



MIDWEST LABORATORY

700 LANDWEHR ROAD

NORTHBROOK, ILLINOIS 60062-2210

(312) 54-0700 FAX (312) 564-4517

FINAL  
MONTHLY PROGRESS REPORT  
TO  
COMMONWEALTH EDISON COMPANY

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM  
FOR  
BYRON NUCLEAR POWER STATION  
BYRON, ILLINOIS

PREPARED AND SUBMITTED  
BY  
TELEDYNE ISOTOPES MIDWEST LABORATORY

EPG- 06-RE-RAD<sub>a</sub><sup>3</sup>

Reporting Period: January - December, 1988

Reviewed and  
Approved by:

L. G. Huebner  
L. G. Huebner  
General Manager

Date 3/27/89

Distribution: Radioecology Group, CECO (1 copy)  
Superintendent, Byron Station (1 copy)

910213039 891117  
PDR ADOCK 05000454  
PDR

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
	List of Tables . . . . .	iii
1.0	INTRODUCTION . . . . .	1
2.0	LISTING OF MISSED SAMPLES . . . . .	2
 <u>Appendices</u>		
A	Interlaboratory Comparison Program Results . . . . .	A-1
B	Collection Schedule . . . . .	B-1

BYRON

LIST OF TABLES

<u>No.</u> <sup>a</sup>	<u>Title</u>	<u>Page</u>
1	Airborne Particulates and Iodine-131, Locations By-01, 02, 03, 04 . . . . .	4
2	Airborne Particulates and Iodine-131, Locations By-05, 06, 07, 08 . . . . .	6
3	Airborne Particulates and Iodine-131, Locations By-21, 22, 23, 24 . . . . .	8
4	Airborne Particulates, Quarterly Composites of Weekly Collections . . . . .	10
5	Gamma Radiation, as measured by TLDs . . . . .	12
6	Precipitation . . . . .	15
7	Milk . . . . .	17
8	Fish, Edible Portions . . . . .	19
9	Vegetables . . . . .	20
10	Grass and Cattlefeed . . . . .	21
11	Cooling Water . . . . .	23
12	Surface Water . . . . .	26
13	Well Water . . . . .	30
14	Bottom Sediments . . . . .	32
	Milch Animal and Nearest Residence Census . . . . .	33

---

<sup>a</sup> Numbers are given only to tables presented in this report. Other tables will be added in later reports.

LIST OF TABLES (continued)

<u>No.</u>	<u>Title</u>	<u>Page</u>
	Summary Table, First Quarter . . . . .	38
	Summary Table, Second Quarter . . . . .	41
	Summary Table, Third Quarter . . . . .	43
	Summary Table, Fourth Quarter . . . . .	45

---

## BYRON

### 1.0 INTRODUCTION

The following constitutes the current Monthly Progress Report for the Environmental Radiological Monitoring Program conducted at the Byron Nuclear Power Station, Byron, Illinois. Results of completed analyses are presented in the attached tables. Missing entries indicate analyses that are not completed and the results will appear in subsequent reports.

Data obtained in the program are well within the ranges previously encountered in the program and to be expected in the environmental media sampled.

None of the media sampled this month contained radioactivity attributable to the ~~construction~~ of Byron Nuclear Power Station.

*operation*

For all gamma isotopic analyses, spectrum is computer scanned from 80 to 2048 KeV. Specifically included are Mn-54, Co-58, Fe-59, Co-60, Zn-65, Zr-95, Nb-95, Ru-103, Ru-106, I-131, Ba-La-140, Cs-134, Cs-137, Ce-141, and Ce-144. Naturally occurring gamma-emitters, such as K-40 and Ra daughters, are frequently detected but not listed here. Data listed as "<" are at the 4.66 sigma level, others are 2 sigma. Cs-134 and Cs-137 are listed separately. All other gamma emitters are listed under "Other Gammas". Unless noted otherwise, the less than value ("<") reported under "Other Gammas" is for Co-60 and may be higher or lower for other radionuclides.

All concentrations, except gross beta, are decay corrected to the time of collection.

#### Deviations from Scheduled Sampling and Corrective Actions Taken

All samples were collected within the scheduled period unless noted otherwise in the Listing of Missed Samples.

## BYRON

2.0 LISTING OF MISSED SAMPLES

Sample Type	Location	Expected Collection Date	Reason
Air Particulates	BY-24	01-04-88	Lock to station frozen
	BY-02	01-25-88	Lock to station frozen
	BY-05	01-25-88	Lock to station frozen
	BY-07	01-25-88	Lock to station frozen
	BY-22	01-25-88	Lock to station frozen
	BY-24	01-25-88	Lock to station frozen
Cooling Water	BY-10	01-16-88	No water left for the collector
	BY-11	01-16-88	
Surface Water	BY-09	01-04-88	Frozen stream
	BY-12	01-04-88	Frozen stream
	BY-13	01-04-88	Frozen stream
	BY-09	01-11-88	Frozen stream
	BY-12	01-11-88	Frozen stream
	BY-13	01-11-88	Frozen stream
	BY-09	01-18-88	Frozen stream
	BY-12	01-18-88	Frozen stream
	BY-13	01-18-88	Frozen stream
	BY-09	01-25-88	Frozen stream
	BY-12	01-25-88	Frozen stream
	BY-13	01-25-88	Frozen stream
	BY-09	02-01-88	Frozen stream
	BY-09	02-08-88	Frozen stream
	BY-13	02-08-88	Frozen stream
	BY-09	02-16-88	Frozen stream
	BY-13	02-16-88	Frozen stream
BY-09	02-22-88	Frozen stream	
Milk	BY-16	03-07-88	Farm deserted
	BY-16	04-04-88	Farm deserted
Precipitation	BY-16	03-28-88	Farm deserted
Air Particulates	BY-02	05-30-88	Filter missing
	BY-24	07-25-88	Motor burned out

## BYRON

2.0 LISTING OF MISSED SAMPLES (continued)

Sample Type	Location	Expected Collection Date	Reason
Surface Water	BY-09	12-12-88	Frozen stream
	BY-12	12-12-88	Frozen stream
	BY-13	12-12-88	Frozen stream
	BY-09	12-19-88	Frozen stream
	BY-12	12-19-88	Frozen stream
	BY-13	12-19-88	Frozen stream
	BY-09	12-26-88	Frozen stream
	BY-12	12-26-88	Frozen stream
	BY-13	12-26-88	Frozen stream
Well Water	BY-14	Nov., 88	No water collected due to collector's oversight
	BY-18	Dec., 88	
Air Particulates	BY-22	01-02-89	Motor burned out

BYRON

Table 1. Airborne Particulates and Iodine-131<sup>a</sup>  
 Collection: Weekly  
 Units: 10<sup>-2</sup> pCi/m<sup>3</sup>

Week Ending	Byron BY-01		Stillman Valley BY-02 (C)		Near ... F BY-03		Paynes Point BY-04	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume	Gross Beta
01-04-88	281	3.5±0.4	281	4.4±0.4	252	4.0±0.5		4.3±0.5
01-11-88	280	1.8±0.3	286	6.2±0.5	279	4.8±0.5	279	5.0±0.5
01-18-88	285	4.8±0.5	287	3.9±0.5	287	4.6±0.5	287	4.0±0.5
01-25-88	287	4.0±0.5	ND <sup>b</sup>		288	4.0±0.4	288	4.2±0.5
02-01-88	288	3.1±0.4	582 <sup>c</sup>	3.5±0.3	287	3.5±0.4	287	3.4±0.4
02-08-88	282	4.2±0.4	283	5.4±0.5	282	4.8±0.5	282	4.9±0.5
02-16-88	330	2.9±0.4	329	3.9±0.4	329	4.0±0.4	330	4.1±0.4
02-22-88	242	2.7±0.4	243	2.2±0.4	243	2.6±0.4	242	2.5±0.4
02-29-88	285	2.6±0.4	285	2.9±0.4	285	2.8±0.4	285	2.2±0.4
03-07-88	288	1.6±0.3	295	2.0±0.3	289	1.9±0.3	289	1.8±0.3
03-14-88	284	2.4±0.4	283	2.5±0.4	285	2.0±0.3	283	2.2±0.4
03-21-88	285	2.1±0.3	285	2.3±0.4	285	2.6±0.4	285	2.0±0.3
03-28-88	287	2.7±0.4	278	2.8±0.4	291	3.2±0.4	291	2.6±0.4
1st Qtr means±s.d.		3.0±1.0		3.5±1.3		3.4±1.0		3.3±1.2
04-04-88	284	2.8±0.4	296	2.3±0.4	282	3.0±0.4	282	2.6±0.4
04-11-88	281	2.4±0.4	273	2.8±0.4	280	2.9±0.4	280	2.4±0.4
04-18-88	287	3.0±0.4	287	3.9±0.4	286	3.7±0.4	287	2.9±0.4
04-25-88	288	2.2±0.3	287	3.3±0.4	288	3.0±0.4	288	2.2±0.4
05-02-88	284	2.6±0.4	289	2.9±0.4	288	4.3±0.4	288	2.5±0.4
05-09-88	285	2.6±0.4	272	3.1±0.4	280	3.0±0.4	253	2.6±0.4
05-16-88	285	2.8±0.4	293	2.8±0.3	287	3.4±0.4	286	3.3±0.4
05-23-88	287	2.6±0.4	278	2.4±0.4	285	2.7±0.4	285	2.3±0.4
05-30-88	285	3.2±0.4	ND <sup>d</sup>		285	2.7±0.4	285	2.9±0.4
06-06-88	288	3.6±0.4	297	3.6±0.4	290	3.7±0.4	290	1.7±0.3
06-13-88	286	3.9±0.5	277	3.6±0.4	283	3.8±0.4	284	3.0±0.4
06-20-88	281	4.3±0.5	289	3.4±0.4	283	4.6±0.5	283	3.2±0.4
06-27-88	286	3.7±0.4	279	3.6±0.4	285	3.4±0.4	285	3.2±0.4
2nd Qtr means±s.d.		3.0±0.6		3.1±0.5		3.4±0.6		2.7±0.5

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

<sup>b</sup> ND = No data; sample not collected due to frozen lock at station.

<sup>c</sup> Volume high due to pump running for two weeks. See footnote "b".

<sup>d</sup> ND = No data; filter missing.



