

**HUDSON RIVER PCB REASSESSMENT RI/FS
COMMUNITY INTERACTION PROGRAM
JOINT LIAISON GROUP MEETING
SARATOGA SPRINGS, NY
FEBRUARY 27, 1992**

Ann Rychlenski, USEPA Region II Community Relations Coordinator, opened the meeting shortly after 7 PM with introductions (sign-in sheets are attached).

Ms. Rychlenski reported that over 600 comments on the Phase 1 Report had been catalogued to date. She added that two additional Information Repositories, one in Croton-on-Hudson and one in White Plains, had been opened, bringing the total for this project to fifteen. Several libraries have agreed to circulate a copy of the Phase 1 Report and have been provided with extras for that purpose.

Ms. Rychlenski turned the meeting over to Ms. Yvette Lowney of Gradient Corporation, an EPA contractor, who made a presentation on Human Health Assessment. At the January 21, 1992, Hudson River PCB Oversight Committee (HROC) meeting, requests had been made that interested observers be permitted to attend a meeting held in New York City in February 4, 1992, for Headquarters and Regional EPA personnel, NYSDEC, DOH, TAMS Consultants, Inc., Gradient Corporation, and GE, to discuss health risk assessment issues. In lieu of inviting observers, EPA committed to report back to participants in the Community Interaction Program's various groups and committees. Ms. Lowney was invited to the Joint Liaison Group meeting for that purpose.

The presentation opened with an overview of the health risk assessment process itself, and a brief review of what was included in this assessment for Phase 1. The remainder of the presentation focused on a recap of the February 4, 1992, meeting. A copy of the presentation text is attached.

Discussion after Ms. Lowney's remarks covered a wide range of topics and included questions on the applicability of various existing studies to the Hudson River human health assessment, the sources and applicability of some of the exposure assumptions that were used in the assessment, variability of fish PCB concentration data among species, the possibility future revisions to some of EPA's assessment parameters, differences in opinion on average fish consumption estimates, when in the reassessment new data and/or revised values would be applied, and how comments to the Phase 1 Report will be addressed in the Responsiveness Summary.

During the discussion period, Sonia Bouvier and Carl Deppe made official requests that all members of the Community Interaction Program be invited to attend special meetings such as the one held on February 4, 1992, as observers. Ms. Rychlenski agreed to take the request to upper management for consideration.

Ms. Rychlenski reminded the audience that Liaison Group member could invite any speaker they choose to make a presentation to a Joint Liaison Group meeting, Steering Committee meeting, or HROC meeting. Anyone interested in doing so should submit a written request to her.

Mr. Tomchuk stated that the tentative release date for the Responsiveness Summary and the Phase 2 Work Plan is the beginning of May. Some of the Phase 2A water and sediment sampling work will begin this Spring once the final approvals have come from EPA.

Karl Berger of NYSDEC stated that the DEC 1990 fish data report is now available for the public. Ann Rychlenski took a formal request from audience members for DEC to make a presentation on the findings at a future meeting.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278

ATTENTION LIAISON GROUP

MEMBERS AND CHAIRS!

HOLD THIS DATE - FEBRUARY 27, 1992

**FOR A JOINT LIAISON GROUP MEETING
at the RAMADA RENAISSANCE, SARATOGA SPRINGS, NY, 7 PM**

It's time to get together for a joint working session. We're working on the topics and format and we hope you will plan to attend. If you have any questions, please contact

Ann Rychlenski, Community Relations Coordinator, USEPA Region II

212-264-7214

Looking forward to seeing you on 2/27!

10.9408



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION II

**JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, NEW YORK 10278**

**HUDSON RIVER PCBs SUPERFUND SITE REASSESSMENT
Community Interaction Program**

JOINT LIAISON GROUP MEETING

**Thursday, February 27, 1992
7:00 p.m.**

Ramada Renaissance, Saratoga Springs, New York

A G E N D A

Welcome & Introduction

**Ann Rychlenski, Steering
Committee Chair,
USEPA Region II**

**Human Health
Assessment Presentation**

**Yvette Lowney
Gradient Corporation**

Discussion

Closing

Ann Rychlenski

Human Health Assessment

Hudson River PCB Reassessment

presented to

Joint Liaison Group

by

Yvette Lowney, MPH

February 27, 1992

**FOUR STEPS OF RISK ASSESSMENT
AS OUTLINED BY THE NATIONAL RESEARCH COUNCIL, 1983**

**HAZARD
IDENTIFICATION**



**DOSE - RESPONSE
ASSESSMENT**

**EXPOSURE
ASSESSMENT**

**RISK
CHARACTERIZATION**

HAZARD IDENTIFICATION

Involves finding information on:

