

NRC FORM 195
(2-76)

U.S. NUCLEAR REGULATORY COMMISSION

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NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER
ENVIRONMENTAL

TO: Mr. Boyce H. Grier

FROM: Niagara Mohawk Power Corp.
Syracuse, N. Y. 13202
R. R. Schneider

DATE OF DOCUMENT
09/23/77

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09/26/77

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DESCRIPTION

1p

PLANT NAME: NINE MILE POINT UNIT # 1
jcm 09/27/77

ENCLOSURE

Consists of corrected pages to the Annual Environmental Operating Report for 1976 regarding mathematical error in the quarterly averages for the site boundary TLD's and error in the calculator program for Cesco Cartridges. with additional data to tables 4 & 6...

8p

21 CY ENCL Rec'd *

FOR ACTION/INFORMATION

BRANCH CHIEF: **LEAF**
PROJECT MANAGER: **Nowicki**
LIC. ASST: (5) ** **PARRISH**

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1 EACH TO EPA HOS, EPA REGION, NOAA, F & W, & F & D

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LPDR: **Oswego, N.Y.**
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CONTROL NUMBER

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REGULATORY DOCKET FILE COPY

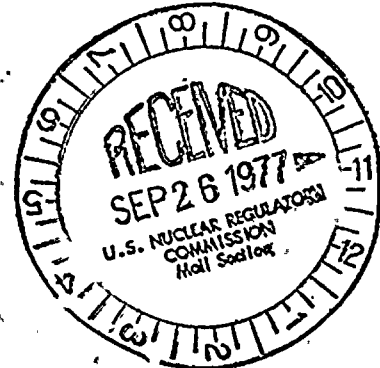
NIAGARA MOHAWK POWER CORPORATION

NIAGARA  MOHAWK300 ERIE BOULEVARD, WEST
SYRACUSE, N. Y. 13202

September 23, 1977

Mr. Boyce H. Grier
 Director
 United States Nuclear Regulatory Commission
 Region I
 631 Park Avenue
 King of Prussia, PA. 19046

RE: Nine Mile Point Nuclear Station Unit #1
 Facility Operating License DPR-63
 Docket No. 50-220



Dear Mr. Grier:

In reviewing our previously submitted Annual Environmental Operating Report for 1976, it was discovered that a mathematical error had been made in the quarterly averages for the site boundary TLD's. Also, an error was discovered in the calculator program for Cesco Cartridges. This error effected only the fourth quarter I-131 numbers (Tables 12 and 14). Additional data has been added to Tables 4 and 6.

Corrected copies of these pages are submitted for your reference.

