

MS 16 K-4

September 23, 1994

Mr. Steven Courtemanche Industrial Applications Section Division of Radiation Safety and Safeguards U.S. Nuclear Regulatory Commission, Region I 475 Allendale Road King of Prussia, PA 19406-1415

RE: Phone conversation regarding RML 20/03529/01 renewal application.

Mr. Courtemanche:

In answer to the NRC concern regarding interim waste storage at the Springfield facility, this is to confirm that:

- The barrels containing radioactive waste in the interim waste storage area, insofar as possible, shall be arranged in such a way as to preclude a high radiation area. The absence of high radiation areas shall be confirmed during quarterly audits of the interim waste storage area, and
- Prior to permiting the existence of, or immediately following the discovery of a high radiation area in the interim storage area, access controls shall be established in accordance with 10CFR20.1601, Control of access to high radiation areas. For example, a cage may be erected to preclude unauthorized entry, and a control device installed that energizes a conspicuous visible or audible alarm signal so that the individual entering the high radiation area and the supervisor of the activity are made aware of the entry.

Please do not hesitate to contact me if you have any further questions regarding this matter.

Sincerely

Michael A. Bovino Manager, Health Physics and Engineering INS Corp.

PDR

cc: D. Barrow J. Badey file

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CONVERSATION RECORD TIME DATE 10:10 AM 12/15/91 TYPE VISIT CONFERENCE ROUTING TELEPHONE NAME/SYMBOL [] INCOMING INT Location of Visit/Conference: OUTGOING NAME OF PERSON(S) CONTACTED OR IN CONTACT ORGANIZATION (Office, dept., bureau, WITH YOU TELEPHONE NO. etc.) Sami Dh erbini NRC HA (301)415-HOZ SUBJECT Solublity Testing This pringfiller application (20-03529-01 SUMMARY 14 Cratt The Aleren of NKC Ho to confe AR would be required for the testing wether usex. dispresent from the one in IN 94-07 met the rescureme 72 Shertin that the lumme stated that they bad writed NRC their method had even and that approved Mr. Sherbine stated that, un though he was not happy about the used by ANS, it had been reviewed by NRC method Their definition of solubility is with approved procedures 10 unspector would be looken they come me with bero man 12/19/94 heat Auderson about his change in the author the 7/10/94 atter stated lac. wanted to be ashed, ACTION REQUIRED Document in lieu of THR NAME OF PERSON DOCUMENTING CONVERSATION SIGNATURE DATE Steven Courtemanche 12/15/94 ACTION TAKEN SIGNATURE TITLE DATE 50271-101 CONVERSATION RECORD OPTIONAL FORM 271 (12-76) DEPARTMENT OF DEFENSE DU.S. G.P.C. 1983-381-526/8346 ML 10 OFFICIAL RECORD COPY 117925 ···· B/23

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DEC 1 2 1996

George Bakevich, General Manager INS Corporation P.O. Box 51957 295 Parker Street Springfield, Massachusetts 01151

SUBJECT: INSPECTION NO. 030-04632/96-001

Dear Mr. Bakevich:

On September 30 and October 1, 7, and 8, 1996, Sheri A. Arredondo and Steven R. Courtemanche of this office conducted a safety inspection at the above address of activities authorized by the NRC license listed below. The inspection was limited to observations by the inspector, interviews with personnel, selective examination of records and independent measurements at your facility and at Dimmock Pond as a result of the flood that occurred on September 30, 1996. A copy of the NRC inspection report is enclosed which includes all the results of our independent measurements.

Within the scope of this inspection, no violations were identified.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the Public Document Room. No reply to this letter is required.

Your cooperation with us is appreciated.

Sincerely,

ORIGINAL SIGNED BY:

Jenny M. Johansen, Chief Nuclear Materials Safety Branch No. 03 Division of Nuclear Materials Safety



Docket No.: 030-04632 License No.: 20-03529-01

Enclosure: Inspection Report No. 030-04632/96-001

cc: 23010? Commonwealth of Massachusetts

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G. Bakevich INS Corporation

Distribution: w/encl PUBLIC Nuclear Safety Information Center (NSIC) Region I Docket Room (w/concurrences) State of Massachusetts

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#### U.S. NUCLEAR REGULATORY COMMISSION REGION I

#### INSPECTION REPORT

Report No. 030-04632/96-001

Docket No. 030-04632

License No. 20-03529-01

Licensee: INS Corporation P.O. Box 51957 295 Parker Street Springfield, Massachusetts 01151

Facility Name: INS Corporation

Inspection At: 295 Parker Street Springfield, Massachusetts

Inspection Conducted: September 30, October 1, 7 and 8, 1996

Inspectors:

Steven R. Courtemanche Health Physicist

Sheri A. Arredondo Health Physicist

Approved By:

Francis M. Costello, Chief Nuclear Materials Safety Branch No. 3 Division of Nuclear Materials Safety

Inspection Summary: Reactive, announced safety inspection conducted on September 30 and October 1, 7 and 8, 1996 (Inspection Report No. 030-04632/96-001).

Areas Inspected: Licensee's surveys and independent measurements.

<u>Results</u>: No violations were identified. Independent measurements and samples of water and sediment as well as wipe tests found radiation levels and radionuclide concentrations in compliance with NRC regulations.

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DETAILS

#### 1. Persons Contacted

George Bakevich, General Manager Steven Berger, Plant Manager and Radiation Safety Officer Michael R. Fuller, Health Physicist Denise Bonello, Health Physics Technician Jorge Cabanas, Health Physics Technician Kevin C. Sheehan, Environmental Compliance Services, Inc. William Bell, Radiation Scientist, Commonwealth of Massachusetts, Department of Public Health William MacGee, City of Springfield

#### 2. Background Information

INS is a subsidiary of UniFirst Corporation (Unifirst) whose headquarters is located in Springfield, Massachusetts. INS is authorized by NRC License No. 20-03529-01 to operate a nuclear laundry to decontaminate clothing of byproduct, source and special nuclear material. Also, Unifirst operates a commercial laundry at this location which cleans clothing not contaminated with licensed material and, therefore, is not licensed by the NRC. These two facilities are located in the same building located at 295 Parker Street and are physically separated by walls.

#### 3. Flood that occurred on September 29, 1996

On September 30, 1996, INS reported to the NRC Operations Officer that when workers reported to the INS nuclear laundry in Springfield, Massachusetts at 5 AM on Sunday morning, the plant was flooded. The licensee's investigation determined that a valve had stuck open in one of their washers. The licensee calculated that if the valve was full open from the time the workers left on Saturday until their return on Sunday, an estimated maximum of 180,000 gallons of water would have flowed through the washer.

The licensee stated that overflow water went out the back door, through the dock area, and into the storm sewers. The storm sewers empty into Dimmock Pond which is adjacent to the site property. According to the licensee the majority of the estimated 180,000 gallons of water ended up in the pond. INS representatives took water samples from Dimmock Pond and the water flowing into the storm sewers. The licensee reported to the NRC that the sewer water samples were analyzed and concentrations of radiaoctive materials did not exceed the limits of found in 10 CFR 20, Table 2. Also, the licensee reported that the samples from Dimmock Pond were analyzed and the levels of radioactive materials detected did not exceed the Minimum Detectable Activities (MDAs) of the instruments used.

The licensee stated that some of the overflow water went into the underground Low Level Waste Storage facility, in the basement of the nuclear laundry. Three of four

cardboard containers had to be repacked. Five waste drums were floating in 3 feet of water on September 30, 1996. The entire floor of the nuclear laundry was covered with water. Water from the nuclear laundry overflow was disposed of into the on-site holding tanks where the water was treated and tested prior to release to the sanitary sewer.

Some water also flowed into the Unifirst non-nuclear laundry facility, where it soaked the carpets. A wet-vacuum cleaner was used by the licensee to remove the water from the carpets. The licensee reported that the collected water was tested and found to be less than 10 CFR 20, Table 3 concentrations, and was released to the sanitary sewer.

Wipes for removable contamination were taken by the licensee throughout the facility as the areas were cleaned and dried. The licensee reported that the results of the analysis of all wipes were less than allowable licensed levels for removable contamination were detected.

