

NUS-4628

PERRY NUCLEAR POWER PLANT
LAND-USE SURVEY
FOR 1984

Prepared for
The Cleveland Electric Illuminating Company

by

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1.0 Introduction

The USNRC Branch Technical Position on "An Acceptable Radiological Environmental Monitoring Program" (November 1979, Revision 1), states that "a census shall be conducted annually during the growing season to determine the location of the nearest milk animal and nearest garden greater than 50 square meters (500 sq. ft.) producing broad leaf vegetation in each of the 16 meteorological sectors within a distance of 8 km (5 miles)." To comply with this requirement, a land-use survey was conducted for the Perry Nuclear Power Plant (PNPP) during the period 9 July 1984 through 10 July 1984. The closest garden (greater than 50 square meters, producing broad leaf vegetation) and residence in each radial sector was determined and all dairy animals within five (5) miles of the PNPP were identified. In addition, "control" milk sampling locations were verified. The control locations are outside the 5-mile line.

The census of milk animals and gardens producing broad leaf vegetation is based on the requirements in Appendix I of 10 CFR Part 50 to "Identify changes in the use of unrestricted areas (e.g., for agricultural purposes) to permit modifications in monitoring programs for evaluating doses to individuals from principal pathways of exposure." Similarly, the Radiological Effluent Technical Specifications (RETS) for the Perry Nuclear Power Plant provide for the conduct of an annual land-use census. The consumption of milk from animals grazing on contaminated pasture and of leafy vegetation contaminated by airborne radioiodine is a potential source of exposure.

2.0 Methods

The land-use survey was conducted in accordance with NUS Work Instruction PO.5.2.15.107, "Performance of the Annual Residence, Garden, and Milk Animal survey for the Perry REMP." Participants in the survey were Jim Webb (CEI), John Krylow (CEI), and Carl Yates (NUS).

The survey was performed by a visual inspection of the study area. In certain situations, CEI personnel talked directly with farm owners to determine the presence of milk producing animals. This was not done during previous surveys. A field map (showing 1 through 5 mile radial distance arcs and sector lines) and a field log, were used to record data.

The survey team drove all public roads within the five mile radius and identified the nearest garden and residence in each sector and all milk animals out to five miles. The resulting data is tabulated and discussed below.

Mr. Robert E. Cox, Chairman, County Extension Agent (Painseville, Ohio), had been contacted during the 1983 survey to determine what records are being kept on dairy animals in the PNPP area. However, Mr. Cox was not contacted during the 1984 survey, since the only records available concerned 4-H members who kept goats.

3.0 Discussion

3.1 Nearest Garden and Residence

The nearest garden and residence identified in each sector surrounding the PNPP are presented in Table 1. The results of the 1984 survey are very similar to the 1983 results. The changes are as follows: ENE Sector, closest residence is 4602 Lockwood at 1.0 miles not 4611 Lockwood at 1.1 miles; E Sector, closest garden is 2684 Antioch at 1.2 miles, not 2674 Antioch at 1.2 miles; S Sector, closest garden is 3157 Center at 0.8 miles, not 3298 Center at 0.9 miles; SW Sector, closest residence is 3440 Clark at 1.2 miles not 3032 Perry Park at 1.3 miles. Errors in judgement during the 1983 survey account for these changes.

3.2 Milk Animals

Milk animals identified within 5 miles of the PNPP are listed in Table 2.

There are 9 locations with milk-producing animals within 5 miles of the plant--2 dairy cow locations and 7 goat locations. Three of the goat locations, 2908 Antioch (1.4 miles ESE), 2897 Antioch (1.4 miles ESE), and 3203 North Ridge (2.3 miles SSW) are regular milk sampling stations in the Perry Radiological Environmental Monitoring Program (REMP). One of the dairy cows locations, 4761 Davis (2.6 miles SSE), will provide milk for the REMP in the future, if necessary.

Other than 2897 Antioch, all of the milk locations identified during the 1984 survey were identified during the 1983 survey. However, ten of the locations identified in 1983 as having milk producing animals were found, in 1984, to have only beef cattle. These ten locations, along with any new non-dairy animal locations, are given in Table 3. Distance and direction information is provided for the first ten entries to Table 3. This information was not determined for the other nine locations since the locations were not plotted on the field map. This will be rectified during the 1985 survey.

Control milk animal locations (10 miles or more from the plant) were verified and the results are listed in Table 4. One of the two control locations, 8187 Callow Road (12 miles SSE), is a regular milk sampling station in the Perry REMP.