Very truly yours,

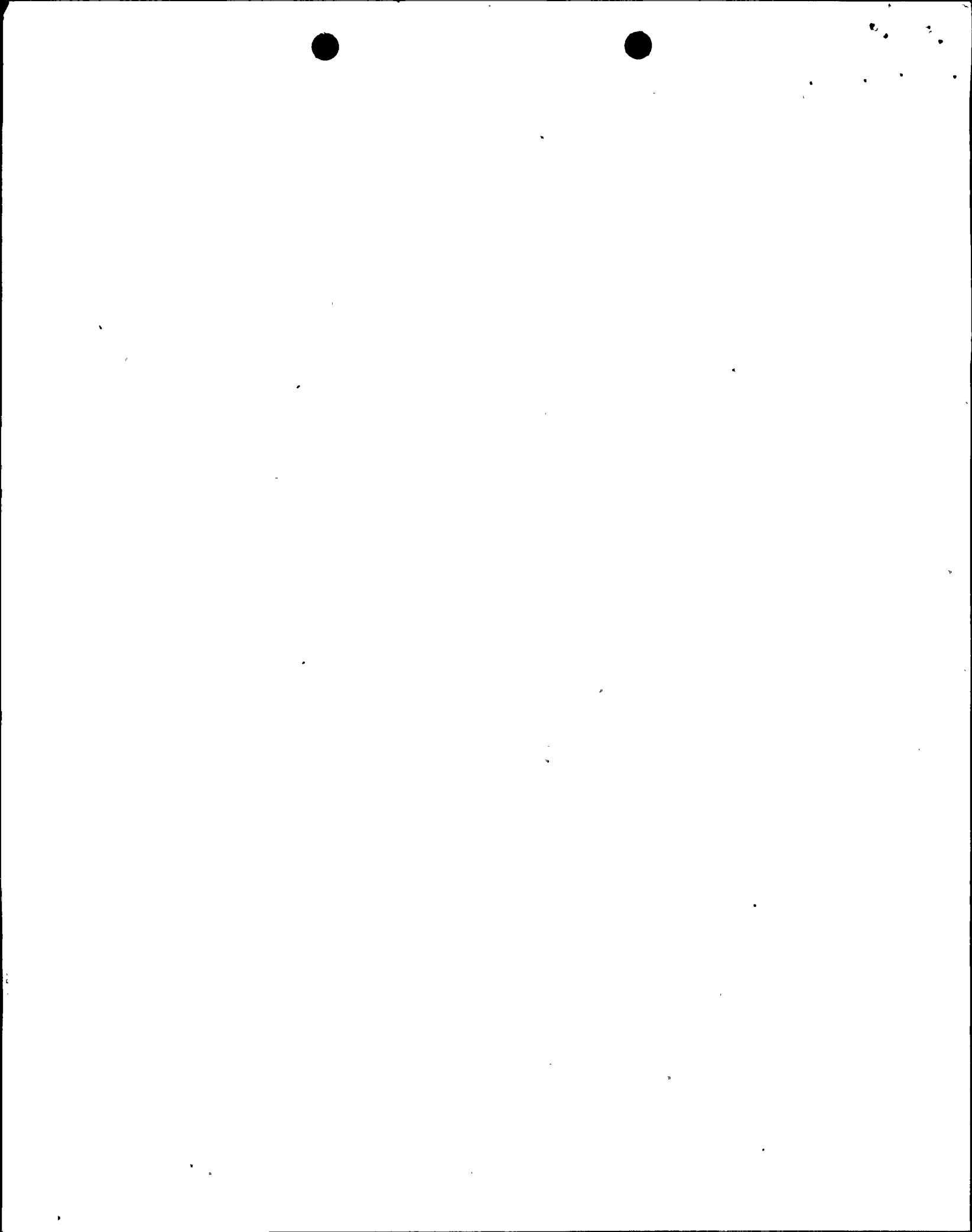
ORIGINAL SIGNED BY R.R. SCHNEIDER

R.R. Schneider
 Vice President -
 Electric Production

Enc.
 MH/mtm

cc: Director, NRR (17 copies)

442700011



III.

ANALYSIS OF ENVIRONMENTAL DATA (Cont.)

B. Land Program (Cont.)

| <u>Station</u> | <u>Date</u> | <u>Activity pCi/m³</u> | <u>Control pCi/m³</u> |
|------------------------|-------------|-----------------------------------|----------------------------------|
| D ₁ On-Site | 2/17/76 | .074 ± .010 | .032 ± .005 |
| E On-Site | 5/11/76 | .133 ± .012 | .046 ± .005 |
| D ₂ On-Site | 6/3/76 | .033 ± .004 | .014 ± .003 |
| E On-Site | 6/3/76 | .035 ± .004 | .014 ± .003 |
| G On-Site | 6/3/76 | .063 ± .014 | .014 ± .003 |
| K On-Site | 6/3/76 | .032 ± .004 | .014 ± .003 |
| D ₁ On-Site | 6/8/76 | .121 ± .012 | .037 ± .005 |
| D ₂ On-Site | 6/8/76 | .105 ± .011 | .037 ± .005 |
| E ² On-Site | 6/8/76 | .124 ± .013 | .037 ± .005 |
| F On Site | 6/8/76 | .119 ± .012 | .037 ± .005 |
| G On-Site | 6/8/76 | .143 ± .014 | .037 ± .005 |
| H On-Site | 6/8/76 | .101 ± .010 | .037 ± .005 |
| I On-Site | 6/8/76 | .115 ± .011 | .037 ± .005 |
| J On-Site | 6/8/76 | .103 ± .010 | .037 ± .005 |
| I On-Site | 7/6/76 | .191 ± .017 | .087 ± .008 |
| D ₁ On-Site | 7/13/76 | .056 ± .007 | .026 ± .004 |
| D ₁ On-Site | 7/20/76 | .082 ± .008 | .025 ± .004 |
| D ₂ On-Site | 7/20/76 | .076 ± .008 | .025 ± .004 |
| E On-Site | 7/20/76 | .078 ± .008 | .025 ± .004 |
| F On-Site | 7/20/76 | .080 ± .008 | .025 ± .004 |
| G On-Site | 7/20/76 | .083 ± .008 | .025 ± .004 |
| H On-Site | 7/20/76 | .062 ± .006 | .025 ± .004 |
| I On-Site | 7/20/76 | .070 ± .007 | .025 ± .004 |
| J On-Site | 7/20/76 | .088 ± .008 | .025 ± .004 |
| K On-Site | 7/20/76 | .079 ± .008 | .025 ± .004 |

2) Airborne I-131 Tables 11-14

The results of the charcoal cartirdge analyses for the off-site stations are shown in Tables 11 and 12. Tables 13 and 14 contain the results from the 9 on-site locations.

The average I-131 activities are as follows:

| | <u>Off-Sites</u> | <u>On-Sites</u> |
|----------|------------------|-----------------|
| 1st Qtr. | 0.00±0.37 | 0.00±0.35 |
| 2nd Qtr. | 0.00±0.48 | 0.00±0.46 |
| 3rd Qtr. | 0.00±0.53 | 0.00±0.38 |
| 4th Qtr. | 0.04±0.83 | 0.05±0.68 |

Using the average activity of the off-site stations for each sampling date as controls for their respective sample periods then the following samples could be considered significant. (Activity > 2x control.)

The predominant wind direction has been indicated for the sample periods and possible correlation with on-site releases has been noted.