#### 4. INS Initial Measurements

The inspector reviewed the licensee's September 29, 1996 results of water samples taken from the wet-vacuum cleaner, the waste storage vault, and the loading dock outflow. All results were found to be less than the allowable effluent concentration limits listed in 10 CFR 20, Appendix B, Table 2. The inspector reviewed the licensee's September 29, 1996 results of a water sample taken at the outfall of Dimmock Pond and found that the results were less than the licensee's MDA. The inspector also reviewed the licensee's September 29, 1996 wipe test results and found that all the results were less than the licensed allowable levels of contamination are less than 20 disintegrations per minute (dpm), and 200 dpm for non-contaminated areas, less than 50 dpm and 500 dpm for potentially contaminated areas and less than 100 and 1000 dpm for contaminated areas for alpha and beta contamination, respectively.

#### 5. NRC Independent Measurements at Unifirst

On September 30, 1996, the inspector took wipe tests at the Unificat facility. On October 8, 1996, the inspector took wipe tests of the Swayco filters through which water may have flowed because of the incident. The wipes were analyzed by the Region I analytical laboratory using a Tennelec Model LB5100 gas flow proportional counter for gross alpha and beta activity. The results are listed in Table 1. All results are less than the MDA of 5 dpm for alpha and 9 dpm for beta.

#### 6. NRC Independent Measurements at INS

On October 1, 1996, the inspector took wipe tests at the INS facility. The wipes were analyzed by the Region I analytical laboratory using a Tennelec Model LB5100 gas flow proportional counter for gross alpha and beta activity. The results are listed in Table 2. All results were less than the MDA of 5 dpm for alpha and 9 dpm for beta with the exception of beta activity ranging from 13.0 dpm to 37.0 dpm in wipe numbers 14-17. Wipe 14 was taken in a potentially contaminated area adjacent to the washers and

wipes 15-17 were taken in contaminated areas. The activities found are within the acceptable levels of less than 500 dpm for potentially contaminated areas and less than 1000 dpm for contaminated areas which are specified in the INS license.

On October 1, 1996, the inspector took a water sample from the waste storage vault. This sample was analyzed by the NRC Region I laboratory using a Princeton Gamma-Tech high purity intrinsic germanium detector for gamma spectroscopy analysis. The result of this sample number 10 in Table 3.

#### 7. NRC Independent Measurements of the Environmental Areas Adjacent to INS

On October 1, 1996, the inspector surveyed the parking lot from the loading docks to the sewer drains using a geiger-mueller pancake probe attached to a Ludlum Model 18, calibrated March 14, 1996, to measure beta and gamma radiation in the unrestricted areas close to the facility. No activity above background was detected. On September 29, 1996 and October 1, 1996, samples of the sand that lay in the path from the loading docks to the storm sewer #2, as well as water and sediment from both storm sewers were taken back to the NRC Region I laboratory for analysis. The analysis was performed using a Princeton Gamma-Tech high purity intrinsic germanium detector for gamma spectroscopy. The results of these samples are given in sample numbers 9, and 12-15 in Table 3. The results show levels of radioactivity well below the current guidelines on acceptable levels of contamination in soil and groundwater in unrestricted areas, namely activity of water in the amount of 100 pCi/l (picocuries per liter) and 200 pCi/l for Co-60 and Cs-137, respectively and activity in the amount of 8 pCi/g (picocuries per gram) and 15 pCi/g of Co-60 and Cs-137, respectively. See Table 8 for a comprehensive list of acceptable levels for other radionuclides. These samples were also split with personnel from the Commonwealth of Massachusetts.

#### 8. NRC Independent Measurements of Dimmock Pond

On September 29 and October 1, 1996, the inspector took samples of water and sediment from Dimmock Pond. These samples were analyzed by the NRC Region I laboratory using a Princeton Gamma-Tech high purity intrinsic germanium detector for gamma spectroscopy analysis. The results of these samples are given in sample numbers 1-8 and 9 in Table 3. The results show levels of radioactivity well below the current guidelines on acceptable levels of contamination in soil and groundwater in unrestricted areas. See Table 8 for a comprehensive list of acceptable levels for radionuclides. These samples were also split with personnel from the Commonwealth of Massachusetts.

#### 9. Comprehensive Sampling at Dimmock Pond

In a letter dated October 4, 1996, the licensee submitted a sampling plan for surface water and sediment samples at Dimmock Pond that was developed by their contractor. This plan was reviewed by the NRC and found acceptable. On October 7-9, 1996, Dimmock Pond was sampled at 21 locations, some of which were taken from the area contained by the dam and others which were taken in the larger part of the pond. One

background sample was taken at Long Pond. These samples were split between the licensee, the NRC, the Commonwealth of Massachusetts, and the City of Springfield. The results of the NRC analysis of the samples are given in Tables 4 through 7. The results show levels of radioactivity well below the current guidelines on acceptable levels of contamination in soil and groundwater in unrestricted areas. See Table 8 for a comprehensive list of acceptable levels for radionuclides.

#### 10. Summary of Results

No safety concerns were identified as a result of the independent measurements taken by the inspectors.

Based on the independent measurements taken by the NRC, the inspectors determined that the licensee was in compliance with NRC regulations in 10 CFR 20 which limits the radiation exposure to members of the public to 100 millirem per year.

#### NRC INDEPENDENT MEASUREMENTS Results of Wipe Tests September 30, and October 8, 1996 Taken at Unifirst

| Number | Location                         | Gross Alpha<br>dpm/100 cm² | Gross Beta<br>dpm/100<br>cm² |
|--------|----------------------------------|----------------------------|------------------------------|
| 1      | Floor of Industrial Laundry      | -0.9 <u>+</u> 0.9          | 6.0 <u>+</u> 3.0             |
| 2      | Floor of Industrial Laundry      | -0.5 <u>+</u> 1.0          | 2.0 <u>+</u> 2.0             |
| 3      | Floor of Industrial Laundry      | 3.0 <u>+</u> 2.0           | -1.0 <u>+</u> 2.0            |
| 4      | Floor of Industrial Laundry      | -0.9 <u>+</u> 0.9          | 5.0 <u>+</u> 3.0             |
| 5      | Floor of Old Boiler Room         | 0.0+1.2                    | 2.0 <u>+</u> 3.0             |
| 6      | Plywood in Old Boiler Room       | 0.0 <u>+</u> 1.2           | -2.0+2.0                     |
| 7      | Wall of Old Boiler Room          | -0.5 <u>+</u> 1.0          | -1.0 <u>+</u> 2.0            |
| 8      | Floor of Office Area             | -0.5 <u>+</u> 1.0          | 4.0 <u>+</u> 3.0             |
| 9      | Floor of Bathroom in Office Area | 0.9 <u>+</u> 1.3           | 0.0 <u>+</u> 2.0             |
| 10     | Floor of Lobby                   | 0.0 <u>+</u> 1.2           | 2.0 <u>+</u> 2.0             |
| 27     | Swayco Filter                    | 0.0 <u>+</u> 1.0           | -4.0 <u>+</u> 2.0            |
| 28     | Swayco Filter                    | -0.5 <u>+</u> 1.0          | 0.0 <u>+</u> 3.0             |
| 29     | Swayco Filter                    | 1.0+1.0                    | -4.0 <u>+</u> 2.0            |
| 30     | Swayco Filter                    | -0.5 <u>+</u> 1.0          | -4.0 <u>+</u> 2.0            |
| 31     | Swayco Filter                    | -0.5 <u>+</u> 1.0          | -5.0 <u>+</u> 2.0            |
| 32     | Swayco Filter                    | 0.5+1.0                    | -0.4+3.0                     |

Note: Random uncertainties reported are 1 standard deviation. Small negative and other results less than or equal to 2 standard deviations are interpreted as including "zero" or as not detected.