BYRON

Table 1. Airborne Particulates and Iodine-131<sup>a</sup> (continued)

Week Ending	Byron BY-01		Stillman Valley BY-02 (C)		Near Site E BY-03		Paynes Point BY-04	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta
07-05-88	329	2.8±0.3	336	2.8±0.3	336	2.8±0.3	336	2.6±0.3
07-11-88	242	4.0±0.5	236	4.7±0.6	236	4.8±0.6	236	4.4±0.5
07-18-88	285	3.0±0.4	289	2.8±0.4	290	3.2±0.4	290	2.7±0.4
07-25-88	289	2.4±0.3	288	2.6±0.3	288	2.5±0.3	288	2.6±0.3
08-01-88	283	4.3±0.4	281	4.4±0.5	281	4.0±0.4	281	3.8±0.4
08-08-88	286	3.4±0.4	275	3.3±0.4	175 <sup>b</sup>	1.2±0.4	284	3.4±0.4
08-15-88	292	2.5±0.4	292	2.1±0.3	5 <sup>c</sup>	13.8±9.9	291	2.2±0.3
08-22-88	281	3.0±0.4	280	2.7±0.4	281	3.4±0.4	281	3.1±0.4
08-29-88	286	3.2±0.4	286	3.2±0.4	286	3.2±0.4	286	2.7±0.4
09-05-88	288	2.8±0.4	296	3.2±0.4	288	2.9±0.4	288	2.4±0.4
09-12-88	284	2.6±0.4	277	3.0±0.4	284	2.6±0.4	284	2.4±0.4
09-19-88	282	2.4±0.4	288	2.8±0.4	281	2.3±0.4	281	2.5±0.4
09-26-88	286	2.4±0.4	288	2.2±0.4	288	1.8±0.3	288	1.9±0.4
10-03-88	286	2.6±0.4	300	2.7±0.4	292	2.5±0.4	291	2.3±0.4
3rd Qtr mean±s.d.		3.0±0.6		3.0±0.7		2.9±0.9		2.8±0.7
10-11-88	325	2.8±0.3	313	3.6±0.3	315	2.8±0.3	321	2.5±0.3
10-17-88	241	2.8±0.4	248	2.7±0.4	242	2.8±0.4	242	2.4±0.4
10-24-88	285	2.0±0.3	285	2.0±0.3	285	1.8±0.3	285	1.6±0.3
10-31-88	287	2.0±0.4	287	2.0±0.4	287	1.7±0.4	287	2.1±0.4
11-07-88	286	3.2±0.4	294	3.6±0.5	288	3.0±0.4	288	2.3±0.4
11-14-88	284	2.4±0.3	277	3.1±0.3	282	2.6±0.3	282	2.7±0.3
11-21-88	287	1.8±0.3	287	2.6±0.4	287	2.2±0.4	282	2.4±0.4
11-28-88	285	2.4±0.5	286	3.5±0.4	285	3.0±0.4	285	3.0±0.4
12-05-88	286	3.3±0.4	292	5.2±0.5	286	3.8±0.4	286	4.1±0.4
12-12-88	283	2.6±0.4	276	3.7±0.4	284	3.3±0.4	284	3.4±0.4
12-19-88	287	2.9±0.4	288	2.6±0.4	286	2.4±0.4	286	2.2±0.4
12-26-88	290	3.3±0.4	289	2.8±0.4	289	3.4±0.4	289	2.9±0.4
01-02-89	283	5.9±0.6	294	5.9±0.6	286	5.3±0.5	286	5.2±0.5
4th Qtr mean±s.d.		2.9±1.0		3.3±1.1		2.9±0.9		2.8±0.9

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

<sup>b</sup> Low volume due to loss of power at station. Required LLD for I-131 concentrations (<0.72) not reached due to low volume.

<sup>c</sup> Low volume due to blown motor. Required LLD for I-131 concentrations (<3.03) not reached due to low volume. Gross beta value excluded from mean.

BYRON

Table 2. Airborne Particulates and Iodine-131<sup>a</sup>  
 Collection: Weekly  
 Units: 10<sup>-2</sup> pCi/m<sup>3</sup>

Week Ending	Near Site S BY-05		Oregon BY-06		Mt. Morris BY-07 (C)		Leaf River BY-08 (C)	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta
01-04-88	253	4.2 ± 0.5	281	4.5 ± 0.5	281	4.1 ± 0.4	279	4.3 ± 0.4
01-11-88	279	4.5 ± 0.5	279	4.9 ± 0.5	281	4.3 ± 0.4	283	4.5 ± 0.4
01-18-88	287	4.3 ± 0.5	286	4.8 ± 0.5	285	5.0 ± 0.5	286	4.3 ± 0.5
01-25-88	ND <sup>b</sup>		288	4.4 ± 0.5	ND <sup>b</sup>		286	3.7 ± 0.4
02-01-88	575 <sup>c</sup>	3.5 ± 0.3	287	3.6 ± 0.4	574 <sup>c</sup>	3.5 ± 0.3	288	3.7 ± 0.4
02-08-88	281	4.7 ± 0.5	283	4.3 ± 0.4	283	4.9 ± 0.5	282	4.8 ± 0.5
02-16-88	330	3.4 ± 0.4	330	4.3 ± 0.4	329	3.6 ± 0.4	329	3.8 ± 0.4
02-22-88	242	2.8 ± 0.4	243	2.4 ± 0.4	243	2.7 ± 0.4	243	2.6 ± 0.4
02-29-88	285	2.4 ± 0.4	285	2.5 ± 0.4	285	3.0 ± 0.4	285	2.7 ± 0.4
03-07-88	288	1.7 ± 0.3	287	1.6 ± 0.3	287	1.8 ± 0.3	286	1.8 ± 0.3
03-14-88	284	2.8 ± 0.4	285	2.2 ± 0.4	285	2.6 ± 0.4	285	2.2 ± 0.4
03-21-88	285	2.1 ± 0.3	284	2.1 ± 0.3	284	2.4 ± 0.4	285	2.3 ± 0.4
03-28-88	291	2.2 ± 0.3	288	2.8 ± 0.4	286	2.6 ± 0.4	287	2.3 ± 0.4
1st Qtr mean ± s.d.		3.2 ± 1.0		3.4 ± 1.2		3.4 ± 1.0		3.3 ± 1.0
04-04-88	282	2.4 ± 0.4	281	2.5 ± 0.4	282	2.9 ± 0.4	282	2.2 ± 0.4
04-11-88	280	2.4 ± 0.4	284	2.5 ± 0.4	285	2.8 ± 0.4	285	2.6 ± 0.4
04-18-88	287	2.8 ± 0.4	286	2.8 ± 0.4	286	2.6 ± 0.4	286	2.6 ± 0.4
04-25-88	288	2.4 ± 0.4	288	2.7 ± 0.4	288	2.5 ± 0.4	288	2.5 ± 0.4
05-02-88	287	2.7 ± 0.4	283	3.2 ± 0.4	283	2.8 ± 0.4	288	3.0 ± 0.4
05-09-88	280	3.2 ± 0.4	285	3.3 ± 0.4	286	2.6 ± 0.4	286	3.0 ± 0.4
05-16-88	287	2.9 ± 0.4	285	3.0 ± 0.4	285	2.8 ± 0.4	289	3.1 ± 0.4
05-23-88	285	2.4 ± 0.4	287	2.7 ± 0.4	286	2.4 ± 0.4	282	2.8 ± 0.4
05-30-88	285	2.7 ± 0.4	285	2.4 ± 0.4	285	2.7 ± 0.4	286	2.6 ± 0.4
06-06-88	290	3.3 ± 0.4	289	3.0 ± 0.4	288	3.8 ± 0.4	286	3.4 ± 0.4
06-13-88	284	3.9 ± 0.5	286	3.2 ± 0.4	286	3.1 ± 0.4	289	3.3 ± 0.4
06-20-88	283	3.8 ± 0.5	282	4.0 ± 0.5	281	3.3 ± 0.4	285	3.4 ± 0.4
06-27-88	285	3.7 ± 0.4	285	3.9 ± 0.4	286	3.4 ± 0.4	283	3.1 ± 0.4
2nd Qtr mean ± s.d.		3.0 ± 0.6		3.0 ± 0.5		2.9 ± 0.4		2.9 ± 0.4

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

<sup>b</sup> ND = No data; sample not collected due to frozen lock at station.

<sup>c</sup> Volume high due to pump running for two weeks. See footnote "b".

BYRON

Table 2. Airborne Particulates and Iodine-131<sup>a</sup> (continued)

Week Ending	Near Site S BY-05		Oregon BY-06		Mt. Morris BY-07 (C)		Leaf River BY-08 (C)	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta
07-05-88	334	2.6±0.3	329	2.7±0.3	329	2.6±0.3	329	2.5±0.3
07-11-88	238	4.5±0.5	243	4.1±0.5	243	3.7±0.5	243	4.0±0.5
07-18-88	286	3.0±0.4	284	3.0±0.4	284	2.7±0.4	289	2.5±0.4
07-25-88	290	2.5±0.3	290	2.8±0.3	293	2.5±0.3	290	2.6±0.3
08-01-88	283	3.8±0.4	282	4.3±0.4	279	3.9±0.4	278	3.7±0.4
08-08-88	284	4.2±0.4	286	3.8±0.4	286	3.2±0.4	286	3.7±0.4
08-15-88	292	2.5±0.4	291	2.9±0.4	291	2.3±0.4	292	2.3±0.4
08-22-88	281	3.3±0.4	280	3.4±0.4	280	2.8±0.4	280	2.7±0.4
08-29-88	285	3.5±0.4	286	3.7±0.4	286	3.4±0.4	286	3.4±0.4
09-05-88	278	3.2±0.4	287	3.9±0.4	286	3.0±0.4	286	3.5±0.4
09-12-88	284	2.5±0.4	286	2.7±0.4	287	2.3±0.4	287	3.5±0.4
09-19-88	282	2.6±0.4	282	2.7±0.4	282	2.6±0.4	282	2.8±0.4
09-26-88	289	2.3±0.4	287	2.3±0.4	287	2.2±0.4	287	3.3±0.4
10-03-88	291	2.4±0.4	286	3.3±0.4	286	3.0±0.4	286	3.0±0.4
3rd Qtr mean±s.d.		3.1±0.7		3.3±0.6		2.9±0.5		3.1±0.5
10-11-88	321	2.8±0.3	326	2.6±0.4	327	2.9±0.4	327	3.1±0.4
10-17-88	243	2.4±0.4	243	2.4±0.4	243	2.6±0.4	241	2.4±0.4
10-24-88	285	2.3±0.4	285	2.1±0.4	285	2.4±0.4	285	2.2±0.4
10-31-88	287	2.1±0.4	285	1.8±0.4	285	1.8±0.4	287	2.0±0.4
11-07-88	288	3.6±0.5	286	4.0±0.5	287	3.5±0.5	287	3.6±0.5
11-14-88	283	2.6±0.3	284	3.3±0.3	284	2.9±0.3	284	2.5±0.4
11-21-88	287	2.6±0.4	286	2.3±0.4	286	2.4±0.4	287	2.7±0.4
11-28-88	285	3.0±0.4	285	3.5±0.4	286	3.8±0.4	286	3.6±0.4
12-05-88	286	4.4±0.5	288	4.8±0.5	288	4.4±0.5	288	4.2±0.4
12-12-88	283	3.9±0.4	283	4.2±0.4	283	3.7±0.4	283	3.8±0.4
12-19-88	286	3.5±0.4	288	2.8±0.4	287	2.6±0.4	288	2.6±0.4
12-26-88	289	3.2±0.4	289	3.1±0.4	289	3.2±0.4	289	3.0±0.4
01-02-89	286	5.4±0.6	284	5.7±0.6	285	5.6±0.6	285	5.5±0.6
4th Qtr mean±s.d.		3.2±0.9		3.3±1.1		3.2±1.0		3.2±1.0

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

BYRON

Table 3. Airborne Particulates and Iodine-131<sup>a</sup>  
 Collection: Weekly  
 Units: 10<sup>-2</sup> pCi/m<sup>3</sup>