III. ANALYSIS OF ENVIRONMENTAL DATA (Cont.)

B. Land Program (Cont.)

| <u>Station</u> | <u>Date</u> | <u>Control (pCi/m³)</u> | <u>Activity (pCi/m³)</u> | <u>Ave. Wind Dir.</u> | <u>Correlation</u> |
|-------------------|-------------|------------------------------------|-------------------------------------|-----------------------|--------------------|
| F On | 10/5/76 | 0.20 | 0.25 | 155 | None |
| F On | 10/26/76 | 0.04 | 0.06 | 18 | Possible |
| G On | 10/26/76 | 0.04 | 0.14 | 18 | Possible |
| G On | 11/2/76 | 0.00 | 0.09 | 223 | None |
| D ₂ On | 11/23/76 | 0.04 | 0.25 | 253 | None |
| D ₁ On | 11/30/76 | 0.00 | 0.06 | 200 | None |
| E On | 11/30/76 | 0.00 | 0.05 | 200 | None |
| J On | 11/30/76 | 0.00 | 0.07 | 200 | None |
| H On | 11/30/76 | 0.00 | 0.09 | 200 | Possible |
| E On | 12/7/76 | 0.02 | 0.12 | 189 | None |
| I On | 12/7/76 | 0.02 | 0.03 | 189 | None |
| J On | 12/7/76 | 0.02 | 0.09 | 189 | None |
| K On | 12/7/76 | 0.02 | 0.20 | 189 | None |
| D ₂ On | 12/21/76 | 0.10 | 0.57 | 252 | Possible |
| F ₂ On | 12/21/76 | 0.10 | 0.23 | 252 | Possible |
| G On | 12/21/76 | 0.10 | 0.37 | 252 | Possible |
| I On | 12/21/76 | 0.10 | 0.37 | 252 | Possible |
| K On | 12/21/76 | 0.10 | 0.40 | 252 | Possible |

3) TLD's - Table 15

The environmental TLD readings are reported as an average of 5 individual chips at each location.

The TLD's are broken down into 3 groups for inclusion in this report. These groups and their respective quarterly averages are as follows (mr/qtr):

| | QUARTERLY AVERAGES | | | |
|--------------|--------------------|----------|----------|----------|
| | <u>1</u> | <u>2</u> | <u>3</u> | <u>4</u> |
| Off-Sites | 16.5 | 15.5 | 19.7 | 10.7 |
| Site-Bound.. | 15.6 | 14.3 | 20.1 | 11.8 |
| On-Sites | 45.4 | 48.8 | 59.8 | 35.1 |

Badges 31, 32 and 39 are located near the NMP Radwaste Building and are being influenced by the waste trucks being loaded in the area. Badges 29 and 30 are probably being effected by the JAF N-16 gamma radiation or "turbine shine" and also by waste trucks being loaded in the area.



V. ENVIRONMENTAL SAMPLE SUMMARY (Cont.)

| <u>Medium Sample</u> | <u>Location</u> | <u>Nuclide</u> | <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter*</u> |
|----------------------|-----------------|----------------|--------------------|--------------------|--------------------|---------------------|
| Airborne | | | | | | |
| Charcoal Cart. | On-Sites | I-131 | | | | |
| | D ₁ | | 0.00 ± 0.45 | 0.00 ± 0.51 | 0.00 ± 0.67 | 0.01 ± 0.62 |
| | D ₂ | | 0.00 ± 0.50 | 0.00 ± 0.54 | 0.00 ± 0.63 | 0.08 ± 0.67 |
| | E | | 0.00 ± 0.36 | 0.00 ± 0.56 | 0.00 ± 0.68 | 0.04 ± 0.82 |
| | F | | 0.00 ± 0.41 | 0.00 ± 0.47 | 0.00 ± 0.57 | 0.05 ± 0.71 |
| | G | | 0.00 ± 0.39 | 0.00 ± 0.48 | 0.00 ± 0.67 | 0.08 ± 0.75 |
| | H | | 0.00 ± 0.26 | 0.00 ± 0.41 | 0.00 ± 0.37 | 0.03 ± 0.60 |
| | I | | 0.00 ± 0.28 | 0.00 ± 0.30 | 0.00 ± 0.33 | 0.07 ± 0.55 |
| | J | | 0.00 ± 0.23 | 0.02 ± 0.43 | 0.00 ± 0.35 | 0.04 ± 0.61 |
| | K | | 0.00 ± 0.27 | 0.00 ± 0.48 | 0.00 ± 0.50 | 0.08 ± 0.75 |
| | Off-Sites | | | | | |
| | C | | 0.00 ± 0.26 | 0.00 ± 0.42 | 0.00 ± 0.47 | 0.02 ± 0.66 |
| | D ₁ | | 0.00 ± 0.33 | 0.00 ± 0.47 | 0.00 ± 0.58 | 0.09 ± 0.89 |
| | D ₂ | | 0.00 ± 0.38 | 0.00 ± 0.51 | 0.00 ± 0.55 | 0.02 ± 0.87 |
| | E ² | | 0.00 ± 0.42 | 0.00 ± 0.46 | 0.00 ± 0.55 | 0.04 ± 1.02 |
| | F | | 0.00 ± 0.37 | 0.00 ± 0.47 | 0.00 ± 0.54 | 0.03 ± 0.76 |
| | G | | 0.00 ± 0.45 | 0.00 ± 0.54 | 0.00 ± 0.49 | 0.05 ± 0.80 |

*Sensitivity lost due to large decay correction.