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|---|---|--|---------------------------------------|
| Number  | Location  | Gross Alpha<br>dpm/100 cm <sup>2</sup> | Gross Beta<br>dpm/100 cm <sup>2</sup> |
| 11  | Floor of Office Area  | -0.9 <u>+</u> 0.9                      | -3.0 <u>+</u> 2.0                     |
| 12  | Floor of Office Area  | 0.5+1.2                                | 0.0+2.0                               |
| 13  | Floor of Production Area<br>(Potentially Contaminated Area)   | -0 9 <u>+</u> 0.9                      | 2.0 <u>+</u> 2.0                      |
| 14  | Floor of Production Area<br>(Potentially Contaminated Area)   | 0.9 <u>+</u> 1.3                       | 13.0 <u>+</u> 3.0                     |
| 15  | Floor of Production Area Near<br>Washers<br>(Contaminated Area)   | -0.5 <u>+</u> 1.0                      | 37.0 <u>+</u> 4.0                     |
| 16  | Floor of Production Area Near<br>Washers<br>(Contaminated Area)   | 0.0 <u>+</u> 1.2                       | 29.0 <u>+</u> 4.0                     |
| 17  | Floor of Production Area Near<br>Washers<br>(Contaminated Area)   | 0.0 <u>+</u> 1.2                       | 17.0 <u>+</u> 4.0                     |
| 18  | Wall of Old Boiler Room   | 3.0+2.0                                | 7.0+3.0                               |
| 19  | Floor of Production Area<br>(Potentially Contaminated Area)   | 0.5 <u>+</u> 1.2                       | 1 0 <u>+</u> 2.0                      |
| 20  | Health Physics Laboratory   | -0.9 <u>+</u> 0.9                      | 1.0+2.0                               |
| 21  | Loading Dock  | -1.4 <u>+</u> 0.8                      | 7.0 <u>+</u> 3.0                      |
| 22  | Loading Dock  | 0.5+1.2                                | 4.0+3.0                               |
| 23  | Loading Dock  | 1.4+1.4                                | 1.0+2.0                               |
| 24  | Loading Dock  | -0.5 <u>+</u> 1.0                      | -1.0+2.0                              |
| 25  | Ramp of Loading Dock  | 0.9 <u>+</u> 1.3                       | 3.0 <u>+</u> 3.0                      |
| 26  | Floor of Production Area Adjacent to<br>Loading Dock  | 0.0 <u>+</u> 1.2                       | 5.0 <u>+</u> 3.0                      |

#### NRC INDEPENDENT MEASUREMENTS Results of October 1, 1996 Wipe Tests Taken at INS

Note: Random uncertainties reported are 1 standard deviation. Small negative and other results less than or equal to 2 standard deviations are interpreted as including "zero" or as not detected.

#### NRC INDEPENDENT MEASUREMENTS Results of September 30 and October 1, 1996 Samples Taken at INS and Dimmock Pond

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| Sample<br>Number | Sample<br>Type | Mn-54<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) | Co-58<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) | Co-60<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) | Zn-65<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) | Cs-134<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) | Cs-137<br>pCi/l<br>(water)<br>or<br>pCi/g<br>(soil) |
|------------------|----------------|--|--|--|--|---|---|
| 1                | Water          | 4±3  | <11  | < 12   | < 25   | < 14  | <13   |
| 2                | Water          | <16  | < 14   | <15  | < 32   | < 18  | <15   |
| 3                | Water          | <16  | < 14   | <15  | < 32   | < 18  | < 15  |
| 4                | Water          | <11  | <11  | <12  | < 25   | < 14  | <13   |
| 5                | Soil           | < 0.011  | < 0.011  | 0.008±4  | < 0.028  | < 0.014   | 0.053±6   |
| 6                | Soil           | < 0.01   | < 0.009  | < 0.011  | < 0.024  | < 0.012   | 0.11±4  |
| 7                | Soil           | < 0.016  | < 0.016  | < 0.017  | < 0.038  | < 0.021   | $2.5\pm20$  |
| 8                | Soil           | 0.001±3  | < 0.01   | < 0.013  | < 0.028  | < 0.014   | 0.523±5   |
| 9                | Soil           | $0.008 \pm 4$                                      | < 0.012  | $0.078 \pm 7$                                      | < 0.028  | < 0.015   | 0.109±5   |
| 10               | Water          | 69±9   | 34±7   | 244±15   | < 34   | 26±8  | 176±11  |
| 11               | Water          | <16  | <14  | <15  | < 32   | <18   | 11±7  |
| 12               | Water          | <16  | <14  | <15  | < 32   | < 18  | <15   |

#### NRC INDEPENDENT MEASUREMENTS Results of October 7-9, 1996 Samples Taken from Dimmock and Long Ponds

| Sample<br>Number | Co-60             | Cs-137      | Cs-134 | Co-58  | Mn-54         | Zn-65  |
|------------------|-------------------|-------------|--------|--------|---------------|--------|
| DP-1             | < 0.02            | 1.12±0.02   | < 0.03 | < 0.03 | 0.005±0.007   | < 0.06 |
| DP-2             | 0.11±0.02         | 3.89±0.04   | < 0.04 | < 0.03 | 0.003±0.010   | < 0.07 |
| DP-3             | 0.05±0.02         | 3.24±0.04   | < 0.05 | < 0.05 | < 0.04        | < 0.07 |
| DP-4             | 0.07±0.02         | 3.48±0.04   | < 0.04 | < 0.04 | < 0.04        | < 0.07 |
| DP-5             | 0.055±0.010       | 1.94±0.02   | < 0.03 | < 0.03 | < 0.03        | < 0.05 |
| DP-6             | 0.050±0.013       | 2.16±0.03   | < 0.03 | < 0.03 | 0.010±0.008   | < 0.06 |
| DP-7             | 0.113±0.015       | 2.98±0.03   | < 0.04 | < 0.04 | < 0.03        | < 0.07 |
| DP-8             | 0.132±0.015       | 5.01±0.04   | < 0.04 | < 0.03 | 0.001±0.012   | < 0.06 |
| DP-9             | 0.11±0.02         | 3.30±0.04   | < 0.04 | < 0.03 | 0.002±0.009   | < 0.07 |
| C-1              | 0.020±0.005       | 0.142±0.006 | NC     | NC     | 0.001±0.004   | NC     |
| C-2              | < 0.02            | 0.116±0.006 | < 0.03 | < 0.02 | < 0.04        | < 0.04 |
| C-3              | 0.017±0.005       | 0.205±0.008 | < 0.02 | < 0.02 | 0.001 ± 0.005 | < 0.04 |
| C-4              | 0.103±0.010       | 0.569±0.012 | < 0.03 | < 0.02 | 0.002±0.007   | < 0.04 |
| C-5              | < 0.02            | 0.179±0.009 | < 0.03 | < 0.02 | < 0.04        | < 0.04 |
| C-7              | $0.053 \pm 0.008$ | 0.277±0.009 | < 0.02 | < 0.02 | 0±0.009       | < 0.04 |

Results (pCi/g)(dry wt.)

#### NRC INDEPENDENT MEASUREMENTS Results of October 7-9, 1996 Samples Taken from Dimmock and Long Ponds

| Sa:nple<br>Number | Co-60 | Cs-137 | Cs-134 | Co-58 | Mn-54 | Zn-65 |
|-------------------|-------|--------|--------|-------|-------|-------|
| DP-1              | < 20  | < 20   | < 20   | < 20  | < 20  | <40   |
| DP-2              | < 20  | < 20   | < 20   | < 20  | < 20  | <40   |
| DP-3              | < 20  | < 20   | < 20   | < 20  | < 20  | < 30  |
| DP-4              | <10   | < 20   | < 20   | < 20  | < 20  | < 20  |
| DP-5              | < 20  | < 20   | < 30   | < 20  | < 10  | < 20  |
| DP-6              | <20   | < 20   | < 20   | < 20  | < 20  | < 30  |
| DP-7              | < 10  | < 20   | <20    | < 20  | < 20  | < 30  |
| DP-8              | < 20  | < 20   | < 20   | < 20  | < 20  | < 20  |
| DP-9              | < 10  | <20    | < 20   | < 20  | < 20  | < 40  |
| C-1               | < 20  | < 20   | < 20   | <20   | < 20  | < 30  |
| C-2               | < 20  | < 20   | < 20   | < 20  | < 20  | < 30  |
| C-3               | < 20  | < 20   | < 20   | < 20  | <20   | < 30  |
| C-4               | <20   | < 20   | < 10   | < 20  | < 10  | < 30  |
| C-5               | < 20  | < 20   | < 20   | 4±3   | < 20  | <40   |
| C-7               | <20   | < 20   | < 20   | < 20  | <20   | < 30  |