Week Ending	BY-21		BY-22		BY-23		BY-24	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta
01-04-88	243	4.1 ± 0.5	242	4.5 ± 0.5	247	4.3 ± 0.5	ND <sup>b</sup>	--
01-11-88	280	4.9 ± 0.5	280	5.7 ± 0.5	280	5.0 ± 0.5	526 <sup>c</sup>	4.8 ± 0.3
01-18-88	285	4.5 ± 0.5	285	3.9 ± 0.5	285	4.4 ± 0.5	285	4.3 ± 0.5
01-25-88	289	4.6 ± 0.5	ND <sup>d</sup>	--	288	4.4 ± 0.5	ND <sup>b</sup>	--
02-01-88	288	3.6 ± 0.4	288	3.2 ± 0.4	288	3.0 ± 0.4	574 <sup>c</sup>	3.7 ± 0.4
02-08-88	282	4.9 ± 0.5	282	4.7 ± 0.5	282	3.8 ± 0.4	282	5.1 ± 0.5
02-16-88	330	3.6 ± 0.4	330	3.2 ± 0.4	330	3.7 ± 0.4	330	3.6 ± 0.4
02-22-88	243	2.8 ± 0.4	242	2.6 ± 0.4	242	2.8 ± 0.4	242	2.4 ± 0.4
02-29-88	285	3.0 ± 0.4	285	2.4 ± 0.4	285	2.8 ± 0.4	285	2.8 ± 0.4
03-07-88	288	1.6 ± 0.3	288	1.7 ± 0.3	288	1.7 ± 0.3	288	2.0 ± 0.3
03-14-88	284	2.4 ± 0.4	284	2.2 ± 0.4	284	2.3 ± 0.4	284	2.4 ± 0.4
03-21-88	285	2.3 ± 0.4	285	2.4 ± 0.4	285	2.1 ± 0.3	285	2.8 ± 0.4
03-28-88	288	2.5 ± 0.4	288	2.8 ± 0.4	288	2.4 ± 0.4	288	2.4 ± 0.4
1st Qtr mean ± s.d.		3.4 ± 1.1		3.3 ± 1.2		3.3 ± 1.0		3.3 ± 1.1
04-04-88	284	2.6 ± 0.4	285	3.2 ± 0.4	282	2.6 ± 0.4	280	2.4 ± 0.4
04-11-88	281	2.7 ± 0.4	280	2.8 ± 0.4	282	3.0 ± 0.4	282	2.6 ± 0.4
04-18-88	287	2.9 ± 0.4	287	3.0 ± 0.4	287	2.7 ± 0.4	287	3.6 ± 0.4
04-25-88	288	2.6 ± 0.4	288	2.7 ± 0.4	288	2.8 ± 0.4	288	2.8 ± 0.4
05-02-88	286	3.1 ± 0.4	286	3.8 ± 0.4	286	3.1 ± 0.4	287	3.0 ± 0.4
05-09-88	282	2.8 ± 0.4	281	2.6 ± 0.4	280	2.8 ± 0.4	280	3.2 ± 0.4
05-16-88	287	2.9 ± 0.4	287	2.9 ± 0.4	287	2.9 ± 0.4	287	3.2 ± 0.4
05-23-88	285	2.4 ± 0.4	285	2.8 ± 0.4	285	2.7 ± 0.4	285	2.6 ± 0.4
05-30-88	285	2.4 ± 0.4	285	2.7 ± 0.4	285	3.0 ± 0.4	285	2.5 ± 0.4
06-06-88	288	3.1 ± 0.4	289	3.7 ± 0.4	289	3.4 ± 0.4	289	3.5 ± 0.4
06-13-88	285	3.5 ± 0.4	285	3.4 ± 0.4	284	3.2 ± 0.4	284	3.5 ± 0.4
06-20-88	283	3.9 ± 0.5	283	3.6 ± 0.5	283	3.7 ± 0.5	283	3.9 ± 0.5
06-27-88	285	3.8 ± 0.4	285	3.4 ± 0.4	285	4.0 ± 0.4	285	3.4 ± 0.4
2nd Qtr mean ± s.d.		3.0 ± 0.5		3.1 ± 0.4		3.1 ± 0.4		3.1 ± 0.5

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

<sup>b</sup> ND = No data; sample not collected due to frozen lock at station

<sup>c</sup> Volume high due to pump running for two weeks. See footnote "b".

<sup>d</sup> ND = No data; filter paper lost by collector due to high wind.

BYRON

Table 3. Airborne Particulates and Iodine-131<sup>a</sup> (continued)

Week Ending	BY-21		BY-22		BY-23		BY-24	
	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta	Volume (m <sup>3</sup> )	Gross Beta
07-05-88	332	2.7±0.3	332	2.4±0.3	333	2.3±0.3	333	2.6±0.3
07-11-88	238	4.5±0.5	240	3.8±0.5	239	3.9±0.5	239	4.2±0.5
07-18-88	286	2.8±0.4	286	3.2±0.4	286	2.7±0.4	286	3.2±0.4
07-25-88	290	2.5±0.3	290	2.7±0.3	289	2.8±0.3	ND <sup>b</sup>	
08-01-88	281	4.3±0.4	281	3.8±0.4	282	4.0±0.4	282	3.9±0.4
08-08-88	285	3.7±0.4	285	3.8±0.4	285	3.9±0.4	285	5.9±0.5
08-15-88	291	2.9±0.4	291	2.9±0.4	292	2.8±0.4	292	2.7±0.4
08-22-88	281	3.2±0.4	281	3.6±0.4	281	3.3±0.4	281	3.1±0.4
08-29-88	286	3.4±0.4	286	3.3±0.4	286	3.1±0.4	285	3.1±0.4
09-05-88	288	2.9±0.4	288	3.3±0.4	288	3.1±0.4	288	3.1±0.4
09-12-88	284	3.0±0.4	284	2.8±0.4	284	2.6±0.4	284	2.9±0.4
09-19-88	282	2.7±0.4	282	2.8±0.4	282	2.8±0.4	282	2.4±0.4
09-26-88	287	2.4±0.4	287	1.8±0.3	287	0.4±0.2	289	2.2±0.4
10-03-88	287	<u>3.3±0.4</u>	287	<u>3.0±0.4</u>	290	<u>2.7±0.4</u>	290	<u>3.3±0.4</u>
3rd Qtr means.d.		3.2±0.6		3.1±0.6		2.9±0.9		3.3±1.0
10-11-88	308	2.9±0.4	325	3.5±0.4	322	3.3±0.4	322	3.2±0.4
10-18-88	243	2.9±0.4	243	3.1±0.4	243	2.8±0.4	243	2.6±0.4
10-24-88	285	2.3±0.4	285	2.1±0.4	285	2.1±0.4	285	2.1±0.4
10-31-88	287	2.2±0.4	287	2.2±0.4	287	2.0±0.4	287	1.8±0.4
11-07-88	287	3.6±0.5	288	3.6±0.5	288	3.5±0.5	288	3.6±0.5
11-14-88	283	3.1±0.3	283	3.3±0.3	283	3.0±0.3	283	3.0±0.3
11-21-88	287	2.2±0.4	287	2.6±0.4	287	2.6±0.4	282	2.5±0.4
11-28-88	285	4.0±0.4	285	3.9±0.4	285	3.6±0.4	282	3.8±0.4
12-05-88	286	4.8±0.5	286	4.9±0.5	286	3.7±0.4	286	5.1±0.5
12-12-88	283	3.9±0.4	283	4.2±0.4	284	5.1±0.5	284	4.6±0.5
12-19-88	287	2.9±0.4	287	2.9±0.4	287	3.1±0.4	287	2.7±0.4
12-26-88	290	2.9±0.4	289	3.6±0.4	289	2.9±0.4	287	3.4±0.4
01-02-89	284	<u>5.7±0.6</u>	284	ND <sup>b</sup>	284	<u>5.9±0.6</u>	284	<u>6.1±0.6</u>
4th Qtr means.d.		3.3±1.1		3.3±0.8		3.4±1.1		3.4±1.2

<sup>a</sup> Iodine-131 concentrations are <0.07 pCi/m<sup>3</sup> unless noted otherwise.

<sup>b</sup> ND = No data due to burned out motor.

*Corrected because results were higher than mean routine amount motor's ready to rotate in ten appears to have worked but by 10:00 am auto stopped*

## BYRON

Table 4. Airborne Particulates  
 Collection: Quarterly composites of weekly collections  
 Units: pCi/m<sup>3</sup>

Location	Lab Code	Volume (m <sup>3</sup> )	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>1st Quarter 1988</u>							
BY-01	BYAP- 997	3704	<.01	<.01	<.01	<.01	<.01
BY-02	998	3717	<.01	<.01	<.01	<.01	<.01
BY-03	999	3682	<.01	<.01	<.01	<.01	<.01
BY-04	1000	3673	<.01	<.01	<.01	<.01	<.01
BY-05	1001	3680	<.01	<.01	<.01	<.01	<.01
BY-06	1002	3706	<.01	<.01	<.01	<.01	<.01
BY-07	1003	3703	<.01	<.01	<.01	<.01	<.01
BY-08	1004	3704	<.01	<.01	<.01	<.01	<.01
BY-21	1005	3670	<.01	<.01	<.01	<.01	<.01
BY-22	1006	3379	<.01	<.01	<.01	<.01	<.01
BY-23	1007	3672	<.01	<.01	<.01	<.01	<.01
BY-24	1008	3669	<.01	<.01	<.01	<.01	<.01
<u>2nd Quarter 1988</u>							
BY-01	BYAP-1085	3707	NA <sup>b</sup>	NA <sup>b</sup>	<.01	<.01	<.01
BY-02	1086	3417			<.01	<.01	<.01
BY-03	1087	3702			<.01	<.01	<.01
BY-04	1088	3676			<.01	<.01	<.01
BY-05	1089	3703			<.01	<.01	<.01
BY-06	1090	3707			<.01	<.01	<.01
BY-07	1091	3707			<.01	<.01	<.01
BY-08	1092	3715			<.01	<.01	<.01
BY-21	1093	3706			<.01	<.01	<.01
BY-22	1094	3706			<.01	<.01	<.01
BY-23	1095	3703			<.01	<.01	<.01
BY-24	1096	3702			<.01	<.01	<.01

<sup>a</sup> See Introduction.

<sup>b</sup> NA = Not Analyzed; analysis not required as of 2<sup>nd</sup> Quarter.

## BYRON

Table 4. Airborne Particulates (continued)

Location	Lab Code	Volume (m <sup>3</sup> )	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>3rd Quarter 1988</u>							
BY-01	BYAP-1233	3999	NAB <sup>b</sup>	NAB <sup>b</sup>	<0.01	<0.01	<0.01
BY-02	1234	4012			<0.01	<0.01	<0.01
BY-03	1235	3611			<0.01	<0.01	<0.01
BY-04	1236	4003			<0.01	<0.01	<0.01
BY-05	1237	4007			<0.01	<0.01	<0.01
BY-06	1238	3999			<0.01	<0.01	<0.01
BY-07	1239	3999			<0.01	<0.01	<0.01
BY-08	1240	4001			<0.01	<0.01	<0.01
BY-21	1241	3998			<0.01	<0.01	<0.01
BY-22	1242	4000			<0.01	<0.01	<0.01
BY-23	1243	4004			<0.01	<0.01	<0.01
BY-24	1244	3716			<0.01	<0.01	<0.01
<u>4th Quarter 1988</u>							
BY-01	BYAP-1357	3709	NAB <sup>b</sup>	NAB <sup>b</sup>	<0.01	<0.01	<0.01
BY-02	1358	3716			<0.01	<0.01	<0.01
BY-03	1359	3702			<0.01	<0.01	<0.01
BY-04	1360	3703			<0.01	<0.01	<0.01
BY-05	1361	3709			<0.01	<0.01	<0.01
BY-06	1362	3712			<0.01	<0.01	<0.01
BY-07	1363	3715			<0.01	<0.01	<0.01
BY-08	1364	3717			<0.01	<0.01	<0.01
BY-21	1365	3706			<0.01	<0.01	<0.01
BY-22	1366	3706			<0.01	<0.01	<0.01
BY-23	1367	3703			<0.01	<0.01	<0.01
BY-24	1368	3705			<0.01	<0.01	<0.01

<sup>a</sup> See Introduction.<sup>b</sup> NA = Not analyzed; analysis not required as of 2nd Quarter.

