

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-255/82-22(DEPOS)

Docket No. 50-255

License No. DPR-20

Licensee: Consumers Power Company
212 West Michigan Avenue
Jackson, MI 49201

Facility Name: Palisades Nuclear Generating Plant

Inspection At: Palisades Site, Covert, MI

Inspection Conducted: September 20-24, 1982

Inspectors: *M. Schumacher for*
N. A. Nicholson

10-26-82

M. Schumacher for
S. Rozak

10-26-82

Approved By: *M. Schumacher*
M. C. Schumacher, Chief
Independent Measurements and
Environmental Protection Section

10-26-82

Inspection Summary

Inspection on September 20-24, 1982 (Report No. 50-255/82-22(DEPOS))

Areas Inspected: Routine, unannounced inspection of the confirmatory measurements program, the radiological environmental monitoring program (REMP), and associated quality control programs. The Region III Mobile Laboratory was onsite to analyze samples collected and split with the licensee for comparison. The inspection involved 67 inspector-hours onsite by two NRC inspectors.

Results: Of the five areas inspected, no items of noncompliance or deviations were identified in four areas; two apparent items of noncompliance were identified in one area (violation - Radiological environmental sample schedule - Severity V, Supplement 1; violation - Reporting - Severity V, Supplement 1; Section 3).

DETAILS

1. Persons Contacted

- *C. H. Gilmour, Technical Superintendent
- *R. E. McCaleb, Quality Assurance Superintendent
- W. P. Mullins, Chemistry/Health Physics Superintendent
- *J. R. Lovell, Plant Health Physicist
- *B. Embrey, Plant Chemical Engineer
- *G. H. Goralski, Quality Assurance Engineer
- *D. W. Rogers, Consumers Power Co (CPCo) Licensing
- *R. M. Krich, CPCo Licensing
- **T. P. Neal, Senior Technical Analyst
- *S. T. Pierce, Plant Laboratory Supervisor, Nonradiological
- *C. M. Francisco, Plant Laboratory Supervisor, Radiological
- A. C. Kahn, III, Chemist-Tech Support
- J. Brunet, Chemistry Technician
- M. Moore, Chemistry Technician
- K. Kubaee, Nuclear Licensing
- J. Stuedemann, Chemistry Technician

*Attended the exit interview September 24, 1982.

**Also contacted by phone September 28, 1982.

2. Licensee Action on Previous Inspection Findings

- a. (Closed) Open Item 50-255/81-24-01: Beta analyses of a liquid sample collected during a previous inspection. Comparative results are presented in Table II of this report.
- b. (Closed): Open Item 50-255/81-24-02: Readjustment and recalibration of gamma spectroscopy system by January 1, 1982. The licensee recalibrated his spectroscopy system with new calibration sources prior to January 1, 1982. This system was in use for approximately six months, prior to return to the manufacture for repair.

3. Radiological Environmental Monitoring Program

The licensee's Radiological Environmental Monitoring Program, as defined in the Environmental Technical Specifications (Appendix A to Operating License No. DPR-20), was used as the basis for this portion of the inspection.

All radiological environmental samples, with the exception of onsite aquatic, are collected by an employee of Eberline Instrument Corporation Midwest Laboratory, which performs the required analyses. The inspectors toured three air sampling stations, four Thermoluminescent Dosimeter (TLD) stations, and all the onsite water sampling stations. No problems were observed with the air sampling and TLD stations. A water compositor, sampling lake intake, was not operational; until this is repaired, daily grab samples are being collected.

Monthly contractor reports for CYs 1980, 1981, and January 1 through June 30, 1982, the annual environmental monitoring reports for CYs 1980 and 1981, semi-annual effluent reports from July 1, 1980 to June 30, 1982, and sampling procedures were reviewed to verify compliance with requirements.

Table 4.11.1 of Appendix A Technical Specifications requires four milk samples to be collected on a monthly schedule. Contrary to the above, only three milk samples were collected from February 1981 until May 1982. This is an apparent item of noncompliance. An alternate site was used starting in May 1982. The 1981 Annual Environmental Monitoring Report deleted all mention of a fourth milk sampling location. The Radiological Environmental Sample Collection Procedures Manual for Consumers Power Company (last revised in January 1982) still had this location listed although no milk was being collected.