Water Results (pCi/l)

#### NRC INDEPENDENT MEASUREMENTS Results of October 7-9, 1996 Samples Taken from Dimmock and Long Ponds

| Sample No. | Mn-54             | Co-58       | Co-60       | Zn-65       | Cs-134 | Cs-137      |
|------------|-------------------|-------------|-------------|-------------|--------|-------------|
| DP-1A      | 0.014±0.010       | < 0.05      | < 0.04      | < 0.08      | < 0.04 | 3.29±0.04   |
| DP-2A      | 0.008±0.016       | < 0.06      | < 0.04      | < 0.09      | < 0.05 | 0.80±0.03   |
| DP-3A      | < 0.04            | < 0.05      | 0.093±0.015 | < 0.08      | < 0.04 | 5.12±0.05   |
| DP-10      | 0.004±0.006       | < 0.02      | < 0.02      | < 0.04      | < 0.02 | 0.166±0.006 |
| DP-11      | $0.004 \pm 0.004$ | < 0.03      | 0.012±0.006 | < 0.04      | < 0.03 | 0.269±0.008 |
| C-6        | NC                | < 0.02      | 0.026±0.008 | 0.016±0.008 | < 0.02 | 0.348±0.008 |
| LP-1       | 0.002 ± 0.004     | 0.006±0.004 | < 0.01      | < 0.03      | < 0.02 | 0.036±0.003 |

Soil Results (pCi/g)(dry wt.)

NOTE: DP denotes samples taken in Dimmock Pond outside of the dam. C denotes the samples taken within the area contained by the dam. LP denotes samples taken in Long Pond.

NOTE: reported uncertainties are  $\pm$  one standard deviation. Systematic uncertainties are estimated at  $\pm$  15%. Less than values are a posteriori values reported at one significant figure. NC indicates that a result was not calculated.

#### NRC INDEPENDENT MEASUREMENTS Results of October 7-9, 1996 Samples Taken from Dimmock and Long Ponds

| Sample No. | Mn-54 | Co-58 | Co-60 | Zn-65 | Cs-134 | Cs-137 |
|------------|-------|-------|-------|-------|--------|--------|
| DP-1A      | < 20  | < 20  | < 20  | < 30  | < 20   | < 20   |
| DP-2A      | < 20  | < 30  | < 20  | < 40  | < 20   | < 20   |
| DP-3A      | < 20  | < 20  | < 20  | < 30  | < 20   | 8±6    |
| DP-10      | < 20  | < 30  | < 20  | < 50  | < 30   | < 20   |
| DP-11      | < 20  | < 20  | < 20  | < 30  | < 20   | < 20   |
| C-6        | < 20  | < 20  | < 20  | < 30  | < 20   | < 20   |
| LP-1       | < 20  | < 20  | < 20  | <40   | < 20   | < 20   |

#### Water Results (pCi/l)

NOTE: DP denotes samples taken in Dimmock Pond outside of the dam. C denotes those samples taken within the area contained by the dam. LP denotes samples taken in Long Pond.

NOTE: reported uncertainties are  $\pm$  one standard deviation. Systematic uncertainties are estimated at  $\pm$  7%. Less than values are a posteriori values reported at one significant figure.

- 16 -

# SUMMARY OF CRITERIA FOR DECOMMISSIONING / FREE RELEASE

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POn a case-by-case basis, the Staff has developed or provided such criteria

of radioscribe contamination. These criteria are listed below. MAXIMUM SOIL.

| H-3       | ** | pCVQ  |
|-----------|----|-------|
| Co-60     | 8  | pCVg  |
| Sr.90     | 5  | pCVg  |
| Cs-137    | 15 | pCVg  |
| Pu-238239 | 25 | pCVg  |
| Am-241    | 30 | pCVg  |
| Ra-226    | s  | pCivg |
| Ha-228    | \$ | pCVg  |

MAXIMUM GROUNDWATER

| H-3                           | 20000 | pCM *** |  |
|-------------------------------|-------|---------|--|
| Co-60                         | 100   | pCiv    |  |
| Sr-90                         | 8     | pCiv    |  |
| Cs-137                        | 200   | pCM     |  |
| Gross alpha, including Ra-226 | 15    | pCM     |  |
| Ra-226 -228                   | s     | pCiv    |  |

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If only one radionuclide is present, then the max concentration is the value listed in the lable. However, if more than one adionucide is present, determine for each radionucide the ratio between the measured concentration (eg. in site soil or proundwater) and the concentration listed in the appropriate table above for the specific radionuclide when not in

ombination. The sum of such ratios may not exceed one (is. unity).

waste has been disposed of, and a decision ,must be made about release of the site for unrestricted use, the Licensees should mixing water. In this case, the appropriate criterion is 20,000 picocuries per liter. When H-3 use has ceased, the bulk of H-3 There is no limit for thitum in soil. The critical pathway is the leaching of H-3 in soil into the groundwater, which is used for

estimate the total amount of H-3 remaining on the site. ... USEPA, Office of Water Supply, "National Interim Primery Drinking Water Regs," EPA-570/9-76-003(1976).

NOTE: TEIS FORY AUST BE COMPLETED FOR ALL AMENDMENT/RENEWAL ACTIONS

CHECKLIST FOR DETERMINING WHEN A SIGNIFICANT LICENSING ACTION MAY REQUIRE AN ADDITIONAL ONSITE INSPECTION

If licensing action has resulted in one of the following, regional management must determine the need for performing an onsite inspection prior to the next scheduled inspection:

 Does the licensing action result in increased authorization for types and quantities of radioactive material that could result in a significant potential for increased radiation exposure to the public and occupational workers?

(x) No

4.

) Yes (Describe)

NOTE: This can be identified by a change to a higher priority, i.e., from a Priority 2 to a Priority 1 license. Another significant change in this area would be an increase in the authorized quantity from a millicurie amount to a curie amount.

 Does the licensing action authorize a physical move of a facility or authorize use at a temporary job site(s)?

( × No ( ) Yes (Describe)

3. Does the licensing action authorize satellite facilities where material will be used or stored?

() No () Yes (Describe)

Does the licensing action increase the types of uses or disposal (incineration ) of radicactive materials?

( X) No ( ) Yes (Describe)

5. Does the licensing action significantly increase the number of authorised users?

(X) No ( ) Yes (Describe)

> 123153 Enclosure 1 Rev 03/96

20-03529-01



#### UNITED STATES NUCLEAR REGULATORY COMMISSION WASHINGTON. D.C. 20555-0001

MAY 7 1993

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Dockat No. 030-04632 (10 CFR § 2.206)

Gloria M. Mitchell, President Linda Hammons, Vice President Indian Orchard Citizens Council 117 Main Street Indian Orchard, Massachusetts 01151

Dear Mesdames Mitchell and Hammons:

This letter is in response to your Petition, dated June 29, 1992, on behalf of the Indian Orchard Citizens Council (IOCC). The Petition requested that the U.S. Nuclear Regulatory Commission take action with respect to Interstate Nuclear Service Corporation (INS or Licensee) on ten matters or requests and four demands concerning the Licensee's activities.

Your request was referred to the staff for consideration pursuant to 10 CFR § 2.206 of the "ommission's regulations. For the reasons stated in the enclosed "Director's facision Under 10 CFR § 2.206," the Petition has been granted in part and devied in part. Eight of your requests were granted insofar as NRC staff: participated in a public meeting in the evening of July 23, 1992, at a local American Legion hall and responded to the concerns of the neighborhood residents; conducted an unannounced inspection of INS on July 8 and 9, 1992; provided IOCC with copies of pertinent portions of NRC's regulations; checked adjoining Park Department land, including Dimmock Pond, for contamination; reviewed INS's waste storage program; provided IOCC a description of INS's radiation monitoring program; identified the location of the Public Document Room (PDR) for the INS license; and provided the docket number for the INS license. The Petition is denied with respect to IOCC's requests to check homes in the area for radioactive contamination and to check Loon Pond for contamination and possible illegal dumping of waste material. Finally, the Petition is denied with respect to three of the demands; and one demand, to stop the Licensee from using residential streets, was mooted by the voluntary action of the Licensee.

