

SUFFICIENT ACCURACY COWORKER DOSE MODELING

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REGULATION

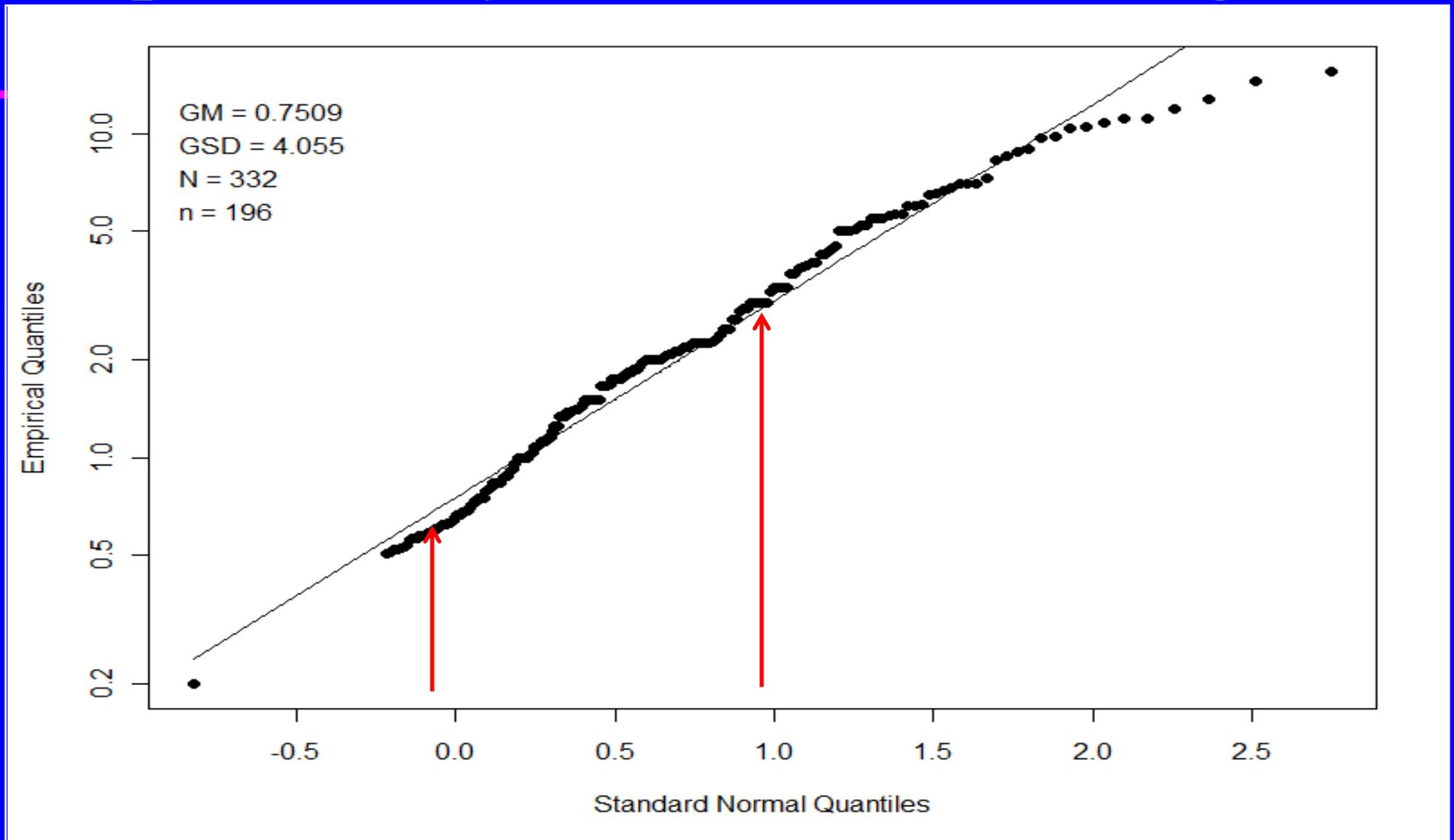
- Per 42 CFR § 83.13 (c)(1)(i), *Radiation doses can be reconstructed with sufficient accuracy if NIOSH has established that it has access to sufficient information to estimate the maximum radiation dose, for every type of cancer for which radiation doses are reconstructed, that could have been incurred in plausible circumstances by any member of the class or if NIOSH has established that it has access to sufficient information to estimate the radiation doses of members of the class more precisely than an estimate of the maximum radiation dose.*