Section 6.9.3.2 of Appendix A Technical Specifications requires a report to be submitted within 30 days in the event that the radiological monitoring programs are not substantially conducted as described in Section 4.11. Contrary to the above no report was issued for the failure to collect all required milk samples. This is an apparent item of noncompliance.

Quarterly TLD results for the first quarter of 1982 were compared for those sites at which the NRC has TLD Stations colocated with those of the licensee NRC and licensee results for these sites compared favorably.

4. QA/QC of Analytical Measurements

QA audits of the chemistry program, conducted in 1979, 1981, and 1982, were reviewed. Deviation reports issued in response to audit findings and actions taken on these were examined. Action has been initiated on all the outstanding audit findings. Followup on these findings will be examined in a subsequent inspection. Technical audits of the chemistry program appear to be reasonably thorough and technically sound, and followup actions on findings timely and complete.

The laboratory procedures manual for the licensee's REMP contractor (Eberline) was examined along with results of crosscheck programs in which the contractor participates. No problems were identified.

The inspectors toured the licensee's chemistry labs and counting rooms. No significant problems were identified. Chemical standards were labelled and dated, with shelf life indicated where appropriate. Most analytical instruments displayed current calibration stickers. One balance in the cold laboratory had not been calibrated in over two years. The licensee stated that there had been a problem obtaining a reliable source for this service but that it was being corrected by having the corporate office's technical department perform this calibration in the future.

Corporate audits of the environmental monitoring program were reviewed for CYs 1981 and 1982. During the July 27-31, 1981 audit numerous problems were noted with implementation of the program including such

things as procedures not being followed and records and documentation poorly kept. The audit report makes the observation that the Environmental Monitoring Area has slipped into a general state of disrepair. The audit conducted July 26-30, 1982 indicated that the Environmental Program had not been significantly upgraded and that some problems identified in the previous audit had not been corrected.

It should be noted that the two audits discussed above dealt with both the Radiological and Nonradiological Environmental Monitoring Programs. Much of the implementation of the Radiological Environmental Monitoring Program is performed by the licensee's contractor; consequently, this program is perhaps better implemented than the Nonradiological Program.

A significant contributing factor to the problems discussed above is the fact that management responsibility for the program appears to be poorly defined. Licensee representatives indicated that one of the reasons another milk sampling station was not found promptly after the Kalamazoo site was lost was that it was not clear whether the responsibility lay with the licensee or the licensee's contractor.

Selected procedures for the chemistry labs and counting rooms were examined. Numerous problems were identified such as: procedures requiring use of instruments no longer used, lack of references or incorrect references to a procedure for performing a Q test, lack of a procedure describing control limits and actions to be taken when limits are exceeded on daily background and source checks of counting instruments. Licensee representatives stated that deficiencies in these procedures were recognized and that a new corporate level procedures manual to be issued within several months will address these problems. This will be examined in a subsequent inspection.

No items of noncompliance were identified.

5. Training

Training for the radiation and chemistry technicians was reviewed. The licensee has started a formal technical training program consisting of eleven courses covering chemistry, health physics, instrumentation systems and related topics at the Midland Nuclear Training Center. This program has been in operation for approximately six months. Available technicians are enrolled in consecutive courses. The licensee proposes that technicians must complete the series to become eligible for consideration for promotion to in a senior technician. Texts and attendance records were reviewed by the inspector. According to licensee representative statements, a system documenting training regarding administrative, departmental, technical specifications, and on the job procedures will be formulated and implemented in response to a QA audit finding (Report No. A-QT-82-10). This will be reviewed during a future inspection.