A copy of the Decision will be filed with the Secretary of the Commission for its review in accordance with 10 CFR § 2.206 of the Commission's regulations. As provided by this regulation, the Decision will constitute the final action

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Mesdames Mitchell and Hammons - 2 -

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of the Commission 25 days after the date of issuance of the Decision unless the Commission, on its own motion, institutes a review of the Decision within that time.

A copy of the Notice, which is being filed with the Office of the Federal Register for publication, is enclosed.

Sincerely,

Robert M. Bernero, Director Office of Nuclear Material Safety and Safeguards

Enclosures: 1. Director's Decision 2. <u>Federal Register</u> Notice

cc: Interstate Nuclear Services ATTN: Mr. George J. Bakevich General Manager 295 Parker Street Indian Orchard, MA 01151

"DD-93-09

## UNITED STATES OF AMERICA '93 MAY -7 P3:54 NUCLEAR REGULATORY COMMISSION

#### OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS Robert M. Bernero, Director

In the Matter of ) ) INTERSTATE NUCLEAR SERVICE CORPORATION ) Docket No. 030-04632 (Indian Orchard, Massachusetts) ) (10 C.F.R. § 2.206)

#### DIRECTOR'S DECISION UNDER 10 C.F.R. § 2.206

#### I. INTRODUCTION

By letter dated June 29, 1992, addressed to the Chairman of the Nuclear Regulatory Commission (NRC or the Commission), Gloria M. Mitchell and Linda Hammons, on behalf of the Indian Orchard Citizens Council (IOCC), requested that NRC take action with respect to Interstate Nuclear Service Corporation (INS or the Licensee) in Indian Orchard, Massachusetts. The IOCC requested an NRC response or action on ten matters or requests and made four "demands" concerning the Licensee's activities.

Petitioners request that the NRC: (1) participate in a public hearing in Indian Orchard to respond to the concerns of neighborhood residents; (2) hold a surprise inspection of INS; (3) check homes in the area for radioactive contamination; (4) provide to the Petitioners a copy of the NRC regulations under which INS operates; (5) check adjoining Park Department land, including Dimmock Pond, for contamination and illegal dumping of waste

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material; (6) check Loon Pond for contamination and for possible illegal
dumping of waste material; (7) determine what INS has done with waste material
not shipped; (8) provide to the Petitioners the docket number for INS;
(9) identify a Public Document Room (PDR) for INS and its location; and
(10) describe the type of monitoring done, who does it, and how frequently.

Petitioners further "demand" on behalf of neighborhood residents that: (1) radiation readings outside the INS fence perimeters be "O" at all times; (2) "O" nuclear waste byproducts be allowed to enter Springfield's water/sewer system; (3) INS stop using residential streets, specifically Nagle and Nichols Streets, to go to and from its plant; and (4) under no circumstances should INS be allowed to store nuclear waste on its property.

Petitioners assert as bases for their requests and demands that the residents of the Indian Orchard neighborhood of Springfield, Massachusetts, live in close proximity to INS and have expressed great concern over possible health issues, especially since publication of an article in the Springfield <u>Sunday Republican</u> on June 7, 1992. The article reported that: (1) radiation readings outside the INS perimeter fence, near a waste-filled truck, were 12 to 15 times normal background radiation levels experienced in everyday life; (2) all INS waste will be stored onsite beginning January 1, 1993; (3) in 1989 INS waste stored was twice the volume shipped; (4) the corporate health physics manager of INS, Michael Bovino, stated that waste is removed twice a year but NRC records indicate it is removed only once a year and not at all in 1990; (5) a person standing at the INS fence for two days in early May would have received a higher radiation dose than a person standing at

Vermont Yankee's fence for a year because of tighter regulations for nuclear power plants; and (6) there have been allegations that INS discharges radioactive water into the City sewer system.

The NRC Staff provided a partial response to IOCC by letter dated July 21, 1992. By letter dated August 25, 1992, the NRC Staff formally acknowledged receipt of the Petition and informed Petitioners that their Petition would be treated as a request under 10 CFR § 2.206 and a decision would be issued within a reasonable amount of time. By letter dated August 25, 1992, the Staff also informed INS of the Petition and invited INS to provide information for the Staff's consideration. INS responded to the Petition on August 31, 1992.

I have completed my evaluation of the matters raised by Petitioners and have determined that, for the reasons stated below, the Petition shall be granted in part and denied in part. The Petition is granted insofar as the NRC Staff: participated in a public meeting on the evening of July 23, 1992, at the American Legion Post, Number 277, in Indian Orchard and responded to the concerns of the neighborhood residents; conducted an unannounced inspection of INS on July 8 and 9, 1992; provided IOCC with copies of pertinent portions of NRC's regulations; checked adjoining Park Department land, including Dimmock Pond, for contamination; reviewed INS's waste stored program; provided IOCC a description of INS's radiation monitoring program; identified the location of the Public Document Room (PDR) for the INS license; and provided the docket number for the INS license. The Petition is denied

with respect to the remaining requests to check homes in the area for radioactive contamination, and to check Loon Pond for contamination and possible illegal dumping of waste material. The Petition is also denied with respect to three of IOCC's demands. The fourth demand was mooted by the licensee's voluntary actions.

#### II. BACKGROUND

INS is a subsidiary of UniFirst Corporation whose headquarters are located in Springfield, Massachusetts. INS operates 13 facilities, each of which is separately licensed by the NRC or an Agreement State. An Agreement State is one with which the NRC, or previously the Atomic Energy Commission, has entered into an agreement under Subsection 274b of the Atomic Energy Act of 1954, as amended, for the State to assume the regulatory authority and responsibility that would otherwise be discharged by the NRC with respect to protection of public health and safety associated with the possession and use of certain categories of radioactive materials. The Commonwealth of Massachusetts is not an Agreement State and, therefore, the regulatory authority over the facility that is the subject of this Petition resides with the NRC.

One of INS's 13 facilities is located in Indian Orchard, a community of Springfield, Massachusetts. INS at Indian Orchard holds NRC License No. 20-03529-01 and is authorized to possess various byproduct, source, and special nuclear materials in the form of contaminated material and associated

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decontaminated waste for the collection, laundering, and decontamination of contaminated clothing and other launderable non-apparel items. More specifically, INS is authorized to possess the following maximum amounts of NRC-licensed materials: 0.93 terabecquerels (2.5 curies) of any byproduct material with atomic numbers 1-83; 370 megabecquerels (10 millicuries) of any byproduct material with atomic numbers 84-102; 10 kilograms of any source material; and special nuclear material with a total quantity not to exceed .25 kilogram of uranium enriched in uranium-235 or .020 kilogram of plutonium. INS is also authorized to possess any byproduct material in individual sources not exceeding 37 megabecquerels (1 millicurie) per source or 185 megabecquerels (5 millicuries) total activity for use as standards to calibrate radiation detection and measuring instruments. The license also authorizes the transport of licensed materials in accordance with 10 CFR Part 71 of the Commission's regulations.

Use of licensed material is limited to the INS facility at 295 Parker Street, Indian Orchard, Massachusetts. INS is not authorized to launder contaminated items at temporary jobsites nor at a customer's facility, except as specifically authorized by the customer's license. INS is also not authorized to package or possess radioactive waste, except those generated by the laundering activities conducted at its Indian Orchard facili...

License No. 20-03529-01 was originally issued on April 15, 1958, was last renewed on May 26, 1988, and is due to expire on May 31, 1993.