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V. ENVIRONMENTAL SAMPLE SUMMARY (Cont.)

| <u>Medium/Sample</u> | <u>Location</u> | <u>Nuclide</u> | <u>1st Quarter</u> | <u>2nd Quarter</u> | <u>3rd Quarter</u> | <u>4th Quarter</u> |
|---|-----------------|----------------|--------------------|--------------------|--------------------|--------------------|
| Direct Radiation Continuous Monitors (GM) | On-Sites | mrem/qtr. | | | | |
| | D ₁ | | 102.648 | 102.6 | 65.5 | 63.3 |
| | D ₂ | | 52.4 | 61.1 | 43.7 | 41.5 |
| | E | | 30.6 | 32.8 | 30.6 | 37.1 |
| | F | | 30.6 | 34.9 | 34.9 | 28.4 |
| | G | | 28.4 | 32.8 | 34.9 | 65.5 |
| | H | | 28.4 | 43.7 | 43.7 | 52.4 |
| | I | | 67.7 | 104.8 | 30.6 | 37.1 |
| | J | | 28.4 | 41.5 | 41.5 | 50.2 |
| | K | | 39.3 | 41.5 | 39.3 | 32.8 |
| | Off-Site | | | | | |
| | C | | 28.4 | 52.4 | 54.6 | 52.4 |
| TLD's | Off-Site | mrem/qtr. | 16.5 | 15.5 | 19.7 | 10.7 |
| | Site Boundary | | 15.6 | 14.3 | 20.1 | 11.8 |
| | On Site | | 45.4 | 48.8 | 59.8 | 35.1 |



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TABLE 4

STRONTIUM 89 AND 90, GAMMA ISOTOPIC ANALYSIS OF MOLLUSKS

| Collection Date | Collection Site | pCi/g (Wet) | | |
|-----------------|-----------------|--------------|--------------|---|
| | | Sr-89 | Sr-90 | Gamma Emitters* |
| 05/14/76 | NMPP 20'-40' | 0.00±1.44(a) | 0.00±0.90(a) | Mn-54 = 2.0±1.8 Co-60 = 1.2±0.2 All others = 0.0±1.0 |
| 05/14/76 | FITZ 20'-40' | 0.42±0.08 | 0.51±0.10 | Cs-137 = 1.8±0.1 Mn-54 = 3.7±0.2 All others = 0.0±1.0 |
| 05/14/76 | OSWP 20'-40' | | | No Mollusks Available |
| 10/30/76 | NMPP 20'-40' | 0.00±0.32 | 0.65±0.13 | 0.00±1.0 |
| 10/30/76 | FITZ 20'-40' | 0.00±0.17 | 0.26±0.07 | 0.00±1.0 |
| 10/30/76 | OSWP 20'-40' | | | No Mollusks Available |

GAMMA ISOTOPIC ANALYSIS OF PERIPHYTON

| Collection Site | Collection Date | pCi/g (Wet Weight) | | | | |
|-----------------|-----------------|-------------------------|---------|---------|---------|---------|
| | | Cs-134 | Cs-137 | Co-60 | Mn-54 | Others* |
| NMPP | 05/17/76 | 0.0±1.0 | 2.3±.33 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 |
| FITZ | 05/17/76 | 0.0±1.0 | 1.4±.30 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 |
| OSWP | 05/17/76 | No Periphyton Available | | | | |
| NMPP | 10/15/76 | 1.1±0.3 | 4.1±0.3 | 3.0±0.7 | 0.0±1.0 | 0.0±1.0 |
| FITZ | 10/15/76 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 |
| OSWP | 10/15/76 | 0.0±1.0 | 5.0±1.0 | 0.0±1.0 | 0.0±1.0 | 0.0±1.0 |

(a) Insufficient sample for more sensitive analysis.

* The spectrum is computer scanned from ~20 to ~2000 KeV. Specifically included are Ce-144, Ba-La-140, Cs-134, Cs-137, Zr-Nb-95, Co-58, Co-60, Mn-54, Zn-65. Naturally occurring gamma emitters such as K-40 and Ra daughters are frequently detected but not listed here.



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TABLE 6
LAKE WATER SAMPLES
INLET CANAL

| Date | Monthly Composite - Gross Beta - pCi/l | | | Location | Date | Quarterly Composite - pCi/l | | |
|-------|--|------------|------------|----------|-------|-----------------------------|---------|---------|
| | NMP-1 | JAF | OSWP | | | H-3 | Sr-89 | Sr-90 |
| 1-76 | 0.0± 5.1 | 48.4± 5.8 | 21.3± 2.7 | NMP-1 | 3-76 | 297± 64 | 0.0±3.9 | 0.0±3.3 |
| 2-76 | 0.0± 4.1 | 38.8± 5.1 | 26.7± 2.6 | JAF | 3-76 | 889±209 | | |
| 3-76 | 14.0± 2.8 | 46.8±15.5 | 49.9±18.8 | OSWP | 3-76 | 929±210 | 0.0±2.8 | 0.0±2.8 |
| 4-76 | 8.0± 4.0 | 192.0±21.6 | 189.0±21.5 | NMP-1 | 6-76 | 365± 68 | 0.0±3.2 | 0.0±3.3 |
| 5-76 | 13.2±17.1 | 186.0±23.2 | 66.6±21.1 | JAF | 6-76 | 365± 68 | | |
| 6-76 | 15.1± 4.1 | 78.9±20.4 | 51.5±19.0 | OSWP | 6-76 | 586± 78 | 0.0±3.9 | 0.0±3:7 |
| 7-76 | 4.9± 3.9 | 72.2± 9.4 | 4.9± 3.9 | NMP-1 | 9-76 | 000±400 | 0.0±5.1 | 0.0±5.9 |
| 8-76 | 8.0±20.5 | 45.9±10.9 | 17.2±22.6 | JAF | 9-76 | 000±400 | 0.0±1.4 | 0.0±1.1 |
| 9-76 | 22.6±20.7 | 0.0±29.3 | 14.1±19.8 | OSWP | 9-76 | 000±400 | 0.0±8.8 | 0.0±9.1 |
| 10-76 | 4.6±20.3 | 3.4±13.8 | 7.9±20.5 | NMP-1 | 12-76 | 650±100 | 0.0±5.0 | 0.0±2.0 |
| 11-76 | 15.2± 5.7 | 0.0±29.3 | 52.2±14.2 | JAF | 12-76 | 000±400 | 0.0±2.2 | 0.0±2.9 |
| 12-76 | 1.1± 7.0 | 16.1±13.4 | 8.5± 6.5 | OSWP | 12-76 | 440±100 | 0.0±5.0 | 0.0±2.0 |