BYRON

Table 5. Gamma Radiation, as Measured by Thermoluminescent Dosimeters (TLDs)

STANDARD RADIOLOGICAL MONITORING PROGRAM				
	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Date Placed:	12-29-87	03-28-88	07-05-88	10-03-88
Date Removed:	03-28-88	07-05-88	10-03-88	01-02-89
Days in the Field:	90	99	90	91
Location	Average mR/Qtr.			
<u>Offsite Indicator Locations</u>				
BY-01 - Byron	11.9±1.0	11.4±0.7	12.2±1.0	12.7±0.7
BY-03 - Nearsite East	13.4±0.9	14.0±0.7	14.3±1.2	15.9±0.7
BY-04 - Paynes Point	13.4±1.0	14.9±0.7	14.7±0.9	16.4±0.8
BY-05 - Nearsite South	15.7±1.1	14.7±0.7	15.4±0.8	18.0±1.4
BY-06 - Oregon	12.9±1.0	12.4±0.9	13.2±1.0	13.5±0.7
Mean ± s.d.	13.5±1.4	13.5±1.5	14.0±1.3	15.3±2.2
<u>Onsite Indicator Locations</u>				
BY-21 - Onsite North	11.1±0.9	9.4±0.7	11.1±0.8	11.8±0.8
BY-22 - Onsite ESE	16.7±1.1	14.3±0.7	17.1±1.1	18.3±0.7
BY-23 - Onsite South	15.9±1.7	15.5±0.8	16.8±0.9	17.2±1.1
BY-24 - Mt. Tower	14.5±1.6	13.4±0.8	14.5±0.6	17.1±1.1
Mean ± s.d.	14.6±2.5	13.2±2.6	14.9±2.8	16.1±2.9
<u>Background Locations</u>				
BY-02 - Stillman Valley	12.3±0.9	12.3±0.7	12.3±0.7	13.4±0.8
BY-07 - Mt. Morris	13.7±1.1	13.9±0.8	13.3±1.3	15.6±0.8
BY-08 - Leaf River	13.2±0.9	11.3±0.7	14.8±1.0	14.2±0.9
Mean ± s.d.	13.1±0.7	12.5±1.3	13.5±1.3	14.4±1.1



## BYRON

Table 5. Gamma Radiation, as Measured by TLDs (continued)

SPECIAL PROGRAM				
<u>Inner Ring, Near Site Boundary, Indicator Locations</u>				
	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Date Placed:	12-29-87	03-28-88	07-05-88	10-03-88
Date Removed:	03-28-88	07-05-88	10-03-88	01-02-89
Days in the Field:	90	99	90	91
Location	Average mR/Qtr.			
BY-101-1	14.8±1.4	16.0±0.7	14.5±0.8	17.4±0.9
BY-101-2	14.9±0.9	12.4±0.7	16.1±0.9	18.3±0.9
BY-102-1	14.8±0.9	17.0±0.7	15.8±1.1	19.8±0.7
BY-102-2	14.8±0.8	13.7±1.4	15.7±0.8	17.2±0.2
BY-103-1	14.6±1.0	15.3±0.8	14.2±0.7	17.0±1.0
BY-103-2	15.9±1.2	11.7±0.8	13.8±0.8	17.6±0.9
BY-104-1	14.7±0.9	15.7±0.7	14.6±0.7	17.8±0.6
BY-104-2	16.2±1.0	12.3±0.7	15.1±0.8	18.7±1.7
BY-105-1	14.9±0.9	16.3±0.7	15.8±0.8	18.4±0.7
BY-105-2	15.6±1.0	12.8±0.9	15.8±0.8	18.7±1.0
BY-106-1	14.4±1.0	15.2±0.7	14.8±1.0	17.0±0.6
BY-106-2	14.3±1.0	11.5±0.7	14.4±0.7	16.6±0.7
BY-107-1	14.4±1.0	16.7±0.8	14.3±1.3	19.7±1.0
BY-107-2	16.1±0.9	12.5±1.0	15.4±0.9	17.8±0.8
BY-108-1	15.8±1.3	16.2±0.7	15.8±0.8	18.4±0.6
BY-108-2	13.5±0.9	9.9±0.7	12.9±1.0	14.8±0.9
BY-109-1	14.0±0.8	14.9±0.9	15.0±1.2	16.5±0.7
BY-109-2	15.1±1.1	10.2±0.7	14.9±1.2	15.5±1.1
BY-110-1	13.8±0.9	14.5±0.8	13.8±1.2	16.3±0.7
BY-110-2	24.1±1.1	10.2±0.7	13.8±0.8	15.0±0.9
BY-111-1	14.8±1.0	11.9±0.7	14.6±1.2	17.5±0.8
BY-111-2	16.2±1.0	10.6±0.8	14.8±1.0	16.2±0.9
BY-112-1	14.4±0.9	11.5±0.7	13.9±0.7	16.9±0.9
BY-112-2	14.8±0.9	10.2±0.7	13.8±0.7	14.6±0.8
BY-113-1	14.1±0.9	10.3±0.9	13.2±0.8	16.1±0.7
BY-113-2	14.0±1.2	10.8±0.8	11.9±0.7	13.6±1.0
BY-114-1	11.5±0.9	9.7±0.8	12.1±0.7	14.0±0.9
BY-114-2	14.3±0.9	10.6±0.7	13.6±0.8	16.4±0.8
BY-115-1	13.6±1.1	11.6±0.8	14.5±1.0	16.7±0.8
BY-115-2	14.7±1.1	10.2±0.7	15.4±0.8	17.4±1.4
BY-116-1	12.0±0.8	10.2±0.7	12.3±0.8	14.0±0.6
BY-116-2	14.4±1.0	10.5±0.8	14.3±0.8	15.4±1.0
Mean ± s.d.	14.8±2.0	12.6±2.4	14.4±1.1	16.8±1.6

## BYRON

Table 5. Gamma Radiation, as Measured by TLDs (continued)

SPECIAL PROGRAM				
<u>Outer Ring, Near 5 Mile Radius, Indicator Locations</u>				
	<u>1st Quarter</u>	<u>2nd Quarter</u>	<u>3rd Quarter</u>	<u>4th Quarter</u>
Date Placed:	12-29-87	03-28-88	07-05-88	10-03-88
Date Removed:	03-28-88	07-05-88	10-03-88	01-02-89
Days in the Field:	90	99	90	91
Location	Average mR/Qtr.			
BY-201-1	12.8±1.0	11.7±0.7	14.1±0.8	16.3±0.6
BY-201-2	18.2±1.1	11.7±0.8	15.7±0.7	17.5±0.9
BY-202-1	12.7±1.0	11.7±1.1	13.8±0.9	15.7±0.7
BY-202-2	16.0±0.9	11.5±0.7	15.4±0.7	17.7±0.6
BY-203-1	10.2±0.9	8.6±0.7	10.4±0.7	11.5±0.8
BY-203-2	15.6±1.0	10.9±0.8	14.1±0.8	16.6±0.7
BY-204-1	10.9±0.8	10.0±0.8	11.4±0.9	13.4±0.7
BY-204-2	16.6±1.1	12.4±0.7	16.0±0.7	18.2±1.0
BY-205-1	14.0±1.1	11.7±0.7	15.1±0.6	17.0±1.2
BY-205-2	15.0±1.0	11.4±0.7	14.3±0.8	16.9±0.8
BY-206-1	15.4±0.9	12.2±0.7	15.6±0.7	16.8±0.7
BY-206-2	16.6±0.9	11.9±0.7	15.4±0.7	17.8±1.0
BY-207-1	15.2±1.5	12.7±0.8	15.9±0.8	18.3±1.0
BY-207-2	15.8±0.9	11.7±0.7	15.0±0.7	17.2±0.9
BY-208-1	17.0±1.0	13.0±0.7	17.2±0.7	19.3±1.0
BY-208-2	16.3±1.2	11.8±0.8	16.1±1.0	17.6±1.1
BY-209-1	16.0±0.9	12.5±0.9	15.4±1.4	18.4±1.3
BY-209-2	13.8±0.9	10.0±1.0	15.6±0.8	15.0±0.7
BY-210-1	14.9±0.8	12.2±0.7	15.2±0.8	17.7±0.8
BY-210-2	14.8±0.8	12.2±1.1	15.5±0.7	17.1±1.0
BY-211-1	14.2±0.9	11.0±0.7	14.9±0.7	15.8±0.6
BY-211-2	18.3±1.2	12.4±0.8	16.2±0.8	18.2±0.9
BY-212-1	15.8±1.0	12.3±0.7	15.5±0.8	17.9±1.3
BY-212-2	16.8±1.7	12.7±0.9	15.7±0.8	19.2±1.1
BY-213-1	14.6±0.9	11.7±1.2	14.8±0.7	15.6±0.9
BY-213-2	17.7±1.3	13.4±1.3	15.9±0.8	18.7±0.9
BY-214-1	14.6±0.8	11.2±1.0	14.0±0.8	15.4±0.9
BY-214-2	16.0±1.0	12.1±0.7	15.2±0.8	18.0±1.4
BY-215-1	15.3±1.1	12.3±0.8	16.0±1.0	17.8±0.6
BY-215-2	16.2±1.1	12.6±0.7	15.4±0.8	18.4±1.0
BY-216-1	16.6±1.1	12.1±0.7	16.5±1.0	17.2±0.7
BY-216-2	16.9±1.0	12.9±0.7	16.5±0.8	18.5±1.0
Mean ± s.d.	15.3±1.8	11.8±1.0	15.1±1.4	17.1±1.6

BYRON

Table 6. Precipitation  
Units: (pCi/l)

Collection Period	MONTHLY COLLECTIONS			
	Lab Code	Gross Beta	Lab Code	Gross Beta
	<u>Reeverts Pine Hill Dairy Farm</u>		<u>Kenneth Druien Farm</u>	
		BY-15		BY-16
January, 88	BYP-432	9.6±7.1	BYP-433,4	<12.1
February, 88	452	NS <sup>a</sup>	453	NS <sup>a</sup>
March, 88	471	<12.7	NS <sup>b</sup>	
April, 88	NA <sup>c</sup>		NA <sup>c</sup>	
	<u>Whitten Holsteins</u>		<u>Ed Seabold Farm</u>	
		BY-17		BY-20
January, 88	BYP-435	9.2±7.1	BYP-436	13.1±7.4
February, 88	454	NS <sup>a</sup>	455	NS <sup>a</sup>
March, 88	472	52.1±9.6	473	<12.7
April, 88	NA <sup>c</sup>		NA <sup>c</sup>	

<sup>a</sup> NS = Not enough sample for analysis.

<sup>b</sup> NS = No sample; farm deserted and assumed out of business.

<sup>c</sup> NA = Not analyzed; analysis not required as of April, 1988.