Table 1. Nearest Gardens and Residences by Sector Identified
During the 1984 Perry NPP Annual Land Use Survey

Direction	Nearest Residence (Distance/Address)	Nearest Garden (Distance/Address)
NE	0.6 miles 4384 Lockwood	0.6 miles 4384 Lockwood
ENE	1.0 miles 4602 Lockwood	1.1 miles 4611 Lockwood
E	1.2 miles 2684 Antioch	1.2 miles 2684 Antioch
ESE	1.2 miles 2774 Antioch	1.2 miles 2774 Antioch
SE	1.2 miles 4495 North Ridge	1.0 mile 4495 North Ridge
SSE	0.8 miles 3119 Parmly	0.8 miles 3119 Parmly
S	0.9 miles 3121 Center	0.8 miles 3157 Center
SSW	0.9 miles 3850 Clark	1.5 miles 3787 North Ridge
SW	1.2 miles 3440 Clark	1.3 miles 3078 Perry Park
WSW	1.2 miles 3462 Parmly	1.2 miles 2970 & 2971 Perry Park

Note: Closest residences and gardens are not identified for sectors over water. These sectors are as follows: W, WNW, NW, NNW, N, and NNE.

Table 2. Milk Animals Identified During the 1984
Perry NPP Annual Land Use Survey(1)

Location	Number/Type of Animals	Comments
1 mile SSE 3291 Parmly	3 Goats (and 2 Kids)	
2 miles E 2541 Townline	12 Goats	
2.6 miles SSE 3907 Call	1 Dairy Cow	No longer has goat; 2 Beef cows
1.1 mile S 3830 Center	3 Goats	
1.4 miles SE 4776 North Ridge	2 Goats	
1.4 miles ESE 2908 Antioch	2 Goats	Waites, sampling location(2)
2.6 miles SSE 4761 Davis	1 Dairy Cow	Possible future sample location
1.4 miles ESE 2897 Antioch	10 Goats	Hofer, sampling location(2)
2.3 miles SSW 3203 North Ridge	30 Goats	Manley, sampling location(2)

(1) All locations are within 5 miles of the plant.

(2) Participant in the 1984 Perry NPP Radiological Environmental Monitoring Program.

Table 3. Other Non-Dairy Animals Identified During The
1984 Perry NPP Annual Land-use Survey(1)
(Page 1 of 2)

Location	Number/Types of Animals
3.7 miles E Green Farm Green and North Ridge	12 or more beef cattle
3.9 miles ESE Dayton Road next to 3352	3 beef cattle, also sheep
2.9 miles S 4312 Call	No longer has cows or goats
3.6 miles ESE 5960 Middle Ridge	Beef cattle
3.1 miles ESE 2565 Haines	None identified
2.6 miles SW Blackmore Rd	15 beef cattle
3.7 miles SE 5341 South Ridge	15 beef cattle
4 miles ESE 3587 Dayton	None identified
2.6 miles ENE 5297 Lockwood	2 beef cattle
4.4 miles SSE Turney and River Roads	3 beef cattle, 1 horse
3234 McMackin(2)	Pigs
3608 Call	6-8 beef cattle, also horses
Across from 5851(2) Middle Ridge	No animals seen, barn stocked with hay, considerable animal fodder (Same as 1982 and 1983)

Table 3. Other Non-Dairy Animals Identified During The
1984 Perry NPP Annual Land-use Survey(1)
(Page 2 of 2)

Location	Number/Types of Animals
2160 Townline(2)	2 beef cattle
3941 Townline(2)	4 beef cattle
Middle Ridge- Woodworth Farm(2)	Beef cattle
2700 Haines(2)	3 or 4 beef cattle
3895 Call(2)	1 beef cow
4572 Elberta(2)	Many beef cattle

- (1) All locations are within 5 miles of the plant.
(2) Distance and direction was not determined for these locations since the locations were not plotted on the map. This will be rectified during the 1985 survey.

Table 4. Control(1) Milk Sampling Locations Identified
During The 1984 Perry NPP Annual Land-Use
Survey

Location	Description
12 miles SSE 8187 Callow Road	Brookglen Farm(2) Major dairy herd
11 miles SSE 13863 Painesville - Warren Road	Rettger Major dairy herd

- (1) Control locations are greater than 10 miles from the plant.
- (2) Participant in the 1984 Perry NPP Radiological Environmental Monitoring Program.

4.0 Conclusions

Current REMP milk sampling locations are intact and continue to provide milk samples for the Perry monitoring program. The three indicator milk stations and the one control milk station are footnoted in Tables 2 and 4, respectively.

One dairy animal location identified during the survey (2761 Davis, 2.6 miles SSE) will act as a future REMP sampling station, if necessary.

The land use census conducted during 1984 provides valuable information on agricultural and dairy conditions in the vicinity of the PNPP. Current data can enable useful and timely sampling in the event of a radioactive release during operation.

5.0 References

1. U.S. Nuclear Regulatory Commission, "An Acceptable Radiological Environmental Monitoring Program," Radiological Assessment Branch Technical Position, November 1979, Revision 1.
2. NUS Work Instruction, PO.5.2.15.107 "Performance of Annual Residence, Garden, and Milk Animal Survey for the Perry REMP," August 1983, Revision 0.