*Data will be included in supplemental report.

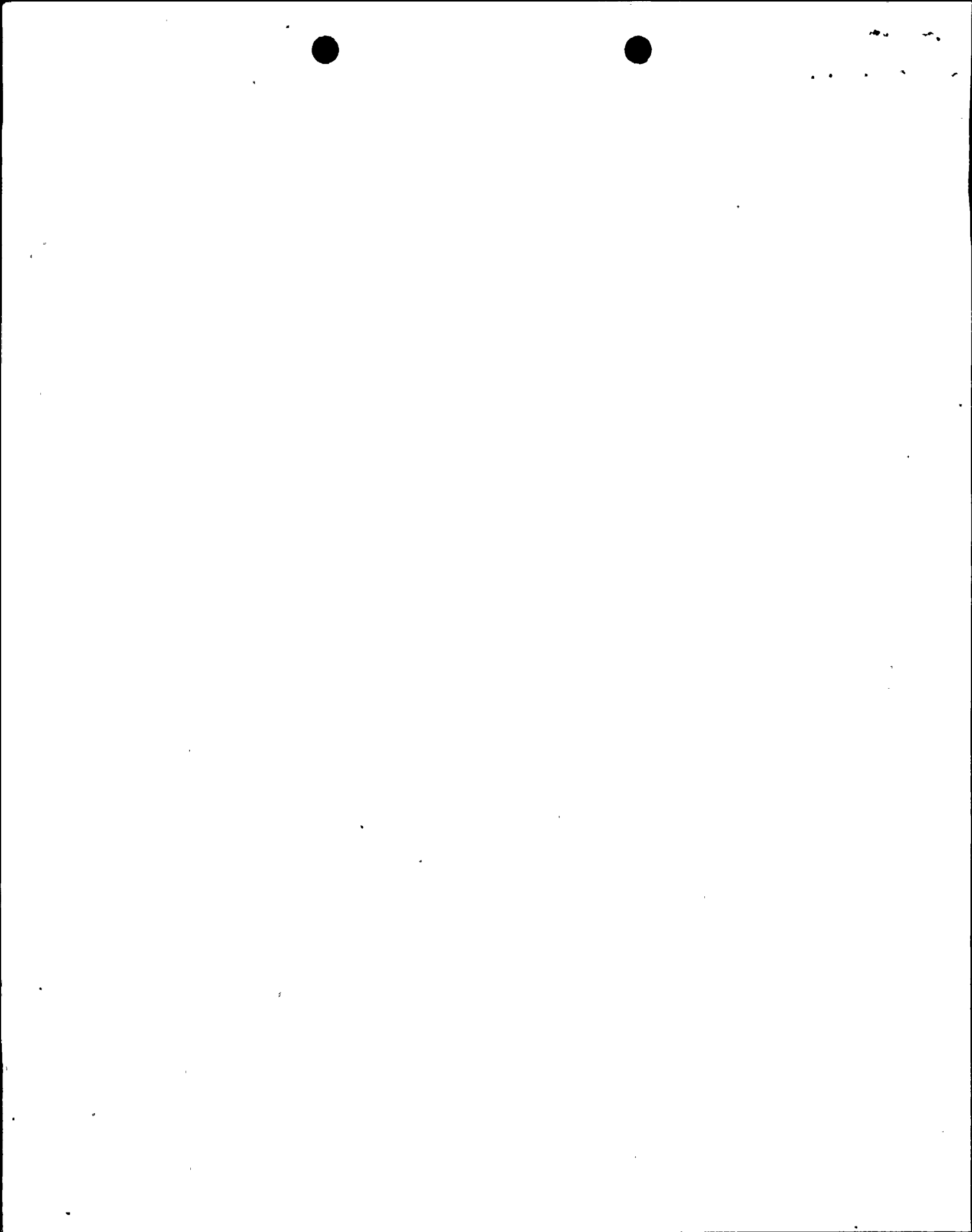


TABLE 14
 NMP-JAF SITE
 ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY ON-SITE STATIONS
 I-131 pCi/m³ ± 3σ