- 1. Animal studies**
- 2. Human studies**
- 3. Toxicological effects, target organ, nature of effect, e.g. acute vs chronic**

2. DOSE- RESPONSE ASSESSMENT

The process of characterizing the relation between the dose of an agent administered or received and the incidence of an adverse health effect in exposed populations and estimating the incidence of the effect as a function of human exposure to the agent.

PCBs -- Toxicity

- Low order acute toxicity
- Associated with delayed or chronic toxicity
- Well absorbed
- Distributed to fat
- Metabolized by liver
- Excretion slow
- Major organs of toxic action
 - liver
 - skin
 - development
 - nervous system

ENDPOINTS OF TOXICITY

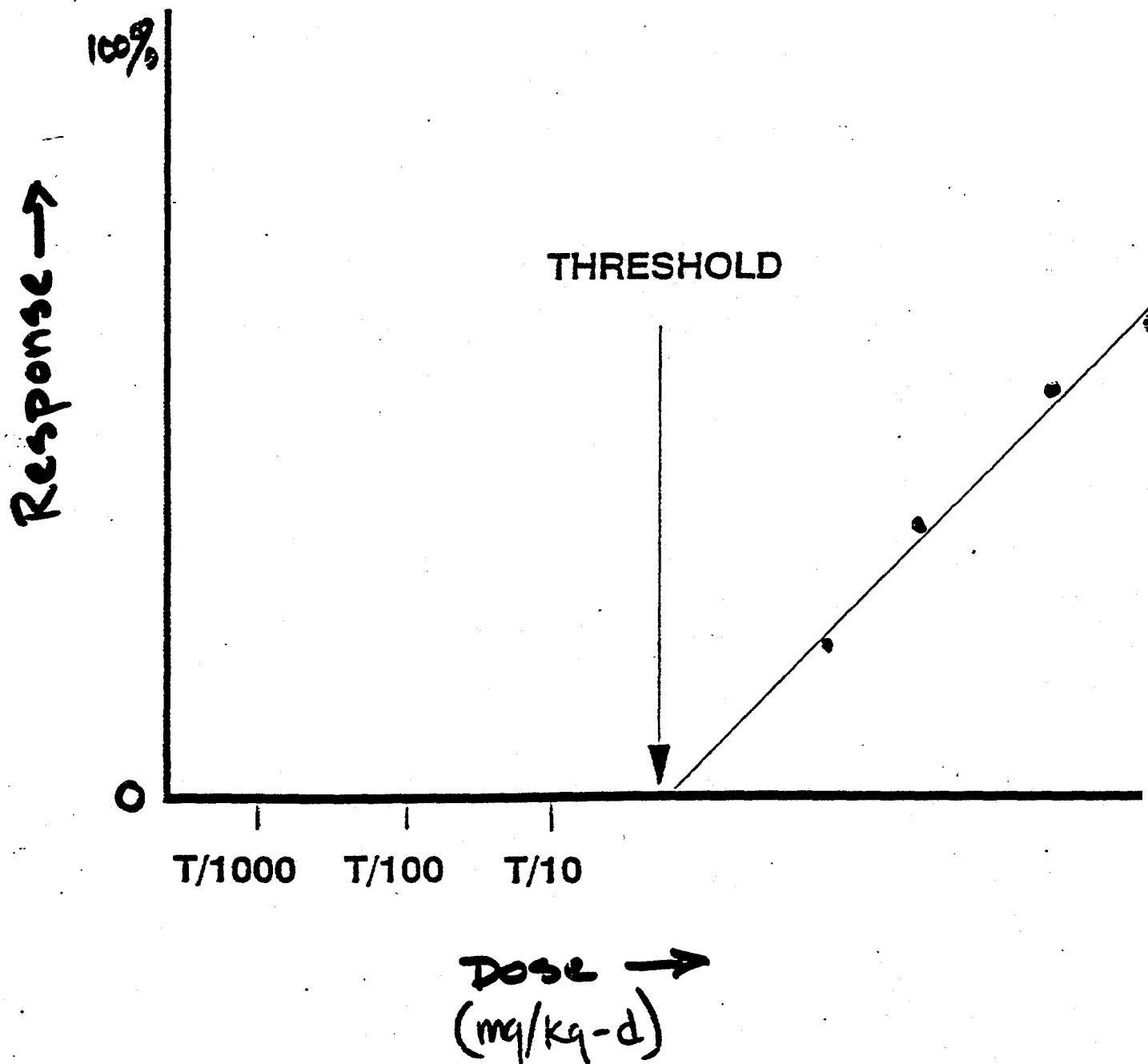
CARCINOGENS

- * Cancer**

NONCARCINOGENS

- * reproductive effects**
- * developmental effects**
- * irritant effects**
- * systemic effects**

Determining a Reference Dose (RfD)



RfD

.0001 mg/kg-d

repro in monkeys

1 ppm A1016 in food -- smaller offspring

NOAEL - 0.25 ppm in food (0.01 mg/kg-d)

100 x uncertainty factor

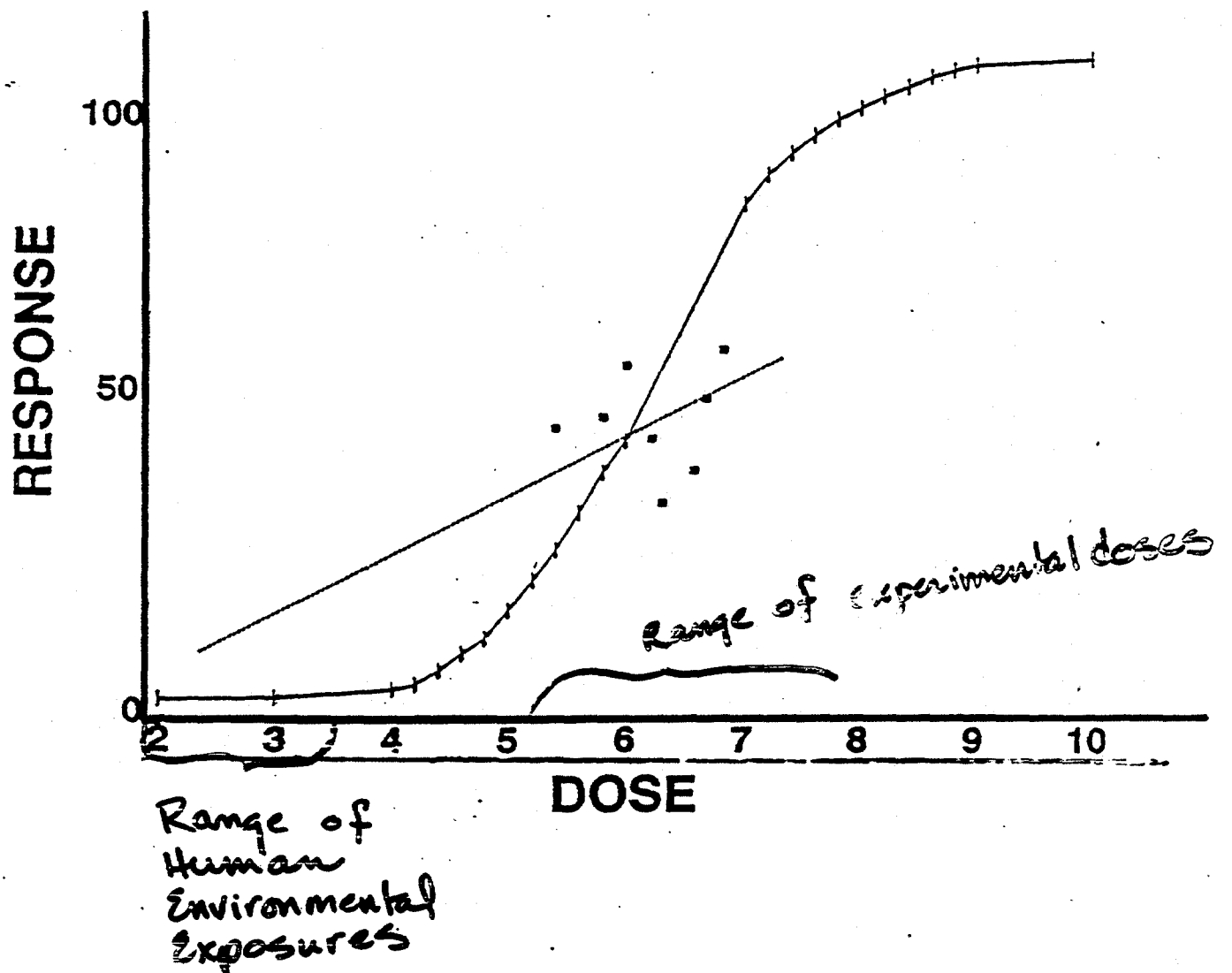
consistent with human effects (Fein, 1984)