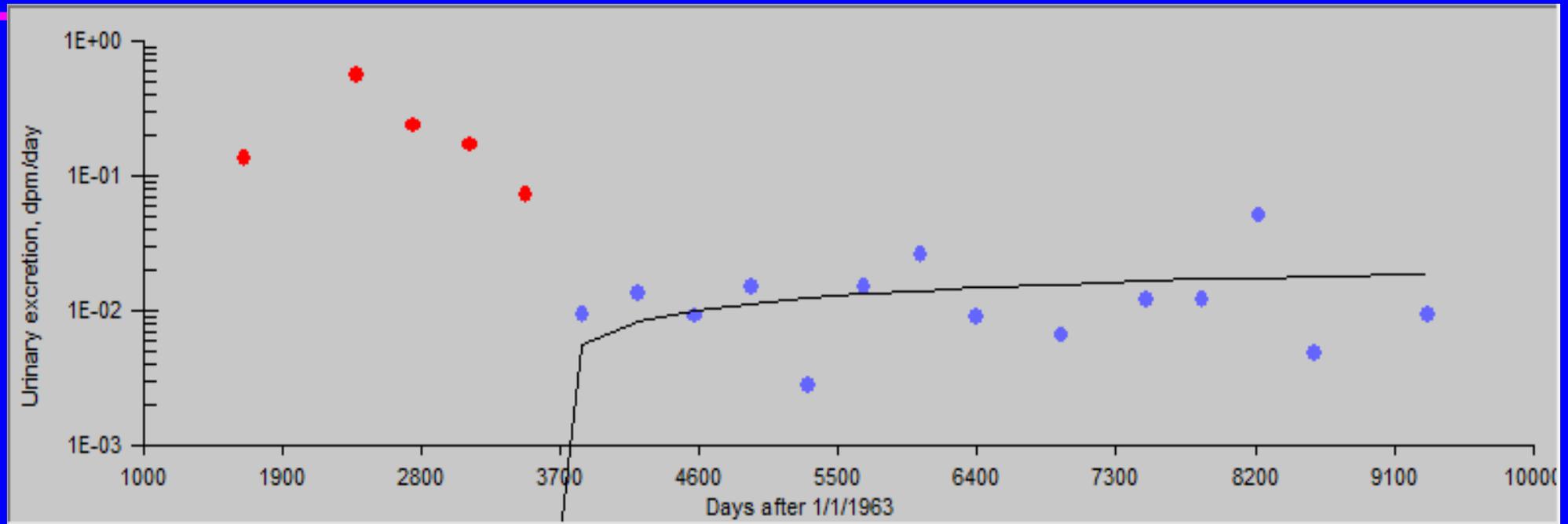
CONSIDERATION OF EXPOSURE POTENTIAL

- ◆ WHAT ACCURACY IS SUFFICIENT?
- ◆ FOR LOW EXPOSURE POTENTIAL – IS LESS ACCURACY SUFFICIENT?
- ◆ EXAMPLE – RESIDUAL PERIOD.
- ◆ PROBLEM WITH EVALUATING COWORKER MODELS FOR STRATIFICATION

Example Bioassay Distribution for a Single Year



Example Fit of Bioassay Data to Chronic Intake Scenario Over Multiple Years



IR1	<input type="text" value="9.861E-01"/>	dpm/d
+/-	<input type="text" value="2.222E-01"/>	dpm

Regression of median excretion rate on chronic Intake Retention Function

POTENTIAL ISSUES WITH STRATIFICATION EVALUATION

- ◆ REPRESENTATIVENESS AND COMPLETENESS OF DATA
- ◆ SIMILAR SAMPLING PROTOCOLS
- ◆ USE OF OPOS (ONE PERSON ONE VALUE)
- ◆ CONFIDENCE LEVELS USED
- ◆ SMALL SAMPLE SIZES /POWER (RULE OF 30)

RESOLUTION – MORE REVIEW

- ◆ SC&A WILL REVIEW OPOS AND DISCUSS POTENTIAL ISSUES WITH ITS USE
- ◆ DCAS WILL PREPARE AN OUTLINE OF FACTORS FOR EVALUATING COWORKER DATA SETS (MORE GENERAL THAN JUST THIS ISSUE)

EVALUATION BENCHMARK

- ◆ NEED TO KNOW WHAT LEVEL OF DIFFERENCE WE ARE TRYING TO DETECT
- ◆ DCAS WILL LOOK AT CLAIMS DATA TO DETERMINE AN ACTION LEVEL FOR USE IN STATISTICAL COMPARISONS
- ◆ LOW LEVEL OF EXPOSURE THAT EMPRICALLY WOULD HAVE AN EFFECT ON DOSE RECONSTRUCTION RESULTS

CO –WORKER EVALUATION, CONT.

- ◆ USE THAT “ACTION LEVEL” TO LOOK AT EXTERNAL DOSE COWORKER MODELS
- ◆ THEN GO BACK TO INTERNAL DOSE MODELS (HOPEFULLY)

Monte Carlo Permutation Test