BYRON

Table 6. Precipitation (continued)

QUARTERLY COMPOSITES OF MONTHLY COLLECTIONS							
Composite Period	Lab Code	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>a</sup>	Tritium
<u>J. A. Reeverts Dairy Farm BY-15</u>							
1st Quarter, 88	BYP-486	<10	<2	<10	<10	<15	<200
2nd Quarter, 88							
3rd Quarter, 88							
4th Quarter, 88							
<u>K. Drufen Dairy Farm BY-16</u>							
1st Quarter, 88	BYP-487	<10	<2	<10	<10	<15	<200
2nd Quarter, 88							
3rd Quarter, 88							
4th Quarter, 88							
<u>Whitten Holsteins BY-17</u>							
1st Quarter, 88	BYP-488	<10	<2	<10	<10	<15	<200
2nd Quarter, 88							
3rd Quarter, 88							
4th Quarter, 88							
<u>E. Seabold Dairy Farm BY-20</u>							
1st Quarter, 88	BYP-489	<10	<2	<10	<10	<15	<200
2nd Quarter, 88							
3rd Quarter, 88							
4th Quarter, 88							

<sup>a</sup> See Introduction.

BYRON

Table 7. Milk  
Collection: Monthly; semimonthly during grazing season (May - October)  
Units: pCi/l

Collection Date	Lab Code	I-131	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>J. A. Reeverts Dairy Farm BY-15</u>							
01-04-88	BYMI-1519	<0.5	<10	1.9±0.2	<5	<5	<10
02-01-88	1582	<0.5	<10	2.0±0.5	<5	<5	<10
03-07-88	1692	<0.5	<10	1.7±0.2	<5	<5	<10
04-04-88	1757	<0.5	NA <sup>d</sup>	NA <sup>d</sup>	<5	<5	<10
05-02-88	1836	<0.5	NA	NA	<5	<5	<10
05-16-88	1909	<1.4 <sup>c</sup>	NA	NA	<5	<5	<10
06-06-88	2010,1	<0.5	NA	NA	<5	<5	<10
06-20-88	2113	<0.5	NA	NA	<5	<5	<10
07-05-88	2167,8	<0.5	NA	NA	<5	<5	<10
07-18-88	2251,2	<0.5	NA	NA	<5	<5	<10
08-01-88	2347,8	<0.5	NA	NA	<5	<5	<10
08-15-88	2423	<0.5	NA	NA	<5	<5	<10
09-05-88	2520	<0.5	NA	NA	<5	<5	<10
09-19-88	2608	<0.5	NA	NA	<5	<5	<10
10-03-88	2666	<0.5	NA	NA	<5	<5	<10
10-17-88	2741	<0.5	NA	NA	<5	<5	<10
11-07-88	2851	<0.5	NA	NA	<5	<5	<10
12-05-88	2912	<0.5	NA	NA	<5	<5	<10
<u>Bill Leupkes Farm BY-25</u>							
01-04-88	BYMI-1520	<0.5	<10	2.9±0.3	<5	<5	<10
02-01-88	1583	<0.5	<10	4.0±0.7	<5	<5	<10
03-07-88	NS <sup>b</sup>						
04-04-88	NS <sup>b</sup>						
05-02-88	1837	<0.5	NA <sup>d</sup>	NA <sup>d</sup>	<5	<5	<10
05-16-88	1910	<1.6	NA	NA	<5	<5	<10
06-06-88	2012	<0.5	NA	NA	<5	<5	<10
06-20-88	2114	<0.5	NA	NA	<5	<5	<10
07-05-88	2171	<0.5	NA	NA	<5	<5	<10
07-18-88	2255	<0.5	NA	NA	<5	<5	<10
08-01-88	2351	<0.5	NA	NA	<5	<5	<10
08-15-88	2426	<0.5	NA	NA	<5	<5	<10
09-05-88	2523	<0.5	NA	NA	<5	<5	<10
09-19-88	2611	<0.5	NA	NA	<5	<5	<10
10-03-88	2669	<0.5	NA	NA	<5	<5	<10
10-17-88	2744,5	<0.5	NA	NA	<5	<5	<10
11-07-88	2853	<0.5	NA	NA	<5	<5	<10
12-05-88	2914,5	<0.5	NA	NA	<5	<5	<10

<sup>a</sup> See Introduction.

<sup>b</sup> NS = No sample; farm deserted and assumed out of business. (Collector will find new location to replace BY-16.)

<sup>c</sup> LLD not reached due to relocation of laboratory and subsequent delays in counting.

<sup>d</sup> NA = Not analyzed; analysis not required as of 2nd quarter.

*part 5*  
*Should be in...*  
*Let's make sure...*  
*stat met*

## BYRON

Table 7. Milk (continued)

Collection Date	Lab Code	I-131	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>Whitten Hoisteins BY-17</u>							
01-04-88	BYMI-1521	<0.5	<10	2.3±0.3	<5	<5	<10
02-01-88	1584	<0.5	<10	3.3±0.7	<5	<5	<10
03-14-88	1711	<0.5	<10	3.3±0.9	<5	<5	<10
04-04-88	1758	<0.5	NA <sup>c</sup>	NA <sup>c</sup>	<5	<5	<10
05-02-88	1838,9	<0.5	NA	NA	<5	<5	<10
05-23-88	1971	<1.0 <sup>b</sup>	NA	NA	<5	<5	<10
06-06-88	2013	<0.5	NA	NA	<5	<5	<10
06-20-88	2115	<0.5	NA	NA	<5	<5	<10
07-05-88	2169	<0.5	NA	NA	<5	<5	<10
07-18-88	2253	<0.5	NA	NA	<5	<5	<10
08-01-88	2349	<0.5	NA	NA	<5	<5	<10
08-15-88	2424	<0.5	NA	NA	<5	<5	<10
09-05-88	2521	<0.5	NA	NA	<5	<5	<10
09-19-88	2609	<0.5	NA	NA	<5	<5	<10
10-03-88	2667	<0.5	NA	NA	<5	<5	<10
10-17-88	2742	<0.5	NA	NA	<5	<5	<10
11-14-88	2873	<0.5	NA	NA	<5	<5	<10
12-12-88	2941	<0.5	NA	NA	<5	<5	<10
<u>Ed Seabold Dairy Farm BY-20</u>							
01-04-88	BYMI-1522	<0.5	<10	2.1±0.3	<5	<5	<10
02-01-88	1585	<0.5	<10	2.1±0.6	<5	<5	<10
03-07-88	1693	<0.5	<10	1.0±0.5	<5	<5	<10
04-04-88	1759	<0.5	NA <sup>c</sup>	NA <sup>c</sup>	<5	<5	<10
05-02-88	1840	<0.5	NA	NA	<5	<5	<10
05-16-88	1911	<1.5 <sup>b</sup>	NA	NA	<5	<5	<10
06-06-88	2014	<0.5	NA	NA	<5	<5	<10
06-20-88	2116	<0.5	NA	NA	<5	<5	<10
07-05-88	2170	<0.5	NA	NA	<5	<5	<10
07-18-88	2254	<0.5	NA	NA	<5	<5	<10
08-01-88	2350	<0.5	NA	NA	<5	<5	<10
08-15-88	2425	<0.5	NA	NA	<5	<5	<10
09-05-88	2522	<0.5	NA	NA	<5	<5	<10
09-19-88	2610	<0.5	NA	NA	<5	<5	<10
10-03-88	2668	<0.5	NA	NA	<5	<5	<10
10-17-88	2743	<0.5	NA	NA	<5	<5	<10
11-07-88	2852	<0.5	NA	NA	<5	<5	<10
12-05-88	2913	<0.5	NA	NA	<5	<5	<10

<sup>a</sup> See Introduction.

<sup>b</sup> LLD not reached due to relocation of laboratory and subsequent delays in counting.

<sup>c</sup> NA = Not analyzed; analysis not required as of 2nd quarter.

BYRON

Table 8. Fish, Edible Portions.  
 Collection: 3 times per year  
 Unit: pCi/g wet weight

Collection Date	Lab Code	Type	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>Oregon Pool of Rock River BY-12</u>					
05-16-88	BYF-388	Catfish	<0.10	<0.10	<0.13
05-16-88	389	Carp	<0.10	<0.10	<0.13
07-15-88	435	Catfish	<0.10	<0.10	<0.13
08-15-88	449	Catfish	<0.10	<0.10	<0.13
10-03-88	473	Buffalo	<0.10	<0.10	<0.13
10-03-88	474	Catfish	<0.10	<0.10	<0.13
<u>Upstream BY-13</u>					
05-09-88	BYF-370	Sucker	<0.10	<0.10	<0.13
05-16-88	390	Croppie	<0.10	<0.10	<0.13
07-18-88	438	Carp	<0.10	<0.10	<0.13
07-18-88	439	Catfish	<0.10	<0.10	<0.13
10-11-88	504	Sucker	<0.10	<0.10	<0.13
10-17-88	505	Catfish	<0.10	<0.10	<0.13

BYRON

Table 9. Vegetables  
Collection: Annually  
Units: pCi/g wet weight

Collection Date	Lab Code	Type	I-131 <sup>a</sup>	Cs-134	Cs-137	Other Gammas <sup>b</sup>
<u>BY-19-1 966 East Weld Bark Road</u>						
08-29-88	BYVe-494	Cabbage	<0.04	<0.1	<0.1	<0.2
09-05-88	530	Beets	----	<0.1	<0.1	<0.2
09-05-88	531	Peppers	----	<0.1	<0.1	<0.2
09-05-88	532	Egg Plant	----	<0.1	<0.1	<0.2
09-05-88	533	Zucchini	----	<0.1	<0.1	<0.2
09-05-88	534	Squash	----	<0.1	<0.1	<0.2
<u>BY-19-2 6993 North River Road</u>						
08-29-88	BYVe-495	Cabbage	<0.02	<0.1	<0.1	<0.2
08-29-88	496	Rhubarb	----	<0.1	<0.1	<0.2
08-29-88	497	Beets	----	<0.1	<0.1	<0.2
09-12-88	536	Squash	----	<0.1	<0.1	<0.2
09-12-88	537,8	Tomatoes	----	<0.1	<0.1	<0.2

<sup>a</sup> Analysis for I-131 required for cabbage and lettuce only.  
<sup>b</sup> See Introduction.

NA



BYRON

Table 10. Grass and Cattlefeed  
Collection: Quarterly<sup>a</sup>  
Units: pCi/g wet weight

Collection Date	Type	Lab Code	Gross Beta	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>b</sup>
<u>J. A. Reeverts Dairy Farm BY-15</u>								
02-08-88	Hay	BYCF-322 NS <sup>c</sup>	18.1±0.7	<1.0	<1.0	<0.1	<0.1	<0.2
<u>K. Durien Dairy Farm BY-16</u>								
02-08-88	Hay, Silage	BYCF-323 NS <sup>c</sup>	10.1±0.3	<1.0	<1.0	<0.1	<0.1	<0.2

<sup>a</sup> Grass is collected during summer. Cattlefeed is collected during winter. *Perkins*

<sup>b</sup> See Introduction.

<sup>c</sup> Collection and analysis discontinued as of 2nd quarter, 1988. *Perkins*

*desert*

## BYRON

Table 10. Grass and Cattlefeed (continued)

Collection Date	Type	Lab Code	Gross Beta	Sr-89	Sr-90	Cs-134	Cs-137	Other Gammas <sup>b</sup>
<u>Whitten Holsteins BY-17</u>								
02-08-88	Hay	BYCF-324 NS <sup>c</sup>	14.3 ± 0.6	<1.0	<1.0	<0.1	<0.1	<0.2
<u>E. Seabold Dairy Farm BY-20</u>								
02-08-88	Silage	BYCF-325 NS <sup>c</sup>	15.7 ± 0.6	<1.0	<1.0	<0.1	<0.1	<0.2

<sup>a</sup> Grass is collected during summer. Cattlefeed is collected during winter. *Dec 88*

<sup>b</sup> See Introduction.