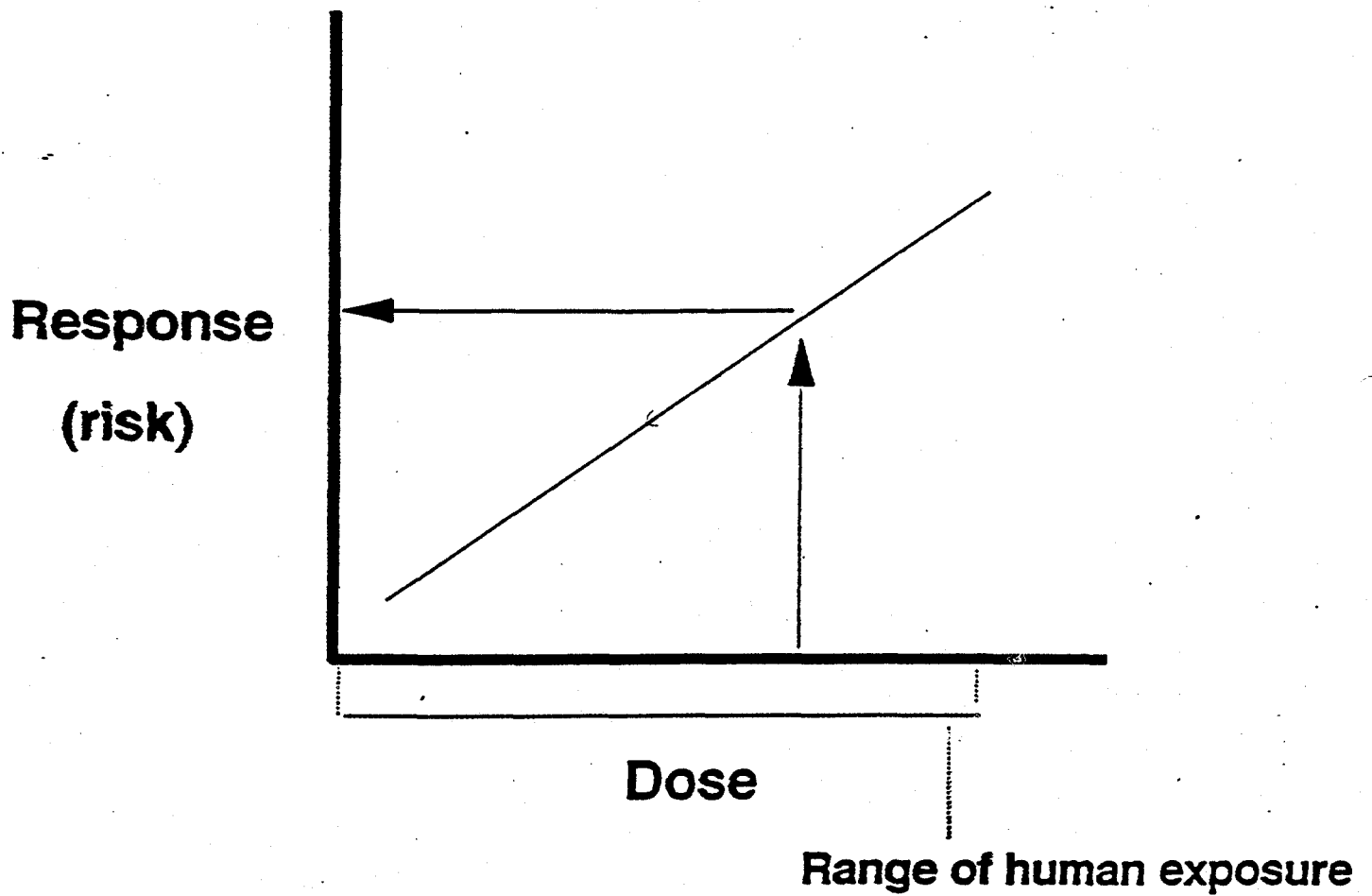
0.00003 to 0.0001 suggested as RfD (Minnesota DOH)

Based on Human studies + pharmacokinetic modeling.