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#### III. DISCUSSION

A. The NRC staff has examined Petitioners' concerns based on the article in the June 7, 1992, issue of the Springfield <u>Sunday Republican</u>. The staff's evaluation of each of the six concerns in the article and referenced by Petitioners is discussed below:

(1) <u>Radiation readings outside the INS perimeter fence, near a waste-</u> <u>filled truck, were 12 to 15 times normal background radiation levels</u> <u>experienced in everyday life</u>

Current NRC regulations require NRC licensees to demonstrate that radiation levels outside of the licensee's controlled area (e.g., INS's fenceline) shall not be greater than 20 microsieverts (2 millirems) in any one hour or 1 millisievert (100 millirems) in any seven consecutive days. 10 CFR § 20.105(b). Average radiation exposure to a member of the general public from external radiation is approximately 1 millisievert (100 millirems) in one year. A radiation level 10-15 times background at the INS fence (or approximately 2 microsieverts (0.2 millirem) per hour) from a truck temporarily parked at INS for as long as a week and used to pick up radioactive waste would meet the current NRC hourly and weekly standards.

Beginning in January 1994, 10 CFR § 20.105(b) will be superseded by new requirements under 10 CFR § 20.1301(a). 56 FRN 23360 (May 21, 1991). Under the new requirements, NRC licensees must demonstrate that no individual member of the public would be exposed to more than 1 millisievert (100 millirems) of

radiation above background from the licensee's activities in one year. The measurement of conformance to the new NRC requirements must take into consideration changes in the radiation levels and the <u>occupancy time</u> of the maximally exposed individual member(s) of the public for the year. For instance, in order for INS to exceed the new standard due to radiation from its waste-pickup truck, INS would have to make three radioactive waste shipments per year and the same individual members of the public would have to stand continuously at the fenceline throughout these periods. NRC inspectors have confirmed that during the period 1989-1992, INS made no more than 2 radioactive waste shipments per year. Accordingly, the transient radiation level of 10-15 times background, or 2 microsieverts (0.2 millirem) per hour, for as long as a week, would comply not only with current requirements, but also with the more restrictive new NRC requirements.

INS's current environmental measurements of radiation involve weekly radiation surveys, the results of which have been within NRC limits. For transient radiation levels such as created by temporary parking of INS's waste-pickup truck, it normally would be difficult to estimate precisely the yearly radiation exposure at the fonceline based on measurements made once a week, if not for the additional surveys required by the U.S. Department of Transportation (DOT). 10 CFR § 173.441(b). Prior to shipping its radioactive waste offsite, INS is required by the DOT to perform radiation measurements at the driver's compartment, at all sides, top, and bottom of the vehicle, and at two meters away from all lateral surfaces of the vehicle. The results of these surveys are all within DOT limits.

Even though not obligated by current NRC requirements to do so, the Licensee deployed thermoluminescent dosimeters (TLDs) in 1992 along the fence of its property to measure environmental radiation levels. The use of TLDs will improve the measurement of the annual radiation exposure at the fenceline because the devices will be continuously present, and should more defini:ively demonstrate whether INS has complied with NRC requirements. INS's TLD measurements for the last 6 months of 1992 are in compliance with NRC requirements. Based on the above, I conclude that Petitioners have not raised a substantial health or safety concern.

# (2) All INS waste will be stored on site beginning January 1, 1993

The Low Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA) requires States to develop disposal capacity for their low-level radioactive waste (LLW) by January 1, 1993. States have several options: they may develop their own disposal facility; they may join with other States in Compacts which will then develop disposal capacity for the member States; or they may contract for disposal with States or Compacts which have a disposal facility. Currently, Massachusetts does not have a disposal facility, and is not a member of any Compact. However, under an agreement between Massachusetts and the Southeast Low Level Radioactive Waste Compact Commission (SLLRWCC), Massachusetts waste generators will be able to use the Barnwell, South Carolina waste disposal site until July 1994. INS intends to ship its waste to Barnwell until July 1994, at the same frequency as in the past. See Section III. A. (4), below.

A number of other States are in the same situation as Massachusetts, i.e., they neither have a disposal site, nor belong to a Compact which has access to a disposal site. Beginning in July 1994, when Barnwell is scheduled to close its doors to States which do not belong to the SLLRWCC, the NRC recognizes that waste generators in these States may have no other choice but to store their LLW. Indeed, a few states (Michigan, Maine, New Hampshire, Rhode Island, and the District of Columbia) have no disposal option at this time. Although the NRC encourages permanent disposal of LLW, and views storage as an option of last resort, the NRC understands that onsite interim storage may be necessary in certain cases. Many waste generators also store LLW for short periods to permit decay of very short-lived radionuclides, or to accumulate enough to ship efficiently. In order that both short term and long term storage may be accomplished safely, the NRC has developed regulations and guidance for LLW storage. Current requirements for LLW storage appear in 10 CFR Parts 20, 30, 40, 50, and 70. Various guidance documents have also been published, for example, Information Notice (IN) 90-09, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees" and IN 89-13, "Alternative Waste Management Procedures in Case of Denial of Access to Low-Level Waste Disposal Sites." Finally, in addition to the storage requirements and guidance that NRC provides, NRC fuel cycle and materials licensees, including INS, are subject to regular inspections and to license reviews to assess safety, and determine that licenses meet applicable requirements, including those related to waste storage.

In 1992, INS completed a new onsite storage facility for radioactive waste. It is located underground, adjacent to the health physics laboratory.

and accessible only from inside the building. The new storage facility replaces the storage of waste in trailers in the parking lot next to one of the licensee's buildings. The storage area is constructed of concrete and steel and includes a fire suppression system, a liner/collection system around the exterior walls and floors to direct any potential releases to a sump for collection and subsequent sampling, and an air sampling system. Waste that is placed in this facility is already packaged for shipment. The facility is monitored on a daily basis for airborne contamination, removable contamination, and radiation levels. The NRC staff concludes that the use of INS's new radioactive waste storage facility will increase the protection of the public health and safety because INS will be better able to monitor radiation emissions from the waste and, if necessary, contain radioactive releases. In July 1994, INS may have to hold its radioactive waste onsite when Barnwell is scheduled to cease accepting out-of-compact waste. The new radioactive waste storage facility at INS has sufficient capacity to hold approximately 5 years of waste.

At this time, the NRC staff concludes that there is no health or safety problem related to the January 1, 1993 deadline date published in the Springfield <u>Sunday Republican</u>. Based on the above, I conclude that Petitioners have not raised a substantial health or safety concern.

### (3) In 1989 INS waste stored was twice the volume shipped

As requested by Petitioners, NRC inspectors conducted an unannounced inspection on July 8 and 9, 1992. A review of INS's radioactive shipping manifests showed that during the four years from 1989 to 1992, INS shipped a total volume of 6,455.7 cubic feet of radioactive waste for final disposal at a commercial low-level radioactive waste disposal site. This averages to approximately 1,613.9 cubic feet of waste generated per year by INS during this period. Due to the limited shipping capacity of the waste shipment truck, INS needs to make 1 1/2 waste shipments per year in order to dispose of the yearly amount of waste it generates. To maximize the use of its waste shipment truck, INS has been making two shipments every other year, and one shipment in the alternate years. Under this shipping schedule, no radioactive waste generated at INS is held for onsite storage for more than two years. For the year 1989, NRC inspectors noted INS shipped a total volume of 2,125.3 cubic feet of radioactive waste, which is more than the amount of waste generated for that year but not twice as much. INS has not exceeded the two year limit for onsite radioactive waste storage in the INS license. Accordingly, I conclude that Petitioners have not raised a substantial health or safety concern.

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# (4) <u>INS stated that waste is removed twice a year but NRC records</u> indicate it is removed only once a year and not at all in 1990

As discussed above, NRC inspectors noted in their inspection report that INS made two shipments in 1989, one shipment in 1990, two shipments in 1991.

and one shipment to the time of the inspection in 1992. On the average, INS needed to make approximately 1 1/2 shipments per year, resulting in two shipments every other year. Accordingly, I conclude that Petitioners have not raised a substantial health or safety concern.

(5) <u>A person standing at the INS fence for two days in early May would</u> <u>have received a higher radiation dose than a person standing at Vermont</u> <u>Yankee's fence for a year because of tighter regulations for nuclear</u> <u>power plants</u>

It appears that the Springfield <u>Sunday Republican</u> article concerns the direct radiation levels at the INS fence due to the presence of the INS waste pickup truck compared to the annual air dose at Vermont Yankee's fence due to its gaseous effluents.