<sup>c</sup> Collection and analysis discontinued as of 2nd quarter, 1988. *per 1/88*

*descont.*

## BYRON

Table 11. Cooling Water  
Units: pCi/l

WEEKLY COLLECTIONS

Collection Date	Lab Code	Gross Beta	Collection Date	Lab Code	Gross Beta
<u>Intake Pipe BY-10</u>					
01-01-88	BYCW-4807	2.8±1.0			
01-08-88	4809	1.7±1.0			
01-16-88	NS <sup>a</sup>				
01-25-88	4795	2.9±1.0			
01-29-88	4880	2.2±1.0			
02-08-88	4985	3.4±1.1			
02-16-88	5047	3.2±1.1			
02-22-88	5115	1.8±1.0			
02-29-88	5222	9.1±1.6			
03-07-88	5313	1.0±1.0			
03-14-88	5415	1.9±1.0			
03-21-88	5480	1.0±1.0			
03-28-88	5562	1.6±0.8			
1st Qtr means, d.		2.7±2.2			
04-04-88	NA <sup>b</sup>				

<sup>a</sup> NS = No sample sent to laboratory.

<sup>b</sup> NA = Not analyzed; analysis not required as of second quarter.

BYRON

*not in 1989  
collection  
start  
with implement  
1/20/88 - 4/30/88*

Table 11. Cooling Water (continued)

WEEKLY COLLECTIONS					
Collection Date	Lab Code	Gross Beta	Collection Date	Lab Code	Gross Beta
<u>Discharge Pipe BY-11</u>					
01-01-88	BYCW-4808	3.6±1.1			
01-08-88	4810	3.7±1.1			
01-16-88	NS <sup>a</sup>				
01-25-88	4756	4.6±1.1			
01-29-88	4881	4.7±1.2			
02-08-88	4986	3.7±1.7			
02-16-88	5048	5.7±1.1			
02-22-88	5116	6.3±1.8			
02-29-88	5223	3.9±1.8			
03-07-88	5314, 15	5.2±1.3			
03-14-88	5416	8.4±1.4			
03-21-88	5481	6.2±1.3			
03-28-88	5563	3.9±1.2			
1st Qtr mean±s.d.		5.0±1.4			
04-04-88	NA <sup>b</sup>				

<sup>a</sup> NS = No sample sent to laboratory.

<sup>b</sup> NA = Not analyzed; analysis not required as of second quarter. *Y<sup>M</sup> 7/5*

BYRON

Table 11. Cooling Water (continued)

Composite Period	MONTHLY COMPOSITES OF WEEKLY COLLECTIONS						Other Gammas <sup>a</sup>	Tritium	
	Lab Code	Sr-89	Sr-90	Cs-134	Cs-137				
		<u>Intake Pipe BY-10</u>							
January, 88	BYCW-5130	<10	<2	<10	<10	<15	<200		
February, 88	5403	<10	<2	<10	<10	<15	<200		
March, 88	5758	<10	<2	<10	<10	<15	<200		
April, 88	NA <sup>b</sup>								
		<u>Discharge Pipe BY-11</u>							
January, 88	BYCW-5131	<10	<2	<10	<10	<15	9,410±280		
February, 88	5406	<10	<2	<10	<10	<15	54,620±660		
March, 88	5759	<10	<2	<10	<10	<15	29,480±480		
April, 88	NA <sup>b</sup>								

<sup>a</sup> See Introduction.

<sup>b</sup> NA = Not analyzed; analysis not required as of second quarter.

BYRON

Table 12. Surface Water  
Units: pCi/l

WEEKLY COLLECTION						
Collection Date	Woodland Creek BY-09		Downstream BY-12		Upstream BY-13 (C)	
	Lab Code	Gross Beta	Lab Code	Gross Beta	Lab Code	Gross Beta
01-04-88	BYSW-	NS <sup>a</sup>	BYSW-	NS <sup>a</sup>	BYSW-	NS <sup>a</sup>
01-11-88		NS <sup>a</sup>		NS <sup>a</sup>		NS <sup>a</sup>
01-18-88		NS <sup>a</sup>		NS <sup>a</sup>		NS <sup>a</sup>
01-25-88		NS <sup>a</sup>		NS <sup>a</sup>		NS <sup>a</sup>
02-01-88		NS <sup>a</sup>	4876	3.2±1.1	4877	4.4±0.7
02-08-88		NS <sup>a</sup>	4984	2.7±1.0		NS <sup>a</sup>
02-16-88		NS <sup>a</sup>	5046	3.2±1.1		NS <sup>a</sup>
02-22-88		NS <sup>a</sup>	5112	3.4±0.7	5113,4	3.7±0.9
02-29-88	5219	<1.7	5220	1.9±1.0	5221	2.4±1.0
03-07-88	5310	0.7±0.7	5311	3.0±0.9	5312	6.3±1.1
03-14-88	5411,2	1.6±0.8	5413	2.7±1.1	5414	1.2±0.8
03-21-88	5477	<1.5	5478	2.7±1.1	5479	2.3±1.0
03-28-88	5559	<1.5	5560	1.9±0.8	5561	2.1±1.0
1st Qtr mean±s.d.		1.2±0.6		2.7±0.5		3.2±1.7
04-04-88		NA <sup>b</sup>				

<sup>a</sup> NS = No sample collected due to frozen stream.

<sup>b</sup> NA = Not analyzed; analysis not required as of second quarter.

NOTE: Page 27 is intentionally left out.

## BYRON

Table 12. Surface Water (continued)

MONTHLY COMPOSITES OF WEEKLY COLLECTIONS				
Composite Period	Lab Code	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>Woodland Creek BY-09</u>				
January, 88	BYSW- NS <sup>b</sup>	--	--	--
February, 88	5219	<10	<10	<15
March, 88	5754	<10	<10	<15
April, 88	6257	<10	<10	<15
May, 88	6751	<10	<10	<15
June, 88	6863	<10	<10	<15
July, 88	7525	<10	<10	<15
August, 88	7836	<10	<10	<15
September, 88	8384	<10	<10	<15
October, 88	8800	<10	<10	<15
November, 88	9096,7	<10	<10	<15
December, 88	8988	<10	<10	<15
<u>Downstream BY-12</u>				
January, 88	BYSW-4794	<10	<10	<15
February, 88	5400,1	<10	<10	<15
March, 88	5755	<10	<10	<15
April, 88	6258	<10	<10	<15
May, 88	6752,3	<10	<10	<15
June, 88	6864	<10	<10	<15
July, 88	7526,7	<10	<10	<15
August, 88	7839	<10	<10	<15
September, 88	8385	<10	<10	<15
October, 88	8796,7	<10	<10	<15
November, 88	9098	<10	<10	<15
December, 88	8989	<10	<10	<15
<u>Upstream BY-13</u>				
January, 88	BYSW-NS <sup>b</sup>	--	--	--
February, 88	5402	<10	<10	<15
March, 88	5756,7	<10	<10	<15
April, 88	6259,60	<10	<10	<15
May, 88	6754	<10	<10	<15
June, 88	6865	<10	<10	<15
July, 88	7528	<10	<10	<15
August, 88	7840	<10	<10	<15
September, 88	8386	<10	<10	<15
October, 88	8801	<10	<10	<15
November, 88	9099	<10	<10	<15
December, 88	8990	<10	<10	<15

<sup>a</sup> See Introduction.

<sup>b</sup> NS = No sample collected due to frozen stream

## BYRON

Table 12. Surface Water (continued)

QUARTERLY COMPOSITES OF WEEKLY COLLECTIONS				
Composite Period	Lab Code	Concentration (pCi/l)		
		Sr-89	Sr-90	Tritium
<u>Woodland Creek BY-09</u>				
1st Quarter, 1988	BYSW-5754	<10	<2	<200
2nd Quarter, 1988	6896	NA <sup>a</sup>	NA <sup>a</sup>	<200
3rd Quarter, 1988	8378	NA	NA	<200
4th Quarter, 1988	9473	NA	NA	<200
<u>Downstream BY-12</u>				
1st Quarter, 1988	BYSW-5760	<10	<2	840±120
2nd Quarter, 1988	6897	NA <sup>a</sup>	NA <sup>a</sup>	420±100
3rd Quarter, 1988	8379	NA	NA	870±120
4th Quarter, 1988	9474	NA	NA	430±120
<u>Upstream BY-13(C)</u>				
1st Quarter, 1988	BYSW-5761	<10	<2	<200
2nd Quarter, 1988	6898	NA <sup>a</sup>	NA <sup>a</sup>	<200
3rd Quarter, 1988	8380	NA	NA	230±100
4th Quarter, 1988	9475	NA	NA	<200

<sup>a</sup> NA = Not analyzed; analysis not required as of 2nd quarter.



BYRON

Table 13. Well Water  
Units: pCi/l  
Collection: Monthly

Collection Date	BY-14					BY-18				
	Lab Code	Gross Beta	Cs-134	Cs-137	Other Gammas	Lab Code	Gross Beta	Cs-134	Cs-137	Other Gammas
January, 88	BYWW-5132,3	1.8±1.5	<10	<10	<20	BYWW-5134	<1.6	<10	<10	<20
February, 88	5404	<2.6	<10	<10	<20	5405	<2.6	<10	<10	<20
March, 88	5814	<1.6	<10	<10	<20	5815	<1.1	<10	<10	<20
April, 88	6255	1.6±1.2	<10	<10	<20	6256	1.2±0.6	<10	<10	<20
May, 88	6721	1.7±1.2	<10	<10	<20	6722	1.6±1.2	<10	<10	<20
June, 88	6866	2.4±1.2	<10	<10	<20	6867	<1.5	<10	<10	<20
July, 88	7529	1.7±1.1	<10	<10	<20	7530	1.5±0.7	<10	<10	<20
August, 88	7841	1.6±0.7	<10	<10	<20	7842	1.5±0.5	<10	<10	<20
September, 88	8387	<2.6	<10	<10	<20	8388	1.3±0.4	<10	<10	<20
October, 88	8102	<2.6	<10	<10	<20	8103	<1.5	<10	<10	<20
November, 88	NS <sup>b</sup>									
December, 88	NS <sup>b</sup>									

<sup>a</sup> See Introduction.

<sup>b</sup> NS = No sample. Due to collector's oversight, no sample was collected for the months of November and December.

BYRON

Table 13. Well Water  
Units: pCi/l

QUARTERLY GRAB SAMPLES								
Collection Date	Lab Code	Gross Beta	Sr-89	Sr-90	Trivium	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>off-Site Well BY-14</u>								
1st Quarter, 88	BYWW-5943	3.0±1.4	<1.0	<0.8	<200	<10	<10	<15
2nd Quarter, 88	6895	NAB <sup>b</sup>	NA	NA	<200	NA	NA	NA
3rd Quarter, 88	8381	NA	NA	NA	260±100	NA	NA	NA
4th Quarter, 88	9476	NA	NA	NA	<200	NA	NA	NA
<u>McCoy Farmstead Well BY-18</u>								
1st Quarter, 88	BYWW-5944	<1.9	<0.8	<0.6	<200	<10	<10	<15
2nd Quarter, 88	6900,1	NAB <sup>b</sup>	NA	NA	<200	NA	NA	NA
3rd Quarter, 88	8382,3	NA	NA	NA	<200	NA	NA	NA
4th Quarter, 88	9477	NA	NA	NA	<200	NA	NA	NA

<sup>a</sup> See Introduction.

<sup>b</sup> NA = Not analyzed; analysis not required as of 2nd quarter.

