

IES
UTILITIES INC.

April 28, 1994
NG-94-1668

LR
for Approp
Docketing

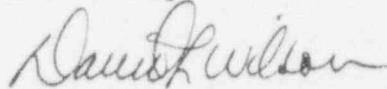
Mr. John B. Martin
Regional Administrator
Region III
U. S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, Illinois 60532-4351

Subject: Duane Arnold Energy Center
Docket No.: 50-331
Operating License No.: DPR-49
1993 Annual Radiological Environmental
Operating Report

Dear Mr. Martin:

Please find attached one (1) copy of the 1993 Annual Radiological Environmental Operating Report for the Duane Arnold Energy Center. This report is transmitted in accordance with the Technical Specification (section 6.11.1.g) reporting requirements.

Sincerely,



David L. Wilson
Plant Superintendent-Nuclear

DLW/RL/hc

Attachment: 1993 Annual Radiological
Environmental Operating Report

cc: Dr. William T. Russel, Director (original w/a)
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

L. Liu
L. Root
NRC Resident Office (w/attachments)
R. Pulsifer (NRC-NRR) (w/attachments)
P. Bessette - (w/attachments)
K. Young - (w/o attachments)
J. Franz (w/o attachments)
DCRC

IF 25
1/1

050033

9405060113 940428
PDR ADDCK 05000331
P PDR

 **TELEDYNE
ISOTOPES**

MIDWEST LABORATORY

700 LANDWEHR ROAD

NORTHBROOK, ILLINOIS 60062-2310

(708) 564-0700 • FAX (708) 564-4517

REPORT
TO
IOWA ELECTRIC LIGHT & POWER COMPANY
CEDAR RAPIDS, IOWA


RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM (REMP)
FOR THE
DUANE ARNOLD ENERGY CENTER
CEDAR RAPIDS, IOWA
DOCKET NO. 50-331

ANNUAL REPORT - PART I
SUMMARY AND INTERPRETATION
JANUARY - DECEMBER 1993

FOR SUBMITTAL TO
THE NUCLEAR REGULATORY COMMISSION

PREPARED AND SUBMITTED
BY
TELEDYNE ISOTOPES MIDWEST LABORATORY
PROJECT NO. 8001

Approved by: _____


L. G. Huebner
General Manager

9405050315 940428
PDR ADDCK 05000331
R PDR

TABLE OF CONTENTS

No.		Page
	PREFACE.....	ii
	List of Tables	v
	List of Figures.....	vi
1.0	INTRODUCTION.....	1
2.0	SUMMARY	2
3.0	ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM.....	3
3.1	Program Design and Data Interpretation.....	3
3.2	Program Description.....	4
3.3	Program Execution.....	5
3.4	Laboratory Procedures.....	6
3.5	Program Modifications.....	6
4.0	RESULTS AND DISCUSSION.....	7
4.1	Atmospheric Nuclear Detonations and Nuclear Accidents.....	7
4.2	Program Findings.....	7
5.0	TABLES AND FIGURES.....	10
6.0	REFERENCES.....	28

APPENDICES

A	Interlaboratory Comparison Program Results.....	A-1
B	Data Reporting Conventions	B-1
C	Maximum Permissible Concentrations of Radioactivity in Air and Water Above Natural Background in Unrestricted Areas.....	C-1
D	Summary of the Land Use Census	D-1
E	Annual Radiation Dose Assessment.....	E-1

LIST OF TABLES

<u>No.</u>		<u>Page</u>
5.1	Characteristic Properties of Isotopes Quantified in Gamma-spectroscopic Analyses	11
5.2	Sample Collection and Analysis Program, 1993.....	12
5.3	Sampling Locations, DAEC.....	15
5.4	Type and Frequency of Collections	17
5.5	Sample Codes Used in Table 5.4.....	18
5.6	Missed Collections and Analyses, 1993.....	19
5.7	Radiological Environmental Monitoring Program Summary, 1993	20

In addition, the following tables are in the Appendices:

Appendix A

A-1	Interlaboratory Comparison Program Results, 1990-1993.....	A1-1
A-2	Interlaboratory Comparison Program Results, Thermoluminescent Dosimeters (TLDs)	A2-1
A-3	In-house Spiked Samples	A3-1
A-4	In-house "Blank" Samples	A4-1
	Attachment A: Acceptance Criteria for Spiked Samples	A2

Appendix C

C-1	Maximum Permissible Concentrations of Radioactivity in Air and Water Above Natural Background in Unrestricted Areas	C-2
-----	---	-----