

US EPA ARCHIVE DOCUMENT



14

OPP OFFICIAL RECORD  
HEALTH EFFECTS DIVISION  
SCIENTIFIC DATA REVIEWS  
EPA SERIES 361  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

SEP 19 1996

OFFICE OF  
PREVENTION, PESTICIDES AND  
TOXIC SUBSTANCESMEMORANDUM

SUBJECT: Review of Incident Reports and Critique of Low Birth Weight Study related to Atrazine Exposure

TO: Kathryn Boyle  
Risk Characterization and Analysis Branch  
Health Effects Division (7509C)

FROM: Jerome Blondell, Ph.D., Health Statistician *Jerome Blondell*  
Special Review and Registration Section  
Occupational and Residential Exposure Branch  
Health Effects Division (7509C)

THRU: Dick Griffith, Acting Section Head *Dick Griffith*  
Special Review and Registration Section  
Occupational and Residential Exposure Branch  
Health Effects Division (7509C)

Ed Zager, Acting Branch Chief *Susan O. Hummel acting for*  
Occupational and Residential Exposure Branch  
Health Effects Division (7509C)

Please find below, the OREB review of:

DP Barcode: D227323 and D215478

Pesticide Chemical Code: 080803

EPA Reg. No.: various

EPA MRID No.: 435986-09

I. Introduction

The South Dakota Department of Agriculture provided 19 reports of atrazine exposures. This information was apparently provided (no cover letter was included) to support the position that most exposures involve dilute material and that risks have already been lowered with additional WPS (Worker Protection Standard) and PPE (Personal Protective Equipment) requirements. Only four of the 19 incidents involved exposure to atrazine alone.

In the second submittal, Ciba-Geigy had a critique prepared of the article by Peter Isacson titled "Summary: Low Birth Weight in Relation to Source and Characteristics of Drinking Water Supplies in Rural Areas of Iowa". Dr. Harland Austin is the author of this critique. The item reviewed is a meeting abstract presented in Des Moines, Iowa on October 27, 1989. This abstract or summary was not provided in the materials submitted for this review. A search of medline did not find any publication for this article though it does relate to a study of birth defects published in abstract form in the American Journal of Epidemiology. This earlier abstract was also submitted by Ciba-Geigy and has been reviewed in the memorandum "Review of Atrazine/Birth Defects Abstracts" by Jerome Blondell to Walt Waldrop, dated July 20, 1994. DP Barcode 194013 and 194460 (EPA MRID No. 428579-01).

## II. Conclusions

No conclusion can be drawn from the 19 incident reports submitted by the South Dakota Department of Agriculture. Only four of the cases involve atrazine by itself and incomplete reporting of other cases prevents drawing conclusions about the incident experience among atrazine pesticide handlers.

The review of the meeting summary concerning low birth weight and drinking water sources in Iowa does not provide any significant information related to the review of adverse health effects due to atrazine. This is a preliminary hypothesis-generating study that did not analyze for individual exposure or many important confounders. No conclusions can be drawn about the possible association of atrazine exposure and low birth weight from the information that has been provided.

## III. Recommendations

OREB has no specific recommendation based on the results of these studies.

## IV. Detailed Considerations

The 19 cases submitted by the South Dakota Department of Agriculture include only four cases involving exposure to atrazine alone from 1989 through 1994. At least two of the four cases were seen by a physician and all four were reported to a Poison Control Center. No documentation of the diagnosis was provided for the physician-treated cases. All four cases were adult males with direct contact with the product, either applying it or loading it. Symptoms varied: one reported dizziness and burning skin; another muscle spasms and ataxia; another nausea, anorexia, and persistent fatigue, and the fourth, swollen hands and rash. Some of these

symptoms are atypical of atrazine exposure and are likely due to other factors. None of the symptoms can be confirmed as due atrazine exposure on the basis of the limited information provided.

Although the abstract by Isacson concerning low birth weight and drinking water sources was not available, its provision would not change the conclusion of this review. This study was similar in design to another study on birth defects. Both studies evaluated populations in Iowa served by three types of water supplies: surface sources, shallow wells and deep wells. Shallow water sources are more likely to be contaminated with chloroform, other volatile organic compounds and agricultural pesticides, including atrazine. It is not possible to distinguish in this preliminary type of study which compound is related to the effects in question (either low birth weight or birth defects). Because of the way data are grouped, the actual exposures of any individual mother or pregnant woman to atrazine is unknown. Additional problems with this preliminary work include absence of any data concerning smoking or alcohol, important confounders known to affect birth weight and birth defects. Therefore, no further use can be made of these reported associations until analytical studies are done which measure individual exposures and adjust for the effects of confounders.

cc: Correspondence file  
D. Jaquith (OREB)  
J. McQueen (PM #63/SRRD, 7508W)  
Atrazine file chemical No. 080803

RDI: ActSecHd:FDGriffith:9/11/96:ActBrSrSci:SHummel:9/13/96:  
ActBrCh:EZager:9/ /96.