Petitioners are correct that NRC's exposure limits for individual members of the general public near materials facilities such as INS are different from those for individual members of the general public near nuclear power reactors. NRC materials licensees must comply, beginning in January 1, 1994, with the 1 millisievert (100 millirems) per year NRC limit to the maximally exposed member of the general public. 10 CFR § 20.1301. In addition, materials licensees, such as INS, must comply with the ALARA requirement which states, "The licensee shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are as low as is reasonable achievable (ALARA)." 10 CFR § 20.1101 (b).

Nuclear power reactors are required to comply with requirements in 10 CFR Part 20 as well as with technical specification requirements to meet the criteria in 10 CFR Part 50, Appendix I. Nuclear power reactors and fuel cycle facilities are also required to meet the Environmental Protection Agency's (EPA) Uranium Fuel Cycle Standard of .25 millisievert (25 millirems) per year. See 40 CFR Part 190. The annual limit of .25 millisievert (25 millirems) for a maximally exposed individual was derived by EPA based on ALARA considerations. For gaseous effluents, the NRC Part 50, Appendix I, criteria mentioned in the newspaper article and recited by the Petitioners is .05 millisievert (5 millirems) per year to a maximally exposed member of the general public. Direct radiation exposure to a maximally exposed member of the general public at the fenceline is not specifically addressed in Appendix I. However, nuclear power reactors are required to meet the .25 millisievert (25 millirems) per year EPA limit that includes exposures from direct radiation exposure as well as from gaseous effluents. 10 CFR § 20.105 (c).

Although there are differences in the regulatory limits for nuclear power reactors and for materials facilities, the differences are based on whether ALARA has been incorporated into the limits for a certain category of licensees (i.e., nuclear power reactors and fuel cycle facilities), or must be considered in addition to the limits (i.e., materials facilities). These limits are all significantly below any observable health effects which could affect the public. NRC inspectors have found that the radiation levels at the INS fenceline are well within NRC limits. See Section III.A.(1), above. Moreover, INS has moved the location of its laundry and waste pickup trucks to reduce radiation levels at those fenceline locations described in the

Springfield <u>Sunday Republican</u> article, in keeping with ALARA. Accordingly, I have concluded that Petitioners have not raised a substantial health or safety concern.

# (6) <u>There have been allegations that INS discharges radioactive water</u> into the City sewer system

The Commission's regulations allow the discharge of liquids, containing very low levels of radioactive materials, into the sanitary sewer. 10 CFR § 20.303. Licensees are required to monitor and control any such discharges and to make available the documentation of such discharges for NRC inspection. 10 CFR § 20.401. Water used by INS for nuclear laundry purposes is first filtered to remove as much of the radioactive materials from the water as possible. This water then goes into holding tanks where the water is sampled for radioactivity levels and compared to NRC-authorized limits before release into the sanitary sewer. The July 8-9, 1992, unannounced NRC inspection of INS found no violation of NRC limits concerning releases to sanitary sewers. In addition, NRC inspectors took a water sample from INS's wastewater holding tank and, by independent measurements, found the radioactivity levels in the water to be within NRC limits. Accordingly, I conclude that Petitioners have not raised a substantial health or safety concern.

B. The NRC staff has evaluated Petitioners' ten requests for responses or actions by the NRC. That evaluation and my disposition of each of the ten requests are discussed below. Petitioners requested that the NRC: (1) <u>Participate in a public hearing in Indian Orchard to respond to the</u> concerns of neighborhood residents

In response to this request, representatives of NRC and the Commonwealth of Massachusetts attended a public meeting on the evening of July 23, 1992, at a local American Legion post. The meeting was attended by approximately 75 people and lasted about two and one-half hours. The meeting was moderated by Mrs. Linda Hammons of the IOCC. At this meeting, NRC staff discussed with the attendees the results of the NRC inspection on July 8-9, 1992, and answered all health and safety concerns directly with members of IOCC. Therefore, this request has, in effect, been granted.

#### (2) Hold a surprise inspection of INS

Although the NRC staff had conducted an unannounced inspection at INS in December 1991, the NRC staff conducted another unannounced inspection on July 8-9, 1992, to review recent events and to provide a current basis for the discussions scheduled at the July 23, 1992, public meeting. A representative from the Department of Public Health of the Commonwealth of Massachusetts accompanied the NRC inspectors on July 8, 1992. Copies of the NRC Inspection Report for the July 8-9, 1992, inspection were sent to IOCC before the July 23, 1992, meeting for discussion at that meeting. In addition, extra copies of the NRC Inspection Report were made available to all attendees at the beginning of the public meeting. This request has, therefore, been granted.

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# (3) Check homes in the area for radioactive contamination

NRC does not normally monitor private houses for radioactive contamination. Based on radiation surveys and soil sample measurements taken by NRC inspectors along the licensee's fenceline, and a review of INS survey records, the staff does not have any technical basis to conclude that local homes could have been contaminated due to loss of radiological control at INS. This information was made available, through the inspection report, to the IOCC. However, the Commonwealth of Massachusetts' personnel have taken radiation readings in the local area with several neighbors in attendance. No radiation levels above normal background were found. Petitioners have presented no substantial health or safety concern. Accordingly, this request is denied.

# (4) <u>Provide to the petitioners a copy of the NRC regulations under which</u> INS operates

By letter, dated July 21, 1992, Richard Cooper, II, Director of the Division of Radiation Safety and Safeguards, NRC Region I, provided copies of the NRC regulations under which INS operates to Gloria Mitchell, President of IOCC. This request has, therefore, been granted.

(5) <u>Check adjoining Park Department land, including Dimmock Pond, for</u> <u>contamination and illegal dumping of waste material</u>

During the July 8-9, 1992, inspection, NRC inspectors took direct

radiation readings around the Dimmock Pond area, including the unimproved road between the Pond and the Licensee's property and trails along the Parker Avenue side of the Pond. No readings above normal background were detected during these surveys. The inspectors also took two water samples from Dimmock Pond to check for radioactivity. In addition, the NRC inspectors obtained a sediment sample, consisting of a composite sample taken from Dimmock Pond near the Licensee's property. Finally, the Commonwealth of Massachusetts also took a water sample and a sediment sample from Dimmock Pond. Analyses of all these camples have identified no detectable radiation levels or radioactive materials above normal background. Based on the results of the above measurements, review of INS's radioactive waste storage and shipping records, and other inspection results, the staff has no information which could demonstrate that there has been illegal dumping of waste material by INS. The request to conduct surveys, therefore, has been granted.

(6) <u>Check Loon Pond for contamination and for possible illegal dumping</u> of waste material

During the July 8-9, 1992, inspection, NRC inspectors did not obtain any evidence which supported the allegation that there may have been illegal dumping of radioactive waste material in Loon Pond. Further, since no radioactive contamination was found in Dimmock Pond, which is adjacent to the INS property, the staff concluded that sampling Loon Pond, physically separated from the INS property by Parker Street and railroad tracks, and several hundred yards away, would be neither necessary nor reasonable. I conclude that Petitioners have presented no substantial health or safety

concern. Therefore, this request is denied.

# (7) Determine what INS has done with waste material not shipped

INS is required by its license to safely store its radioactive waste at NRC-authorized locations. Prior to May 1992, INS stored its radioactive waste inside trailers located next to one of its buildings. In May 1992, INS began using a newly constructed storage facility for radioactive waste. This onsite storage facility has been described earlier. <u>See</u>, Section III. A. (2), above. At this time, INS is using the new storage facility only for short-term storage of radioactive waste, in compliance with its license. INS's NRC license does not currently permit the storage of any radioactive waste at INS for more than two years. INS would have to submit an application for amendment of its license, as discussed in accordance with Information Notice 90-09, "Extended Interim Storage of Low-Level Radioactive Waste by Fuel Cycle and Materials Licensees," if INS wished to store its radioactive waste for a period longer than two years. The Petitioners' request, therefore, has been granted.

# (8) Provide to the petitioners the docket number for INS

By letter, dated August 25, 1992, Robert M. Bernero, Director, Office of Nuclear Material Safety and Safeguards, provided the docket number for the INS license to Gloria Mitchell and Linda Hammons of IOCC. This request, therefore, has been granted.

