assumptions you may have used for your independent dose assessment to determine the estimated doses to the target volume (i.e., tumor) and any adjacent organs or tissues. What assumptions, if any, did you make in estimating the dose to the target volume and adjacent irradiated organs or tissues? What is the probable error of your dose estimate, given your assumptions? Or, if you did not perform an independent dose assessment, do you agree with the licensee's dose assessments for each of the irradiated organs and tissues of interest?

   A review of the imaging and the dose calculations supplied from the facility were detailed and used for the review and dose calculations. There was nothing that indicated that the data was inaccurate, exaggerated or otherwise manipulated in any way to question their calculations. The user had accepted responsibility immediately and was very accurate in their assessment.

2) Your report, or a redacted version thereof, will be made publicly available. For the reader's clarification, will you please define your use of the term "sequelae" in report?

   The term sequlae is defined as manifestations of side effects.

3) Your report states "[t]he radiation from the sources within the pelvis are/were not likely to manifest any clinical sequelae, either acute or chronic." Please elaborate on this statement. What acute or chronic effects, if any, may have manifested had the patient lived longer? At what radiation dose levels would these effects typically be observed? Can you point to any supporting professional/research literature to support your conclusions? Please address any anticipated effect on the patient's seminal vesicles [organ or tissue receiving highest estimated dose according to the licensee's dose assessment]. Please address any anticipated effect on the underdosing to the target volume.

   The loose placement of sources within the pelvis were mostly to the bladder and extracted and the soft and interstitial tissue. There were no seeds in the rectal wall that would otherwise cause bleeding, ulceration or fistualization if the patient had lived. It is possible, if he lived he could have developed potency issues related to seeds in the interstitial space, and the data for that comes from prostate brachytherapy cases where penile doses were high with the association of erectile dysfunction.

   Clearly there was underdoing of the target. The target was a local recurrent tumor and its not clear that full dose would have offered local control, although that was the initial intent of the radiation oncologist. The underdoing most certainly was not going to offer local control, would the patient have lived. And if he lived and the disease remained persistent, he would have needed a diverting surgery.

4) The patient records you supplied with your report indicate that the patient suffered from metastatic disease, which may have been a contributing factor to the patient's death on December 18, 2010. Did you find any evidence that the unsuccessful iodine-125 treatment was a contributing factor to the patient's metastasis and, in any way, hasten the patient's passing? Please explain your answer.

   The records were not complete on the patient's cause of death, but they were clear enough that it was a result of distant disease and the impact of that, and not local persistence of his tumor. It was never expected that the iodine implant, would have been performed flawlessly would have added to the patients life expectancy.

5) The patient records you supplied with your report describe the patient as experiencing "bleeding from the bladder" after the 12 iodine-125 (I-125) seeds were removed from the bladder. Using your professional expertise, what do you believe was the cause of the bleeding?

It is not clear what the etiology of the bleeding is. It could have been instrumentation or irritation from the iodine seeds. The records did not indicate that it was a problem beyond the scoping and removal of the seeds.

6) The patient records you supplied with your report indicate that during a followup examination on December 2, 2010, the patient presented rectal erythema. We understand, from other patient records that you supplied, that the patient had previously presented this condition following another type of radiation therapy. Is rectal erythema an expected side-effect of the I-125 treatment, did the I-125 exacerbate this pre-existing condition, or were the patient's symptoms independent of the I-125 treatment? Please explain.

Rectal erythema could be a manifestation of the procedure itself, the radiation dose or the tumor. Erythema, as redness, is not a significant toxicity either way and is graded as I of IV.

7) The patient records you supplied with your report describe the patient as experiencing urinating blood and rectal bleeding on December 14, 2010. Are these expected effects of the disease or the radiation therapy? If so, which one? If not, why?

It is not clear what caused the blood in the urine. The rectal bleeding was likely due to persistent local disease.

8) The patient records you supplied with your report had a bladder infection during doctor visits in December 2010. The patient records for one particular visit discuss the I-125 seeds penetrating the bladder. Those same records imply that the infection was due to "failure of outpatient treatment." A reviewer of these records could form an assumption that the bladder infection may have been caused by the I-125 treatment, based on the way this record is written. Will you please provide your expert opinion on this possible assessment of the patient records?

There are multiple reasons for the patient to be susceptible for a urinary tract infection. This includes the iodine seeds, previous instrumentation, resistant bacteria to past therapy and others. It is not clear that the records received are all the records for this patient, and perhaps other records would shed more light on this. But my opinion is that this is not a major side effect regardless of the incorrect and poor implant.