6. Sample Split

Samples of gas from the waste gas decay tank, a clean waste receiver tank liquid, and the stack air particulate and charcoal cartridge were collected during the inspection and analyzed onsite in the Region III Mobile Laboratory. Results of comparative gamma analyses are shown

in Table I, comparison criteria in Attachment 1. All twenty-one comparisons met the criteria for agreements. The isotopes identified in the liquid sample, with the exception of ^{60}Co , ^{134}Cs , and ^{137}Cs , were less than 10% of 10 CFR 20, Appendix B, Table II, Column 2 (unrestricted limits); this is the threshold level for comparison defined by I&E Manual Chapter 84711B. The licensee agreed to compare these sample results to minimize resampling and analysis time. The liquid sample will also be analyzed for ^3H , ^{89}Sr , ^{90}Sr , and gross beta (to be counted October 19, 1982 at 11:00 a.m. EDT) by the Radiological Environmental Services Laboratory (RESL) NRC's Reference Laboratory; results will be compared with the licensee's in an addendum to this report.

Comparative results of the beta analyses for the previous inspection are in Table II. Strontium-89 and 90 in this sample were below comparison levels. No apparent cause of the gross beta disagreement could be identified. The licensee value was approximately a factor of three lower than the RESL value. A review of 1981 and 1982 radioactive effluent reports indicated it is improbable that a Technical Specifications violation would have occurred had this been typical of gross beta analyses performed on liquids released during this period.

A primary water sample was collected and analyzed with the Mobile Laboratory for \bar{E} calculations. Calculations were based exclusively on gamma isotopic analyses; no beta analyses were conducted. \bar{E} values were approximately a factor of five less than Technical Specifications 3.1.4.a limits. Iodine dose equivalents were less than 10% of the above Tech Specs limits.

7. Exit Interview

The inspectors discussed the inspection findings with licensee representatives noted in Section 1 on September 24, 1982. The licensee agreed to the following:

- a. To analyze the liquid sample for ^3H , ^{89}Sr , ^{90}Sr , and gross beta activity (to be counted October 19, 1982 11:00 a.m. EDT) and submit results to Region II for comparison (Open Item 50-255/82-22-01). (Section 6)
- b. To update and complete a new procedures manual (Open Item 50-255/82-22-02). (Section 4)

Attachments:

1. Table I, Confirmatory Measurements Program, 3rd Quarter 1982
2. Table II, Confirmatory Measurements Program, 3rd Quarter 1981
3. Attachment 1, Criteria for comparing Analytical Measurements

TABLE 1

U S NUCLEAR REGULATORY COMMISSION
 OFFICE OF INSPECTION AND ENFORCEMENT
 CONFIRMATORY MEASUREMENTS PROGRAM
 FACILITY: PALISADES
 FOR THE 3 QUARTER OF 1982

SAMPLE	ISOTOPE	-----NRC-----		---LICENSEE---		---LICENSEE:NRC---		
		RESULT	ERROR	RESULT	ERROR	RATIO	RES	T
OFF GAS	XE-133	4.6E-01	8.2E-04	4.1E-01	1.9E-04	8.9E-01	5.6E 02	A
	XE-133M	2.6E-03	2.1E-04	3.4E-03	5.4E-05	1.3E 00	1.2E 01	A
	XE-135	4.9E-04	3.3E-07	5.7E-04	6.5E-06	1.2E 00	1.5E 03	A
L WASTE	MN-54	6.7E-07	1.1E-07	5.2E-07	1.3E-07	7.8E-01	6.1E 00	A
	FE-59	1.2E-06	2.6E-07	1.1E-06	2.9E-07	9.2E-01	4.6E 00	A
	CO-58	1.8E-06	1.7E-07	1.8E-06	1.4E-07	1.0E 00	1.1E 01	A
	CO-60	6.4E-06	2.7E-07	6.1E-06	2.6E-07	9.5E-01	2.4E 01	A
	SB-122	6.1E-07	1.1E-07	5.7E-07	1.6E-07	9.3E-01	5.5E 00	A
	CS-134	4.6E-06	1.8E-07	4.1E-06	2.0E-07	8.9E-01	2.6E 01	A
	CS-137	9.2E-06	2.9E-07	1.0E-05	3.0E-07	1.1E 00	3.2E 01	A
SB-125	9.3E-06	5.0E-07	1.0E-05	5.5E-07	1.1E 00	1.9E 01	A	
P FILTER	MN-54	2.4E-05	5.8E-06	1.9E-05	0.0E-01	7.9E-01	4.1E 00	A
	CO-58	4.7E-05	5.7E-06	5.8E-05	0.0E-01	1.2E 00	8.2E 00	A
	CO-60	9.1E-05	8.6E-06	9.8E-05	0.0E-01	1.1E 00	1.1E 01	A
	CS-137	6.1E-05	7.3E-06	7.7E-05	0.0E-01	1.3E 00	8.4E 00	A
C FILTER	I-131	7.6E-03	6.5E-05	9.4E-03	8.2E-05	1.2E 00	1.2E 02	A
	I-132	1.4E-04	2.4E-05	2.2E-04	2.3E-06	1.6E 00	5.9E 00	A
	I-133	3.1E-03	4.9E-05	3.7E-03	6.1E-05	1.2E 00	6.3E 01	A
	I-135	8.0E-04	8.3E-05	9.6E-04	1.1E-04	1.2E 00	9.6E 00	A
	CO-58	6.1E-05	9.6E-06	3.3E-05	1.3E-05	5.3E-01	6.4E 00	A
	CO-60	6.9E-05	1.5E-05	4.5E-05	1.3E-05	6.5E-01	4.7E 00	A