BYRON

Table 14. Bottom Sediments  
 Collection: 2 times per year  
 Units: pCi/g dry weight.

Date Collected	Lab Code	Cs-134	Cs-137	Other Gammas <sup>a</sup>
<u>Oregon Pool of Rock River BY-12</u>				
05-02-88	BYBS-350	<0.1	0.28±0.03	<0.2
10-03-88	409,10	<0.1	<0.1	<0.2
<u>Upstream BY-13</u>				
05-02-88	BYBS-351	<0.1	0.39±0.04	<0.2
10-03-88	411	<0.1	<0.1	<0.2

<sup>a</sup> See Introduction.

BYRON

MILCH ANIMALS AND NEAREST RESIDENCE CENSUS

BYRON

BYRON DAIRY CENSUS 1988

A. Site Boundary to 2 mi.

None

B. 2 mi. to 5 mi.

1. Reeverts Dairy Farm  
5674 N. German Church Road  
Route 1  
Byron, Illinois  
  
2.1 miles @ 037'  
  
Milks 35 cows
2. Ed Seabold Dairy Farm (BY-20)  
6021 N. German Church Road  
Route 1  
Byron, Illinois  
  
2.8 miles @ 40'  
  
Milks 100 cows
3. Warren Danakas  
5845 East Holcomb Road  
Route 1  
Oregon, Illinois  
  
3.3 miles @ 110'  
  
Milks 15 cows
4. Oltmann Dairy Farm, Richard Oltmann, owner  
1858 N. German Church Road  
Route 1  
Oregon, Illinois  
  
2.2 miles @ 180'  
  
Milks 16 cows

BYRON DAIRY CENSUS 1988 (continued)

5. Bill Luepkes  
2887 Brick Road  
Route 1  
Oregon, Illinois  
  
3.7 miles @ 190'  
  
Milks 60 cows
6. Ashelford Dairy Farm  
4210 IL Route 2  
Route 3  
Oregon, Illinois  
  
2.6 miles @ 275'  
  
Milks 18 cows
7. CAM-DEE Farms, Gerald DeVries, owner  
5213 N. Town Hall Road  
Route 3  
Oregon, Illinois  
  
3.3 miles @ 290'  
  
Milks 45 cows
8. Duane Camling  
50 East Camling Road  
Route 3  
Oregon, Illinois  
  
3.2 miles @ 305'  
  
Milks 26 cows

C. Sampling Locations

BY-15 Warren Danakas  
Milks 15 cows  
Diet:  
May - October: Pasture 5 acres. Pasture, hay, corn,  
oats, protein/mineral supplement.  
November - April: Feedlot 1 acre. Hay, corn, oats and  
protein/supplement.

BYRON DAIRY CENSUS 1988 (continued)

BY-25 Bill Luepkes  
Milks 60 cows  
Diet:  
May - October: Pasture feedlot 2 acres. Haylage, corn, oats, and protein/mineral supplement.  
November - April: Feedlot less than 2 acres. Haylage, corn, silage, oats, and protein/mineral supplement.

BY-17 Bosecker/Lingel Farm  
Milks 40 cows  
Diet:  
May - October: Pasture feedlot 2 acres. Green chop, hay, haylage.  
November - April: Feedlot 2 acres. Silage, haylage, corn, oats.

BY-20 Ed Seabold Farm  
Milks 100 cows  
Diet:  
May - October: Feedlot less than 2 acres. Haylage, silage, high moisture corn, protein/mineral supplement.  
November - April: Feedlot less than 2 acres. Haylage, silage, high moisture corn, protein/mineral supplement.

---

Census conducted by L. Coleman on August 15 and 22 and September 13, 1988.

BYRON

NEAREST RESIDENCE CENSUS, 1988

Nearest resident of the Byron Station with a five (5) mile radius.

N	1.9 miles
NNE	1.5 miles
NE	0.9 miles
ENE	1.3 miles
E	1.2 miles
ESE	1.6 miles
SE	1.1 miles
SSE	1.2 miles
S	0.7 miles
SSW	0.6 miles
SW	0.9 miles
WSW	1.7 miles
W	2.0 miles
WNW	0.8 miles
NW	1.2 miles
NNW	1.3 miles

---

Census conducted by L. Coleman on August 15 and 22, 1988.



ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Ogle, Illinois Reporting Period 1st Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results
				Location	Mean Range		
Air Particulates (pCi/m <sup>3</sup> )	Gross Beta 150	0.01	0.033 (113/113) (0.016-0.057)	By-02, Stillman Valley 6.2 mi @ 56*	0.035 (12/12) (0.020-0.062)	0.034 (37/57) (0.018-0.062)	0
	Gamma Spec. 12	0.01	<LD			<LD	0
	Sr-89 12	0.01	<LD			<LD	0
	Sr-90 12	0.01	<LD			<LD	0
Airborne Iodine (pCi/m <sup>3</sup> )	I-131 151	0.07	<LD	-	-	<LD	0
Gamma Background (TLDs) (mR/0.1 hr.)	Gamma Dose 12	3.0	19.9 (9/9) (11.1-16.7)	By-22, Onsite 0.3 mi @ 101*	16.7 (1/1) -	13.1 (3/3) (12.3-13.7)	0
Milk (pCi/l)	I-131 11	0.5	<LD	-	-	<LD	0
	Gamma Spec. 11			-	-	<LD	0
	Cs-134	5.0	<LD	-	-	<LD	0
	Cs-137	5.0	<LD	-	-	<LD	0
	Other Gammas	10.0	<LD	-	-	<LD	0
	Sr-89 11	10	<LD	-	-	<LD	0
Sr-90 11	2	2.2 (8/8) (1.0-4.0)	By-16, Drulen Dairy Farm, 3.3 mi @ 134*	3.2 (3/3) (2.5-3.8)	3.0 (3/3) (2.3-3.3)	0	
Precipitation	Gross Beta 7	12.7 <sup>b</sup>	52.1 (1/1)	By-17, Whitten Farm 7.0 mi @ 53*	52.1 (1/1)	13.1 (1/1)	0
	Gamma Spec. 4	20	<LD	-	-	<LD	0
	Tritium 4	200	<LD	-	-	<LD	0
	Sr-89 4	10	<LD	-	-	<LD	0
	Sr-90 4	2	<LD	-	-	<LD	0

## ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Dele, Illinois Reporting Period 1st Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results
				Location	Mean Range		
Cooling Water (pCi/l)	Gross Beta 24	1.0	5.0 (12/12) (3.6-8.4)	By-11, Discharge 2.3 mi @ 283 <sup>a</sup>	5.0 (12/12) (3.6-8.4)	2.7 (12/12) (1.7-9.1)	0
	Gamma Spec. 6						
	Cs-134 10		<LD	-	-	<LD	0
	Cs-137 10		<LD	-	-	<LD	0
	Other Gammas 20		<LD	-	-	<LD	0
	Tritium 6	200	31,170 (3/3) (9,410-54,620)	By-11, Discharge 2.3 mi @ 283 <sup>a</sup>	31,170 (3/3) (9,410-54,620)	<LD	3
	Sr-89 6	10	<LD	-	-	<LD	0
	Sr-90 6	2	<LD	-	-	<LD	0
Surface Water (pCi/l)	Gross Beta 21	1.7	2.7 (9/14) (1.9-3.4)	By-13, Upstream of Intake 2.6 mi @ 302 <sup>a</sup>	3.2 (7/7) (1.2-6.3)	3.2 (7/7) (1.2-6.3)	0
	Gamma Spec. 8						
	Cs-134 10		<LD	-	-	<LD	0
	Cs-137 10		<LD	-	-	<LD	0
	Other Gammas 20		<LD	-	-	<LD	0
	Tritium 3	200	840 (1/2)	By-12, Downstream of Intake 4.5 mi @ 213 <sup>a</sup>	840 (1/2)	<LD	0
	Sr-89 3	10	<LD	-	-	<LD	0
	Sr-90 3	2	<LD	-	-	<LD	0

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Dele, Illinois Reporting Period 1st Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results		
				Location	Mean Range				
Well Water (pCi/l)	Gross Beta	8	2.6	3.0 (1/8)	By-14, Off-site well, 0.3 ml @ 10l	3.0 (1/8)	None	0	
	Gamma Spec.	8		-		-			
	Cs-134		10	<LD		-	-	None	0
	Cs-137		10	<LD		-	-	None	0
	Other Gammas		20	<LD		-	-	None	0
	Tritium	2	200	<LD		-	-	None	0
	Sr-99	2	10	<LD		-	-	None	0
	Sr-90	2	2	<LD		-	-	None	0
Cattlefeed & Grass (pCi/g wet)	Gross Beta	4	1.0	14.6 (3/3) (10.1-18.1)	By-15, Reverts Dairy 3.2 ml @ 108"	18.1 (1/1)	14.3 (1/1)	0	
	Gamma Spec.	4				-	-		
	Cs-134		0.1	<LD		-	-	<LD	0
	Cs-137		0.1	<LD		-	-	<LD	0
	Other Gammas		0.2	<LD		-	-	<LD	0
	Sr-89	4	1.0	<LD		-	-	<LD	0
	Sr-90	4	1.0	<LD		-	-	<LD	0

<sup>a</sup> Mean and range based on detectable measurements only. Fraction indicated in parenthesis.

<sup>b</sup> LLD value dependent on volume of sample available for analysis.

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility De Kalb, Illinois Reporting Period 2nd Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicate Location, Max. # Range	Location with Highest Quarterly Mean		Control Locations Mean Range	Number of Non-routine Results
				Location	Mean Range		
Air Particulates (pCi/m <sup>3</sup> )	Gross Beta	0.01	0.030 (11/7/17) (0.017-0.046)	By-03, Near Site #3 3.8 mi @ 85°	0.034 (13/13) (0.027-0.046)	0.030 (38/38) (0.022-0.039)	0
	Gamma Spec	0.01	<LLD	-	-	<LLD	0
Airborne Iodine (pCi/m <sup>3</sup> )	I-131	0.07	<LLD	-	-	<LLD	0
	Gamma Dose	3.0	13.3 (9/9) (9.4-15.5)	By-13, Onsite 0.4 mi @ 107°	15.5 (1/1)	12.5 (3/3) (11.3-13.9)	0
Milk (pCi/l)	I-131	0.50	<LLD	-	-	<LLD	0
	Gamma Spec.	19	<LLD	-	-	<LLD	0
	Cs-134	5.0	<LLD	-	-	<LLD	0
	Cs-137	5.0	<LLD	-	-	<LLD	0
Surface Water (pCi/l)	Other Gammas	10.0	<LLD	-	-	<LLD	0
	Gamma Spec.	9	<LLD	-	-	<LLD	0
	Cs-134	10	<LLD	-	-	<LLD	0
	Cs-137	10	<LLD	-	-	<LLD	0
	Other Gammas	15	<LLD	-	-	<LLD	0
Tritium	3	200	420 (1/2)	By-12, Downstream of Intake 4.5 mi @ 213°	420 (1/2)	<LLD	0

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Ogle, Illinois Reporting Period 2nd Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results	
				Location	Mean Range			
Well Water (pCi/l)	Gross Beta 6	1.5	1.8 (4/6) [1.6-2.4]	By-14, Off-site Well 0.3 mi @ 101*	2.4 (1/1)	None	0	
	Gamma Spec. 6				-	-	None	0
	Cs-134 10		<LLD		-	-	None	0
	Cs-137 10		<LLD		-	-	None	0
	Other Gammas 20		<LLD		-	-	None	0
Tritium 2	200		<LLD	-	-	None	0	
Fish (pCi/g wet)	Gamma Spec. 4							
	Cs-134 0.1		<LLD	-	-	<LLD	0	
	Cs-137 0.1		<LLD	-	-	<LLD	0	
Other Gammas 0.13		<LLD	-	-	<LLD	0		
Bottom Sediments (pCi/g dry)	Gamma Spec. 2							
	Cs-134 0.1		<LLD	-	-	<LLD	0	
	Cs-137 0.1		0.28 (1/1)	By-13, Upstream of Intake 2.6 mi @ 302*	0.39 (1/1)	0.39 (1/1)	0	
Other Gammas 0.2		<LLD	-	-	<LLD	0		

<sup>a</sup> Mean and range based on detectable measurements only. Fractions indicated in parentheses.