| Date Collected | Location | | | | | | | | | |
|----------------|----------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|--|
| | D ₁ | D ₂ | E | F | G | H | I | J | K | |
| 7-6-76 | 0.00 ± 0.50 | 0.00 ± 0.57 | 0.00 ± 0.67 | 0.00 ± 0.55 | 0.00 ± 0.60 | 0.00 ± 0.39 | 0.00 ± 0.36 | 0.00 ± 0.36 | 0.00 ± 0.47 | |
| 7-13-76 | 0.00 ± 0.67 | 0.00 ± 0.67 | 0.00 ± 0.80 | 0.00 ± 0.79 | 0.00 ± 0.70 | 0.00 ± 0.42 | 0.00 ± 0.43 | 0.00 ± 0.34 | 0.00 ± 0.57 | |
| 7-20-76 | 0.00 ± 0.54 | 0.00 ± 0.49 | 0.00 ± 0.63 | 0.00 ± 0.48 | 0.00 ± 0.47 | 0.00 ± 0.35 | 0.00 ± 0.32 | 0.00 ± 0.32 | 0.00 ± 0.42 | |
| 7-28-76 | 0.00 ± 0.84 | 0.00 ± 0.80 | 0.00 ± 0.49 | 0.00 ± 0.53 | 0.00 ± 0.48 | 0.00 ± 0.30 | 0.00 ± 0.32 | 0.00 ± 0.27 | 0.00 ± 0.56 | |
| 8-3-76 | 0.00 ± 0.70 | 0.00 ± 0.41 | 0.00 ± 0.77 | 0.00 ± 0.60 | 0.00 ± 0.44 | 0.00 ± 0.44 | 0.00 ± 0.33 | 0.00 ± 0.42 | 0.00 ± 0.51 | |
| 8-10-76 | 0.00 ± 0.44 | 0.00 ± 0.18 | 0.00 ± 0.68 | 0.00 ± 0.44 | 0.00 ± 0.42 | 0.00 ± 0.32 | 0.00 ± 0.26 | 0.00 ± 0.30 | 0.00 ± 0.38 | |
| 8-17-76 | 0.00 ± 1.02 | 0.00 ± 1.08 | 0.00 ± 0.62 | 0.00 ± 0.55 | 0.00 ± 0.60 | 0.00 ± 0.34 | 0.00 ± 0.29 | 0.00 ± 0.29 | 0.00 ± 0.40 | |
| 8-24-76 | 0.00 ± 1.12 | 0.00 ± 0.38 | 0.00 ± 0.60 | 0.00 ± 0.51 | 0.00 ± 1.80 | 0.00 ± 0.35 | 0.00 ± 0.32 | 0.00 ± 0.45 | 0.00 ± 0.45 | |
| 8-31-76 | 0.00 ± 0.76 | 0.00 ± 0.38 | 0.00 ± 1.22 | 0.00 ± 1.00 | 0.00 ± 1.00 | 0.00 ± 0.48 | 0.00 ± 0.39 | Sample Lost | 0.00 ± 0.93 | |
| 9-7-76 | 0.00 ± 0.62 | 0.00 ± 0.18 | 0.00 ± 0.74 | 0.00 ± 0.65 | 0.00 ± 0.72 | 0.00 ± 0.51 | 0.00 ± 0.37 | 0.00 ± 0.43 | 0.00 ± 0.55 | |
| 9-14-76 | 0.00 ± 0.52 | 0.00 ± 0.41 | 0.00 ± 0.56 | 0.00 ± 0.44 | 0.00 ± 0.46 | 0.00 ± 0.32 | 0.00 ± 0.29 | 0.00 ± 0.34 | 0.00 ± 0.47 | |
| 9-21-76 | 0.00 ± 0.35 | 0.00 ± 0.48 | 0.00 ± 0.37 | 0.00 ± 0.32 | 0.00 ± 0.24 | 0.00 ± 0.27 | 0.08 ± 0.20 | 0.00 ± 0.34 | 0.00 ± 0.28 | |
