ANSWERS TO NRC REVIEWER QUESTIONS RE: HBL-11-006
"Request for 10 CFR 20.2002 Alternate Disposal Approval and 10 CFR 30.11 Exemption of Humboldt Bay Power Plant Waste For Disposal at US Ecology Idaho"

Summary of PG&E Responses:

The questions focus on values and assumptions used by HBPP for the MicroShield runs, with some appearing to be more conservative and some less conservative than HBPP's first exemption request. Some of the reviewer's questions arose because of errors made in the PG&E submittal. Others arose because PG&E failed to clearly point out & explain the reasons for differences between the first and second exemption requests.

The following responses provide corrections where errors were made or explain the technical reasons for the differences noted between the first and second exemption requests.

- HBPP used an assumed concrete density of 1.3 g/cm^3 in this request, which is different than the value in the previous request and also different than the value found in the text of this submittal (0.88 g/cm^3).

  Response:

  The use of 1.3 g/ cm^3 as a density in the truck driver, IMC (intermodal container), surveyor, and stabilization worker models was an oversight. The density value should have been set to 0.88 g/ cm^3. These models have been re-run with the parameter at 0.88 g/ cm^3. See attached MicroShield reports. This change in the model results in an updated expected dose rate for the truck driver of 7.07E-04 mR/hr (versus an original dose rate of 4.955E-04 mR/hr) and 8.036E-03 mR/hr (versus an original dose rate of 5.681e-03 mR/hr) for the IMC surveyor.

- The shielding for the truck driver and surveyor in this request is aluminum, but it was iron in the previous request.

  Response:

  The change in shielding material was made to accommodate the potential use of aluminum IMCs. The reduction in density is a conservative change as it increases the potential dose rates to workers.

- The distance from the truck driver to the source is different in the two submittals (33ft, 4.5 inches in this one vs. 36ft, 3.2 inches in the previous).

  Response:

  The reduction in distance from the IMC to the truck driver was done to accommodate positioning of the IMCs closer to the cab for better weight distribution on the trailers. This change is also conservative as the model predicts higher potential dose rates to truck drivers.

- The size and shape of the source for the stabilization worker is different in the two requests.

  Response:

  The model used for the US Ecology Idaho (USEI) stabilization cell in the second exemption request was incorrect. New MicroShield runs have been performed with a revised model to correct this error; however, the distance between the source and the stabilization worker has been reduced from 9.1 feet to 6 feet as a conservative measure.

- No shielding is assumed for the stabilization worker in this request, but shielding was assumed in the first request.

  Response:

  The shielding between the stabilization worker and the underlying waste was removed in the second request because the working angle does not always afford the stabilization worker the full benefit of shielding by the steel floor of the excavator. For this reason, as a conservative measure it was decided to exclude the steel shielding layer in the second request. The updated stabilization worker model results in an expected dose rate of 3.662e-03 mR/hr (versus an original dose rate of 5.223e-03 mR/hr).

- The size of the source for the waste cell operator is different in the two requests.

  Response:

  The dimension of the waste cell in the second request was incorrect and has been adjusted to a size of 6' wide x 90' long x 3' deep as reflected in the first request; however, the density of the waste cell source term will remain at 1.5 g/ cm^3, as this represents the specification for compacted waste in the USEI waste cells. This change results in an expected dose rate of 2.277e-03 mR/hr (versus an original dose rate of 1.676e-03 mR/hr).