Determining Cancer Potency

DOSE - RESPONSE CURVE



DETERMING EXPECTED RISK

PCBs classified as B2. carcinogens

Cancer Potency Factor

6 studies

Norback & Weltman 1985

Kimborough 1975

Schaffer, 1984

NCI, 1978

Kimborough & Linder, 1974

Schaeffer, 1984

Cancer potency factor (i.e. slope)

= 7.7 based on Aroclor 1260
units of $(1/\text{mg/kg-d})$

EXPOSURE ASSESSMENT

Evaluation of the contact between exposed population and the contaminated media to determine the nature and magnitude of human exposure and dose.

Quantify Exposure

Amount of media

Concentration of contaminant

Frequency and duration of exposure

Absorption

Potential Exposure Pathways

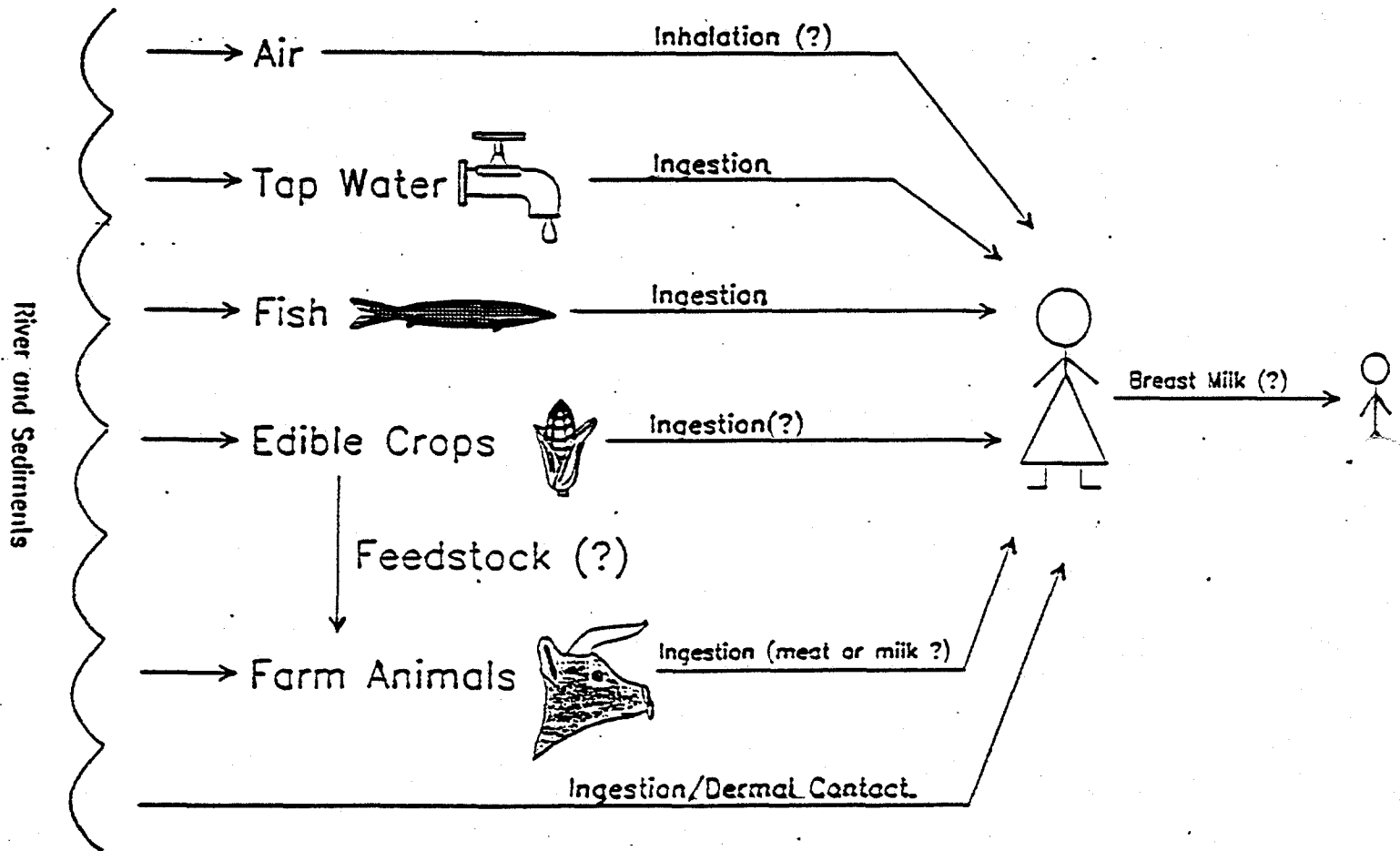


Table B.6-3
Exposure Assumptions: Sediment Ingestion

Parameter	Age Group		
	1 - 6	7 - 18	Adult
Daily Sediment Intake (mg)	200	100	100
Exposure Frequency (d/yr)	7	24	7
Exposure Duration (yr)	6	12	12
Exposure Concentration (mg/kg)	66.2	66.2	66.2
Absorption Fraction (%)	100	100	100
Average Weight Over Exposure Duration (kg)	15	42	70
Average Lifetime (yr)	70	70	70

^aUpper 95% confidence bound for surface sediment – Thompson Island Pool

Table B.6-4
Exposure Assumptions: Dermal Contact with River Water

Parameter	Age Group		
	1 - 6	7 - 18	Adult
Skin Surface Area for Contact (full body) (cm ²)	6,880	13,100	18,150
Permeability Constant (cm/hr)	3.2×10^{-2}	3.2×10^{-2}	3.2×10^{-2}
Exposure Frequency (d/yr)	7	24	7
Duration of Event (hr/d)	2.6	2.6	2.6
Exposure Concentration (μg/l)	0.06	0.06	0.06
Exposure Duration (yr)	6	12	12
Average Weight Over Exposure Duration (kg)	15	42	70
Average Lifetime (yr)	70	70	70

Table B.6-1
Exposure Assumptions: Fish Ingestion

Exposure Parameter	Value
