



THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

P.O. BOX 97

PERRY, OHIO 44081

TELEPHONE (216) 259-3737

ADDRESS-10 CENTER ROAD

FROM CLEVELAND: 479-1260

TELEX: 241589

ANSWERBACK: CEI PRYO

Al Kaplan

VICE PRESIDENT
NUCLEAR GROUP

Serving The Best Location in the Nation
PERRY NUCLEAR POWER PLANT

April 12, 1990
PY-CEI/NRR-1165 L

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Perry Nuclear Power Plant
Docket Nos. 50-440; 50-441
Seismic Quarterly Report
Number 13

Gentlemen:

Enclosed for your information is Seismic Monitoring Quarterly Report Number 13 for the CEI operated Micro-net, which is monitoring an area in the vicinity of two waste injection wells located 3 miles south of the PNPP site. This report provides data and event analysis for the time period between October 1, 1989 and December 31, 1989.

Additionally this report contains an overview of the cumulative seismicity since monitoring began in 1986. CEI was tasked with monitoring the area to determine if the 1/31/86 earthquake was induced and to learn more about the nature of seismicity in northeast Ohio. This overview provides our current assessment of these questions.

Monitoring Results

During the last quarter, very little microseismicity occurred with only one microevent within the network and three events outside the network. None of these events have had any impact on our interpretation on the local seismicity.

Overall, considering the recorded seismicity since monitoring began, CEI continues to support its original conclusion that the moderately deep 1/31/86 Leroy earthquake was not induced and most likely was of tectonic origin. The brief aftershock sequence supports that theory.

Within the area of study, CEI continues to evaluate the occurrence of very shallow microevents which are located within about a 5 km radius of the CALHIO (now ICI America) injection wells. We cannot identify a relationship between well operation variations and occurrence of microevents. However, because of spatial proximity to the wells and microevent hypocenters at the depth of injection, some induced seismicity cannot be ruled out. Sources of "induced"

9004230305 900412
PDR ADOCK 05000440
R PNU

1225
11

April 12, 1990
PY-CEI/NRR-1165 L

seismicity such as oil/gas influence has been studied but any relationship is difficult to ascertain. Additional study may provide some insights as to the origin of these micro-events.

We have concurred with others that a series of very shallow microevents about 25 miles east of Perry in the vicinity of Ashtabula are most likely induced by a local injection well, although these events are clearly outside our area of close study.

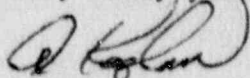
The current level of earthquake activity is considered to provide no threat to PNPP. The closest event within the cluster of microevents east of the injection wells is 5 miles. Events at Ashtabula are 25 miles from the site and the Leroy epicentral area is 11 miles from the site. No in-plant records on strong motion instruments or triggers (.05g) have been detected since monitoring began due to either attenuation or small size of the events.

System Operation

In PY-CEI/NRR-0974 L we indicated an intent to continue monitoring into 1990 (beyond our 1988 commitment) to "allow time to gather additional data necessary to complete our understanding of the local seismicity." At that time we will provide our final interpretation and request a program for dismantling or reducing the CEI micronet, recognizing that the more regional John Carroll Network is still operational.

Should you have any questions related to this report, please contact us.

Very truly yours,



Al Kaplan
Vice President
Nuclear Group

AK:njc
Enclosure
cc: T. Colburn
P. Hiland
R. Rothman