T TEST RESULTS:

A=AGREEMENT

D=DISAGREEMENT

P=POSSIBLE AGREEMENT

N=NO COMPARISON

TABLE II

U S NUCLEAR REGULATORY COMMISSION
 OFFICE OF INSPECTION AND ENFORCEMENT
 CONFIRMATORY MEASUREMENTS PROGRAM
 FACILITY: PALISADES
 FOR THE 4 QUARTER OF 1981

SAMPLE	ISOTOPE	-----NRC-----		---LICENSEE---		---LICENSEE:NRC---		
		RESULT	ERROR	RESULT	ERROR	RATIO	RES	T
L WASTE	H-3	7.1E-02	2.0E-04	7.3E-02	3.2E-02	1.0E 00	3.6E 02	A
	BETA	3.2E-06	1.0E-07	1.0E-06	5.5E-08	3.1E-01	3.2E 01	D

T TEST RESULTS:
 A=AGREEMENT
 D=DISAGREEMENT
 P=POSSIBLE AGREEMENT
 N=NO COMPARISON

ATTACHMENT 1

CRITERIA FOR COMPARING ANALYTICAL MEASUREMENTS

This attachment provides criteria for comparing results of capability tests and verification measurements. The criteria are based on an empirical relationship which combines prior experience and the accuracy needs of this program.

In these criteria, the judgment limits are variable in relation to the comparison of the NRC Reference Laboratory's value to its associated one sigma uncertainty. As that ratio, referred to in this program as "Resolution", increases, the acceptability of a licensee's measurement should be more selective. Conversely, poorer agreement should be considered acceptable as the resolution decreases. The values in the ratio criteria may be rounded to fewer significant figures to maintain statistical consistency with the number of significant figures reported by the NRC Reference Laboratory, unless such rounding will result in a narrowed category of acceptance. The acceptance category reported will be the narrowest into which the ratio fits for the resolution being used.

<u>RESOLUTION</u>	<u>RATIO = LICENSEE VALUE/NRC REFERENCE VALUE</u>		
	<u>Agreement</u>	<u>Possible Agreement "A"</u>	<u>Possible Agreeable "B"</u>
<3	No Comparison	No Comparison	No Comparison
>3 and <4	0.4 - 2.5	0.3 - 3.0	No Comparison
>4 and <8	0.5 - 2.0	0.4 - 2.5	0.3 - 3.0
>8 and <16	0.6 - 1.67	0.5 - 2.0	0.4 - 2.5
>16 and <51	0.75 - 1.33	0.6 - 1.67	0.5 - 2.0
>51 and <200	0.80 - 1.25	0.75 - 1.33	0.6 - 1.67
>200	0.85 - 1.18	0.80 - 1.25	0.75 - 1.33

"A" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is greater than 250 keV.

Tritium analyses of liquid samples.

"B" criteria are applied to the following analyses:

Gamma spectrometry, where principal gamma energy used for identification is less than 250 keV.

Sr-89 and Sr-90 determinations.

Gross beta, where samples are counted on the same date using the same reference nuclide.