Average Daily Intake (g/d)	30
Exposure Frequency	daily
Exposure Duration (yr)	30
Exposure Concentration (mg/kg)	
1986 - 1988 Mean ^a	12.0
30 Year Projected Mean ^b	1.5
Absorption Fraction (%)	100
Average Weight Over Exposure Duration (kg)	70
Average Lifetime (yr)	70

^aUpper 95% confidence bounds on the mean for all fish River Miles 153 - 190.

^bUpper 95% confidence bounds on the mean (see B.4).

Table B.6-2
Exposure Assumptions: Dermal Contact with Sediments

Parameter	Age Group		
	1 - 6	7 - 18	Adult
Skin Surface Area for Contact (cm ²)	3,931	7,420	5,170
Sediment to Skin Adherence (mg/cm ²)	1	1	1
Exposure Frequency (d/yr)	7	24	7
Exposure Duration (years)	6	12	12
Exposure Concentration ^a (mg/kg)	66.2	66.2	66.2
Absorption Fraction (%)	3	3	3
Average Weight Over Exposure Duration (kg)	15	42	70
Average Lifetime (years)	70	70	70

^aUpper 95% confidence bound for surface sediment - Thompson Island Pool.

RISK CHARACTERIZATION

Combine information from exposure assessment to provide quantification of likelihood and nature of adverse health effects in an exposed population

Risk Characterization for Non-carcinogens

$$\text{HQ} = \frac{\text{Daily Dose}}{\text{RfD}}$$

Table B.6-6
Hazard Quotient Estimates

Pathway		Average Daily Dose (mg/kg-d)	Hazard Quotient
Fish	[a]	5.1×10^{-3}	51
	[b]	6.4×10^{-4}	6
Drinking Water		1.7×10^{-6}	<1
Sediment -- Dermal	Age 1-6	1.0×10^{-6}	<1
	Age 7-18	2.3×10^{-6}	<1
	Adult	2.8×10^{-6}	<1
Sediment -- Ingestion	Age 1-6	1.7×10^{-6}	<1
	Age 7-18	1.0×10^{-6}	<1
	Adult	1.8×10^{-6}	<1
River Water Contact	Age 1-6	4.4×10^{-6}	<1
	Age 7-18	1.0×10^{-7}	<1
	Adult	2.5×10^{-8}	<1

^aScenario 1: 1986-1988 upper 95% confidence bound on mean.