<sup>b</sup> Three results (<1.4, <1.0, and <1.5) have been excluded from the determination of LLD for I-131 in milk collected in May. The elevated LLDs resulted from delay in analysis.

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Ogle, Illinois Reporting Period 3rd Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results
				Location	Mean Range		
Air Particulates (pCi/m <sup>3</sup> )	Gross Beta 167	0.01	0.031 <sup>b</sup> (125/125) (0.004-0.059)	By-06, Oregon, 4.6 mi @ 213 <sup>a</sup>	0.033 (14/14) (0.023-0.043)	0.030 (42/42) (0.021-0.047)	0
	Gamma Spec. 12	0.01	<LLD	By-24, Onsite 0.65 mi @ 229 <sup>a</sup>	0.033 (13/13) (0.022-0.059)	-	0
Airborne Iodine (pCi/m <sup>3</sup> )	I-131 167	0.07 <sup>c</sup>	<LLD	-	-	<LLD	0
Gamma Background (TLUs) (mR/Qtr.)	Gamma Dose 12	3.0	14.4 (9/9) (11.1-17.1)	By-22, Onsite 0.3 mi @ 101 <sup>a</sup>	17.1 (1/1) -	13.5 (3/3) (12.3-14.8)	0
Milk (pCi/l)	I-131 24	0.5	<LLD	-	-	<LLD	0
	Gamma Spec. 24						
	Cs-134	5.0	<LLD	-	-	<LLD	0
	Cs-137	5.0	<LLD	-	-	<LLD	0
	Other Gammas	10.0	<LLD	-	-	<LLD	0
Surface Water (pCi/l)	Gamma Spec. 9						
	Cs-134	10	<LLD	-	-	<LLD	0
	Cs-137	10	<LLD	-	-	<LLD	0
	Other Gammas	20	<LLD	-	-	<LLD	0
	Tritium 3	200	870 (1/2)	By-12, Downstream of Oregon Dam, 4.6 mi @ 213 <sup>a</sup>	870 (1/1) -	230 (1/1)	0

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Ogle, Illinois Reporting Period 3rd Quarter 1988  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results
				Location	Mean Range		
Well Water (pCi/l)	Gross Beta 6	2.6	<LLD	-	-	None	0
	Gamma Spec. 6						
	Cs-134 10		<LLD	-	-	None	0
	Cs-137 10		<LLD	-	-	None	0
	Other Gammas 20		<LLD	-	-	None	0
	Tritium 2	200	260 (1/2)	BY-14, Offsite Well 0.3 mi # 101 <sup>b</sup>	-	None	0
Fish (pCi/g wet)	Gamma Spec. 4						
	Cs-134	0.10	<LLD	-	-	<LLD	0
	Cs-137	0.10	<LLD	-	-	<LLD	0
	Other Gammas	0.13	<LLD	-	-	<LLD	0
Vegetables	Gamma Spec. 11						
	Cs-134	0.1	<LLD	-	-	None	0
	Cs-137	0.1	<LLD	-	-	None	0
	Other Gammas	0.2	<LLD	-	-	None	0
	I-131 2	0.06	<LLD	-	-	None	0

<sup>a</sup> Mean and range based on detectable measurements only. Fractions indicated in parentheses.

<sup>b</sup> One result (0.138±9.9 pCi/m<sup>3</sup>) was excluded from the mean. Result unreliable due to a very low volume resulting from pump malfunction.

<sup>c</sup> Two results (<0.72 and <3.03 pCi/m<sup>3</sup>) were excluded from the determination of LLD for I-131 in charcoal. The elevated LLDs resulted from low volume.

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location of Facility Ogle, Illinois Reporting Period 4th Quarter 1998  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Irradiations (Range)	Location with Highest Quarterly Mean		Control Locations Mean Range	Number of One-routine Results
				Location	Mean Range		
Air Particulates (pCi/m <sup>3</sup> )	Gross Beta 155	0.01	0.032 (116/116) (0.016-0.061)	BY-23, Nearsite South 0.58 mi @ 192°	0.034 (12/13) (0.021-0.059)	0.032 (19/39) (0.018-0.069)	0
	Gamma Spec. 12	<LLD	<LLD	BY-24, Nearsite South- west, 2.65 mi @ 229°	0.034 (13/13) (0.018-0.061)	<LLD	0
Airborne Iodine (pCi/m <sup>3</sup> )	I-131 155	0.07	<LLD	-	-	<LLD	0
Gamma Background (TLDs) (mR/Qtr.)	Gamma Dose 12	3.0	16.7 (9/9) (11.8-18.3)	BY-22, Onsite, 0.3 mi @ 101°	16.5 (1/1) -	14.4 (3/3) (13.4-15.6)	4
Milk (pCi/l)	I-131 16	0.5	<LLD	-	-	<LLD	0
	Gamma Spec. 16						
	Cs-134	5.0	<LLD	-	-	<LLD	0
	Cs-137	5.0	<LLD	-	-	<LLD	0
	Other Gamma	10.0	<LLD	-	-	<LLD	0
Surface Water (pCi/l)	Gamma Spec. 9						
	Cs-134 10		<LLD	-	-	<LLD	0
	Cs-137 10		<LLD	-	-	<LLD	0
	Other Gamma 15		<LLD	-	-	<LLD	0
	Tritium 3	200	430 (1/2)	BY-12, Downstream of Oregon River 4.6 mi @ 213°	4.50 (1/1) -	<LLD	0



ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM QUARTERLY SUMMARY

Name of Facility Byron Nuclear Power Station Docket No. 50-454, 50-455  
 Location: Facility Ogle, Illinois Reporting Period 4th Quarter 1978  
 (County, State)

Sample Type (Units)	Type and Number of Analyses	LLD	Indicator Locations Mean <sup>a</sup> Range	Location with Highest Quarterly Mean		Control Locations Mean <sup>a</sup> Range	Number of Non-routine Results
				Location	Mean Range		
Well Water (pCi/l)	Gross Beta 2	2.6	<LLD	-	-	None	0
	Gamma Spec. 2						
	Cs-134 10		<LLD	-	-	None	0
	Cs-137 10		<LLD	-	-	None	0
	Other Gammas 20		<LLD	-	-	None	0
Tritium 2	200		<LLD	-	-	None	0
Fish (pCi/g wet)	Gamma Spec. 4						
	Cs-134 0.10		<LLD	-	-	<LLD	0
	Cs-137 0.10		<LLD	-	-	<LLD	0
Other Gammas 0.13		<LLD	-	-	<LLD	0	
Bottom Sediments (pCi/g dry)	Gamma Spec. 2						
	Cs-134 0.1		<LLD	-	-	<LLD	0
	Cs-137 0.1		<LLD	-	-	<LLD	0
Other Gammas 0.2		<LLD	-	-	<LLD	0	

<sup>a</sup> Mean and range based on detectable measurements only. Fractions indicated in parentheses.

## Appendix A

### Interlaboratory Comparison Program Results

NOTE: TML participates in intercomparison studies administered by U.S. EPA Environmental Monitoring Systems Laboratory, Las Vegas, Nevada. The results are reported in Appendix A. Also reported are results of in-house spikes and blanks. Appendix A is updated twice a year and the complete Appendix is included in January and July monthly reports only. Please refer to January and July Reports for information.

June, 1988

APPENDIX B

COLLECTION SCHEDULE

Skull

BYRGE

Jan. 1988

Quarter: 4th, 88

Collection Schedule

Page 1 of 2

Note: For samples scheduled for collection at intervals of one month or greater, "Date Scheduled" indicates the target date for obtaining the sample(s). Samples should be obtained as close to that date as possible, and in any event, before the next scheduled target collection. Dates of unsuccessful sampling attempts are to be noted on the weekly sample collection sheet.

Month:		OCT					NOV				DEC				Notes	
Date Scheduled:		3	10	17	24	31	7	14	21	28	5	12	19	26		
Sample Type: Collection Freq.	Code															A-Air particulates I-Air iodine
Air Samplers	BY-01	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		Frequencies of Collections: W-weekly M-monthly Q-quarterly 3x/yr.=three times a year (by quarter) A-annually SA=semiannually SM=semi-monthly
A: M	-02	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
I: M	-03	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Record & Adjust	-04	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
FL <sub>1</sub> & FL <sub>2</sub> : M (See Appendix A-1)	-05	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-06	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-07	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-08	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-21	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-22	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-23	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
	-24	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
Calib. Air Samplers with Field Rota/Flowmeter: M		10/3 ✓					11/7				12/5					
Field Rota/Flowmeter Calibration: Q		WEEK OF 10/3 ✓														Returns to TDR for calibration January-April-July-October
Surface Water: M	BY-09	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					MONTHLY
	-12	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
	-13	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓					
Well Water: SM	BY-14	✓														MONTHLY
	-8	✓														
Shoreline Sediment: SA	BY-12	10/3 ✓														May and October
	-13	10/3 ✓														
Fish: 3x/yr.	BY-12	MONTH OF OCTOBER ✓ 10/3														May, July, and October*
	BY-13	" ✓ 10/11 ✓ 10/17														
Vegetables: A* (as available at harvest)	BY-19-1	NOT SCHEDULED THIS QUARTER														August or September
	-19-2	" " " "														

\* Four varieties from each location. Includes at least one (1) sample of green leafy vegetables per location. Two (2) if available.

Quarter: 4th, 88

Collection Schedule (continued)

Jan. 1988

Page 2 of 2

Month:	OCT					NOV				DEC				Notes
	3	10	17	24	31	7	14	21	28	5	12	19	26	
Sample Type:														SM: May thru October M: November thru April
Collection Freq.														
Milk: SM/M	BY-15	10/3 ✓	10/17 ✓			11/7 ✓				12/5				
	-16	10/3 ✓	10/17 ✓			11/7 ✓				12/5				
	-17	10/3 ✓	10/17 ✓			11/7 ✓				12/5				
	-20	10/3 ✓	10/17 ✓			11/7 ✓				12/5				
Air Sampler TLDs Visual Check: ✓	BY-01 thru BY-08													
	BY-21 thru BY-28													
All Other TLDs Visual Check: M BY-101-1,2 thru 116-1,2 -201-1,2 thru 216-1,2		10/3				11/7				12/5				1/2/89 August
TLD exchange (all): Q		10/3												
Dairy Census: A a) Site boundary to 2 mi b) 2 miles to 5 miles c) At Dairies: BY-15,16,17,20		NOT SCHEDULED THIS QUARTER												
Nearest Residence Survey: A Check 16 meteorological sectors						11								August

Draft: L. Bridges Date 8/22/88 *LH*  
 cc: L. Coleman Date 9/16/88 *LH*  
 Station

Distribution of the Collection Schedule will be by:

- November 30 for 1st Q.
- February 28 for 2nd Q.
- May 31 for 3rd Q.
- August 31 for 4th Q.