| 9-28-76 | 0.00 ± 0.51 | 0.00 ± 0.57 | 0.00 ± 0.61 | 0.00 ± 1.19 | 0.12 ± 0.35 | 0.10 ± 0.36 | 0.00 ± 0.35 | 0.00 ± 0.43 | 0.00 ± 0.31 | |
| 10-5-76 | 0.00 ± 0.61 | 0.17 ± 0.49 | 0.17 ± 0.67 | 0.25 ± 0.67 | 0.00 ± 0.59 | 0.00 ± 0.57 | 0.04 ± 0.46 | 0.07 ± 0.55 | 0.13 ± 0.56 | |
| 10-12-76 | 0.00 ± 0.48 | 0.06 ± 0.33 | 0.03 ± 0.41 | 0.00 ± 0.38 | 0.00 ± 0.26 | 0.02 ± 0.25 | 0.06 ± 0.25 | 0.00 ± 0.33 | 0.12 ± 0.37 | |
| 10-19-76 | 0.00 ± 0.41 | 0.00 ± 0.37 | 0.09 ± 0.44 | 0.00 ± 0.39 | 0.00 ± 0.40 | 0.00 ± 0.27 | 0.00 ± 0.26 | 0.00 ± 0.33 | 0.00 ± 0.36 | |
| 10-26-76 | 0.02 ± 0.42 | 0.00 ± 0.32 | 0.00 ± 0.42 | 0.06 ± 0.37 | 0.15 ± 0.38 | 0.00 ± 0.25 | 0.18 ± 0.81 | 0.02 ± 0.33 | 0.02 ± 0.34 | |
| 11-2-76 | 0.00 ± 0.99 | 0.00 ± 1.00 | 0.00 ± 1.17 | 0.00 ± 1.12 | 0.09 ± 1.00 | 0.00 ± 1.02 | 0.00 ± 0.79 | 0.00 ± 0.23 | 0.00 ± 0.78 | |
| 11-9-76 | 0.00 ± 0.15 | 0.00 ± 1.28 | 0.00 ± 1.66 | 0.00 ± 1.61 | 0.00 ± 1.47 | 0.15 ± 1.00 | 0.11 ± 0.78 | 0.00 ± 1.34 | 0.00 ± 2.60 | |
| 11-17-76 | 0.00 ± 0.96 | 0.00 ± 0.72 | 0.00 ± 0.87 | 0.00 ± 0.91 | 0.00 ± 0.91 | 0.00 ± 1.55 | 0.00 ± 0.42 | 0.00 ± 0.74 | 0.00 ± 0.79 | |
| 11-23-76 | 0.00 ± 1.04 | 0.25 ± 0.84 | 0.00 ± 0.85 | 0.00 ± 0.66 | 0.00 ± 0.95 | 0.00 ± 0.46 | 0.00 ± 0.62 | 0.00 ± 0.78 | 0.08 ± 0.43 | |
| 11-30-76 | 0.06 ± 0.54 | 0.00 ± 0.51 | 0.05 ± 0.55 | 0.00 ± 0.54 | 0.00 ± 0.61 | 0.09 ± 0.42 | 0.00 ± 0.32 | 0.00 ± 0.49 | 0.07 ± 0.38 | |
| 12-7-76 | 0.00 ± 0.39 | 0.00 ± 0.36 | 0.12 ± 0.44 | 0.00 ± 0.48 | 0.02 ± 0.49 | 0.00 ± 0.36 | 0.03 ± 0.36 | 0.09 ± 0.42 | 0.20 ± 0.46 | |
| 12-14-76 | 0.00 ± 0.76 | 0.00 ± 0.88 | 0.02 ± 0.72 | 0.11 ± 0.41 | 0.00 ± 1.01 | 0.06 ± 0.32 | 0.04 ± 0.39 | 0.03 ± 0.21 | 0.00 ± 0.32 | |
| 12-21-76 | 0.05 ± 0.75 | 0.57 ± 0.94 | 0.00 ± 0.94 | 0.23 ± 0.91 | 0.37 ± 1.03 | 0.06 ± 0.68 | 0.37 ± 0.95 | 0.00 ± 0.85 | 0.40 ± 0.86 | |
| 12-28-76 | 0.00 ± 0.59 | 0.00 ± 0.66 | 0.00 ± 1.52 | 0.02 ± 0.72 | 0.35 ± 0.68 | 0.00 ± 0.64 | 0.07 ± 0.72 | 0.28 ± 1.37 | 0.00 ± 1.44 | |