^bScenario 2: 30 year mean trend.

Risk Characterization for Carcinogens

$$\text{Risk} = \text{LADD} \times \text{CPF}$$

Table B.6-5
Cancer Risk Estimates

Pathway		Chronic Daily Intake (mg/kg-d)	Cancer Risk
Fish Consumption	[a]	2.2×10^{-3}	2×10^{-2}
	[b]	2.8×10^{-4}	2×10^{-3}
Drinking Water		7.3×10^{-7}	6×10^{-6}
Sediment -- Dermal	Age 1-6	8.6×10^{-7}	7×10^{-6}
	Age 7-18	3.9×10^{-6}	3×10^{-6}
	Adult	4.8×10^{-7}	4×10^{-6}
		5.3×10^{-6}	4×10^{-6}
Sediment -- Ingestion	Age 1-6	1.5×10^{-6}	1×10^{-6}
	Age 7-18	1.8×10^{-6}	1×10^{-6}
	Adult	3.1×10^{-7}	2×10^{-6}
		3.5×10^{-6}	2×10^{-6}
River Water Contact	Age 1-6	3.8×10^{-6}	3×10^{-6}
	Age 7-18	1.8×10^{-6}	1×10^{-7}
	Adult	4.3×10^{-6}	3×10^{-6}
		2.6×10^{-6}	2×10^{-7}

*Scenario 1: 1986-1988 upper 95% confidence bound on mean.

*Scenario 2: 30 year mean trend.

Instructions to Participants

- What is the magnitude of uncertainty in your element in the risks assessment?
- Is the uncertainty due to variability (e.g., in an intake parameter such as fish ingestion), or due to lack of basic knowledge (e.g., carcinogenic mechanism).
- If uncertainty could be reduced (e.g., upper 95th percentile fish ingestion rate defined, or better CSF developed), how much would that affect the results of the Phase I assessment.
- How could this source of uncertainty best be resolved?
 - Through additional analysis of Hudson River data?
 - Collection of additional data in Phase II (if so, what are those data)?
 - Re-evaluation of existing toxicity data to either suggest modification to RfD or CSF, or to provide a way to deal with Aroclor mixtures?
 - Additional toxicity/chemistry studies?
 - Via policy analysis on the part of EPA?
- Consider how quickly additional information/data/interpretation could be collected and performed. Would the time frame be sufficient to affect Phase II? The reassessment?

Meeting with G.E.

Exposure Assessment Issues

G.E. Position		Phase I Report
Fish consumption rate is not relevant to Hudson River Populations		EPA-recommended "average" value
Based on new analysis	12.2 g/d (20 meals/yr)	30 g/d (30 meals/yr)
Fish tissue concentrations (exposure point concentration) should be calculated based on species-specific consumption		Averages all species collected RM 153-195
Fish concentration	7.3 ppm (0.9? ppm)	12 ppm currently 1.5 ppm 30-yr ave.
Fish tissue concentration should account for losses during cooking		No loss
Cooking Loss	25%	0
Final PCB conc	5.5 ppm (0.7 ppm?)	12 ppm currently 1.5 ppm

Meeting with G.E.

Toxicity Issues -- Non Cancer

G.E. Position

- Current information on PCB toxicity does not support evaluation of non cancer endpoints (Reference Dose)

Phase I Report

Uses Value of
 1×10^{-4}
following review
from EPA-ECAO

Current fish
concentrations

Not Applicable

HI = 51

30-year
extrapolation

Not Applicable

HI = 6

Meeting with G.E.

Toxicity Issues -- Cancer

G.E. Position

- All 209 PCB congeners do not have identical toxicological characteristics
- Reassessed Cancer Potency data are available
- Cancer Slope Factor for evaluating cancer risk, should be Aroclor Specific

Phase I Report

Agrees

Not yet
evaluated by
EPA-HHAG

All PCB Mixtures
handled same

60% Chlorination	Slightly Lower (Not Applicable)
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7.7 /mg/kg-d

54% Chlorination	0
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7.7 /mg/kg-d

42% Chlorination	0
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7.7 /mg/kg-d

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SARATOGA SPRINGS, NY

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 SARATOGA SPRINGS, NY

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