DP BARCODE: D215478

CASE: 838836  
SUBMISSION: S487137

DATA PACKAGE RECORD  
BEAN SHEET

DATE: 09/24/96  
Page 1 of 1

\* \* \* CASE/SUBMISSION INFORMATION \* \* \*

CASE TYPE: SPECIAL REVIEW      ACTION: 845 REV OF PUBLIC COMMENTS  
CHEMICALS: 080803 Atrazine (ANSI)      100.00 %

ID#: 080803

COMPANY:

PRODUCT MANAGER: 63 JACKIE MCQUEEN      703-308-8164      ROOM: CS1      3F3  
PM TEAM REVIEWER: JACKIE MCQUEEN      703-308-8164      ROOM: CS1      3F3  
RECEIVED DATE: 03/30/95      DUE OUT DATE: 05/29/95

\* \* \* DATA PACKAGE INFORMATION \* \* \*

DP BARCODE: 215478      EXPEDITE: N      DATE SENT: 05/18/95      DATE RET.: 09/19/96  
CHEMICAL: 080803 Atrazine (ANSI)  
DP TYPE: 001 Submission Related Data Package

CSF: N	LABEL: N		
ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE: 07/17/95
DIV : HED	05/25/95	09/19/96	NEGOT DATE: / /
BRAN: OREB	05/25/95	09/19/96	PROJ DATE: 10/01/96
SECT: RSRS	05/25/95	09/19/96	
REVR : JBLONDEL	05/25/95	09/19/96	
CONTR:	/ /	/ /	

\* \* \* DATA REVIEW INSTRUCTIONS \* \* \*

Atten: Steve Knott

Study: A Critique of a Document Entitled "Summary: Low Birth Weight in Relation to Source and Characteristics of Drinking Water Supplies in Rural Areas of Iowa" by Peter Isacson, Dated October, 1989".

Please review the above study submitted by Ciba in response to PD 1 and provide evaluation for PD 2/3.

Joe Bailey (308-8173)

\* \* \* DATA PACKAGE EVALUATION \* \* \*

No evaluation is written for this data package

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
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DP BARCODE: D227323

CASE: 838836 DATA PACKAGE RECORD DATE: 09/24/96  
 SUBMISSION: S504547 BEAN SHEET Page 1 of 1

\* \* \* CASE/SUBMISSION INFORMATION \* \* \*

CASE TYPE: SPECIAL REVIEW ACTION: 845 REV OF PUBLIC COMMENTS  
 CHEMICALS: 080803 Atrazine (ANSI) 100.00 %

ID#: 080803

COMPANY:

PRODUCT MANAGER: 63 JACKIE MCQUEEN 703-308-8164 ROOM: CS1 3F3  
 PM TEAM REVIEWER: JACKIE MCQUEEN 703-308-8164 ROOM: CS1 3F3  
 RECEIVED DATE: 04/30/96 DUE OUT DATE: 08/28/96

\* \* \* DATA PACKAGE INFORMATION \* \* \*

DP BARCODE: 227323 EXPEDITE: N DATE SENT: 06/19/96 DATE RET.: 09/19/96  
 CHEMICAL: 080803 Atrazine (ANSI)  
 DP TYPE: 999

CSF: N	LABEL: N		
ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE: 09/30/96
DIV : HED	06/19/96	09/19/96	NEGOT DATE: / /
BRAN: OREB	06/20/96	09/19/96	PROJ DATE: 10/01/96
SECT: RSRS	06/20/96	09/19/96	
REVR : JBLONDEL	06/20/96	09/19/96	
CONTR:	/ /	/ /	

\* \* \* DATA REVIEW INSTRUCTIONS \* \* \*

Attention: Bart Suhre

This data was received from the South Dakota Department of Agriculture in response to the triazine PD1. Is it necessary for HED to comment on this data? SDDA is using the data to say that most of the exposures are occurring with dilute material, and that risk have already been lowered with the addition of PPE and requirements of WPS.

Kathryn

\* \* \* DATA PACKAGE EVALUATION \* \* \*

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
225771	RCAB/SRS	04/30/96	08/28/96	Y	N	N
227314	SAB/IO	06/19/96	08/30/96	Y	N	N
227315	RSCB/SR-1	06/19/96	09/30/96	Y	N	N
227317	OREB/RSRS	06/19/96	09/30/96	Y	N	N
227319	SAB/IO	06/19/96	09/30/96	Y	N	N
227320	OREB/RSRS	06/19/96	09/30/96	Y	N	N
227321	TB-1/RS-2	06/19/96	09/30/96	Y	N	N

DP BARCODE: D227322

CASE: 838836 DATA PACKAGE RECORD (CONTINUED) DATE: 09/24/96  
SUBMISSION: S504547 BEAN SHEET Page 2 of 1

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
227322	SAB/IO	06/19/96	09/30/96	Y	N	N



13544

057226

**Chemical:** Atrazine

**PC Code:** 080803

**HED File Code:** ~~12000 Exposure Reviews~~ 15000 INCIDENT

**Memo Date:** 09/19/96

**File ID:** DPD227323; DPD215478

**Accession Number:** 412-03-0019

HED Records Reference Center  
01/03/2003