11-11-11

TABLE 12
 NMP-JAF SITE
 ENVIRONMENTAL CHARCOAL CARTRIDGE ACTIVITY OFF-SITE STATIONS
 $I-131 \text{ pCi/m}^3 \pm 3\sigma$

| Date Collected | Location | | | | | |
|----------------|-------------|----------------|----------------|-------------|-------------|-------------|
| | C | D ₁ | D ₂ | E | F | G |
| 7-7-76 | 0.00 ± 0.78 | 0.00 ± 1.00 | 0.00 ± 0.80 | 0.00 ± 1.10 | 0.00 ± 0.47 | 0.00 ± 0.66 |
| 7-14-76 | 0.00 ± 0.54 | 0.00 ± 0.61 | 0.00 ± 0.65 | 0.00 ± 0.58 | 0.00 ± 0.63 | 0.00 ± 0.60 |
| 7-21-76 | 0.00 ± 0.58 | 0.00 ± 0.50 | 0.00 ± 0.48 | 0.00 ± 0.45 | 0.00 ± 0.86 | 0.00 ± 0.47 |
| 7-28-76 | 0.00 ± 0.33 | 0.00 ± 0.46 | 0.00 ± 0.38 | 0.00 ± 0.48 | 0.00 ± 0.43 | 0.00 ± 0.40 |
| 8-4-76 | 0.00 ± 0.48 | 0.00 ± 0.51 | 0.00 ± 0.55 | 0.00 ± 0.54 | 0.00 ± 0.50 | 0.00 ± 0.45 |
| 8-11-76 | 0.00 ± 0.41 | 0.00 ± 0.73 | 0.00 ± 0.60 | 0.00 ± 0.50 | 0.00 ± 0.56 | 0.00 ± 0.67 |
| 8-18-76 | 0.00 ± 0.54 | 0.00 ± 0.78 | 0.00 ± 0.72 | 0.00 ± 0.73 | 0.00 ± 0.75 | 0.00 ± 0.66 |
| 8-25-76 | 0.00 ± 0.64 | 0.00 ± 0.58 | 0.00 ± 0.62 | 0.00 ± 0.62 | 0.00 ± 0.56 | 0.00 ± 0.46 |
| 9-1-76 | 0.00 ± 0.39 | 0.00 ± 0.58 | 0.00 ± 0.50 | 0.00 ± 0.52 | 0.00 ± 0.47 | 0.00 ± 0.48 |
| 9-8-76 | 0.00 ± 0.41 | 0.00 ± 0.48 | 0.00 ± 0.57 | 0.00 ± 0.23 | 0.00 ± 0.56 | 0.00 ± 0.43 |
| 9-15-76 | 0.00 ± 0.24 | 0.00 ± 0.37 | 0.00 ± 0.37 | 0.00 ± 0.32 | 0.00 ± 0.33 | 0.00 ± 0.24 |
| 9-21-76 | 0.00 ± 0.34 | 0.00 ± 0.33 | 0.00 ± 0.41 | 0.00 ± 0.49 | 0.00 ± 0.42 | 0.00 ± 0.37 |
| 9-29-76 | 0.00 ± 0.96 | 0.00 ± 0.97 | 0.12 ± 0.95 | 0.20 ± 1.05 | 0.56 ± 0.90 | 0.18 ± 0.81 |
| 10-6-76 | 0.11 ± 0.48 | 0.00 ± 0.61 | 0.00 ± 0.57 | 0.22 ± 0.72 | 0.22 ± 0.54 | 0.03 ± 0.50 |
| 10-13-76 | 0.04 ± 0.42 | 0.02 ± 0.62 | 0.00 ± 0.38 | 0.19 ± 0.61 | 0.02 ± 0.50 | 0.08 ± 0.33 |
| 10-20-76 | 0.04 ± 0.23 | 0.00 ± 0.39 | 0.00 ± 0.36 | 0.00 ± 0.37 | 0.09 ± 0.29 | 0.00 ± 0.30 |
| 10-27-76 | 0.01 ± 0.25 | 0.06 ± 0.43 | 0.00 ± 1.59 | 0.00 ± 2.02 | 0.07 ± 0.36 | 0.00 ± 1.42 |
| 11-3-76 | 0.00 ± 1.00 | 0.00 ± 1.62 | 0.00 ± 1.44 | 0.00 ± 1.68 | 0.00 ± 1.29 | 0.00 ± 1.20 |
| 11-10-76 | 0.00 ± 0.62 | 0.00 ± 1.40 | 0.00 ± 0.84 | 0.00 ± 1.07 | 0.00 ± 0.71 | 0.10 ± 0.87 |
| 11-17-76 | 0.00 ± 0.70 | 0.00 ± 1.00 | 0.00 ± 0.89 | 0.00 ± 1.12 | 0.00 ± 0.86 | 0.00 ± 0.85 |
| 11-24-76 | 0.00 ± 0.53 | 0.10 ± 0.86 | 0.00 ± 0.73 | 0.00 ± 0.80 | 0.00 ± 0.75 | 0.02 ± 0.73 |
| 12-1-76 | 0.00 ± 0.53 | 0.00 ± 0.72 | 0.00 ± 0.51 | 0.00 ± 0.82 | 0.00 ± 0.63 | 0.02 ± 0.65 |
| 12-8-76 | 0.00 ± 0.41 | 0.00 ± 0.54 | 0.00 ± 0.53 | 0.00 ± 0.60 | 0.02 ± 0.64 | 0.06 ± 0.47 |
| 12-15-76 | 0.03 ± 0.53 | 0.24 ± 0.70 | 0.00 ± 0.88 | 0.00 ± 1.01 | 0.00 ± 1.09 | 0.00 ± 0.78 |
| 12-22-76 | 0.06 ± 0.52 | 0.11 ± 0.70 | 0.14 ± 0.66 | 0.00 ± 0.65 | 0.00 ± 0.84 | 0.00 ± 0.51 |
| 12-29-76 | 0.00 ± 1.36 | 0.72 ± 1.98 | 0.06 ± 1.91 | 0.05 ± 1.77 | 0.00 ± 1.41 | 0.35 ± 1.65 |

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inches. These valves will be tested through full travel distance during each refueling interval.

Basis

The safety injection system and the containment spray system are principal plant safeguards systems that are normally operable during reactor operation.

Complete system tests cannot be performed when the reactor is operating because of their inter-relation with operating systems. The method of assuring operability of these systems is a combination of complete system tests performed during refueling shutdowns and monthly tests of active system components (pumps and valves) which can be performed during reactor operation. The test interval is based on the judgment that more frequent testing would not significantly increase the reliability (i.e., the probability that the component would operate when required), yet more frequent tests would result in increased wear over a long period of time.

The monthly part travel exercising of the VCT outlet to charging pump suction valves, in lieu of the full travel exercise, is conducted to preclude an interruption of normal plant operations. Redundant valves have been used to assure proper lineup in the event of ECCS actuation. Other ECCS valves whose operation is not required to assure core flooding or containment spray shall be tested during each refueling shutdown period in accordance with 2.b.

Verification that the spray piping and nozzles are open will be made initially by a suitably sensitive method, and at least every five years thereafter. Since all piping material is all stainless steel, normally in a dry condition, and with no plugging mechanism available, the retest every five years is considered to be more than adequate.

Other systems that are important to the emergency cooling function are the SI tanks, the component cooling system and the service water system. The SI tanks are a passive safety feature. In accordance with the Specification 4.1 (Table 4.1-2, Item 11), the water volume and pressure in the SI tanks are checked periodically. The component cooling and service water systems operate when the reactor is in operation and are continuously monitored for satisfactory performance.

The three month testing interval of the steam generator auxiliary feed pumps verifies their operability by recirculating water to the demineralized water tank.

Proper functioning of the steam turbine admission valve and starting of the auxiliary feed pump will demonstrate the operability of the steam driven pump. Verification of correct operation will be made both from instrumentation with the main control room and direct visual observation of the pumps.

The main steam, excess flow check valves serve to limit an excessive reactor coolant system cooldown rate and resultant reactivity insertion following a main steam break incident. Their freedom to move will be verified periodically.