#### (9) Identify a Public Document Room (PDR) for INS and its location

By letter, dated July 21, 1992, Richard Cooper, II, Director, Division of Radiation Safety and Safeguards, NRC Region I, provided this information to Gloria Mitchell of IOCC. The location of the NRC Public Document Room for INS is at the NRC Region I office at 475 Allendale Road, King of Prussia, Pennsylvania, 19406. This request, therefore, has been granted.

#### (10) Describe the monitoring done, who does it, and how frequently

INS is required to perform radiation surveys as are necessary to comply with 10 CFR Part 20 and to evaluate the extent of radiation hazards that are or may be present. 10 CFR § 20.201(b). The licensee must also maintain records of these surveys. 10 CFR § 20.401. The particular types of radiation surveys that INS performs to satisfy NRC requirements were approved by the NRC during the licensing process and are described in the July 8-9, 1992, NRC inspection report, a copy of which was sent to Gloria Mitchell of IOCC before the July 23, 1992, public meeting. In addition, extra copies of the inspection report were made available to all attendees at the start of the public meeting. This request, therefore, has been granted.

C. I have considered Petitioners' four "demands" on behalf of neighborhood residents, and deny three demands, the fourth having been mooted by INS's voluntary actions, for the reasons stated below. Petitioners demand that:

(1) <u>Radiation readings outside the INS fence perimeters be "0" at all</u> times

As noted above, the average annual background external radiation to a member of the general public is about 1 millisievert (100 millirems) per year. Therefore, it is not possible to achieve a radiation reading outside the INS fence perimeters of "O" at all times. Nonetheless, members of the general public ought not to be exposed to any more radiation above background from NRC-licensed activities than is absolutely necessary, regardless of whether the radiation level is within NRC limits. 10 CFR § 20.1(c). This is the NRC's ALARA Policy. In keeping with the ALARA Policy, INS is reviewing the staging of transient waste and laundry shipping trucks to reduce the potential of any fenceline radiation exposure. The NRC will continue to monitor INS's ALARA program through inspection and licensing actions. Petitioners have not raised a substantial health or safety concern. Accordingly, this demand is denied.

(2) <u>"O" nuclear waste by-products be allowed to enter Springfield's</u> water/sewer system

NRC regulations require licensees to monitor and document their releases into the sanitary sewer. 10 CFR § 20.401. Licensees are limited in terms of both the concentration and quantity of radioactive materials that can be disposed via the sanitary sewer. 10 CFR § 20.303. The levels of radioactivity permitted to be put into the sanitary sewer are considered by NRC not to present any threat to the public health or safety. NRC inspectors

did not find any sanitary sewer releases to date by INS in excess of NRC limits. In addition, the NRC staff authorized INS, by license amendment dated October 8, 1992, to use a new liquid waste treatment system which should improve the licensee's capability to filter out radioactive materials from its laundry waste water before disposal into the sanitary sewer. Moreover, in the new 10 CFR § 20.2003 (a)(1), which will become effective on January 1, 1994, the type of radioactive materials that can be disposed into the sanitary sewer is clarified to further restrict the type of materials allowed in water. Current technology is not capable of filtering out all radioactive materials from waste water before it is discharged into the sanitary sewer. To require "O" releases would go beyond the bounds of the ALARA policy and technical feasibility. Petitioners have raised no substantial health or safety concern. Accordingly, this demand is denied.

# (3) <u>INS stop using residential streets, specifically Nagle and Nichols</u> <u>Streets, to go to and from its plant</u>

All NRC licensees who transport licensed material outside the confines of their plant or other places of use must comply with appropriate DOT requirements in 49 CFR Parts 170-189. 10 CFR § 71.5. In the most recent inspection of INS, NRC inspectors did not find any violation of DOT requirements. Although there are no DOT restrictions on the use of residential streets, INS has voluntarily submitted a plan to IOCC to use an alternate route which does not include residential streets. IOCC has accepted INS's plan. Accordingly, this demand has been satisfied by the licensee's voluntary actions and is most.

# (4) Under no circumstances should INS be allowed to store nuclear waste on its property

The NRC staff recognizes the concerns of the local community with regard to the long-term storage of radioactive waste on a licensee's property. Should INS wish to store its radioactive waste for a longer period than what is currently allowed under its license, it must submit a license amendment application to the NRC. NRC Information Notice No. 90-09 provides guidance to fuel cycle and materials licensees on information needed in license amendment requests to authorize extended interim storage of low-level radioactive waste (LLW) at licensed operations. As stated in this information notice, NRC does not consider storage as a substitute for disposal. However, NRC will consider extended interim storage of low-level radioactive waste at the licensee's site only if disposal is not a viable option and the waste can be stored safety. Information Notice No. 90-09 provides the information that the licensee must submit to the NRC in order for NRC to make a health and safety determination. For a facility such as INS to continue to operate, a certain amount of radioactive waste will necessarily be generated. Also, INS storage activities are covered by NRC's regulatory (including inspection) program for storage, as described earlier in III.A.(2). The NRC will continue to monitor he Licensee's activities to ensure that public health and safety will not be compromised. In view of the above, and the Licensee's compliance with NRC's regulatory limits, Petitioners have raised no substantial health or safety concern. Accordingly, this demand is denied.

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#### IV. CONCLUSION

The institution of proceedings pursuant to 10 CFR § 2.202 is appropriate only where substantial health and safety issues have been raised. See <u>Consolidated Edison Co. of New York</u> (Indian Point, Units 1,2, and 3), CLI-75-8, 2 NRC 173, 175-76 (1975); <u>Washington Public Power Supply System</u> (WPPSS Nuclear Project No. 2), DD-84-7, 19 NRC 899, 923 (1984). This is the standard that I have applied to determine whether the actions requested by Petitioners are warranted.

The staff has carefully considered the ten "requests" and four "demands" of Petitioners. In addition, the staff has evaluated the bases for Petitioners' requests and demands. For the reasons discussed above, there are no substantial public health and safety concerns warranting NRC action concerning the "four demands" of Petitioners. Accordingly, three of the Petitioners' demands are denied and one demand was mooted by the voluntary action of the Licensee. Eight of the Petitioners' requests were granted insofar as NRC Staff: participated in a public meeting in the evening of July 23, 1992 at a local American Legion hall and responded to the concerns of the neighborhood residents; conducted an unannounced inspection of INS on July 8 and 9, 1992; provided IOCC with copies of pertinent portions of NRC's regulations; checked adjoining Park Department land, including Dimmock Pond, for contamination; reviewed INS's waste storage program; provided IOCC a description of INS's radiation monitoring program; identified the location of the Public Document Room (PDR) for the INS license; and provided the docket

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number for the INS license. The Petition is denied with respect to JOCC's requests to check homes in the area for radioactive contamination and to check Loon Pond for contamination and possible illegal dumping of waste material, because Petitioners failed to raise a substantial health or safety concern. As provided by 10 CFR Section 2.206(c), a copy of this Decision will be filed with the Secretary of the Commission for the Commission's review. The Decision will become the final action of the Commission twenty-five (25) days after issuance unless the Commission on its own motion institutes review of the Decision within that time. Dated at Rockville, Maryland this  $\underline{7th}$  day of  $\underline{May}$ , 1993.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert M. Bernero, Director Office of Nuclear Material Safety and Safeguards

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#### U.S. NUCLEAR REGULATORY COMMISSION

#### DOCKET NO. 030-04632

#### INTERSTATE NUCLEAR SERVICES, INC.

#### ISSUANCE OF DIRECTOR'S DECISION UNDER 10 C.F.R. 5 2.205

Notice is hereby given that the Director, Office of Nuclear Material Safety and Safeguards, has issued a decision concerning a Petition dated June, 29, 1992, submitted by Indian Orchard Citizens Council regarding Interstate Nuclear Services, Inc.'s (INS's) Indian Orchard, Massachusetts, facility.

By letter dated August 25, 1992, the NRC staff formally acknowledged receipt of the Petition and informed Petitioners that their Petition would be treated as a request under 10 CFR § 2.206. The Petition requested U.S. Nuclear Regulatory Commission response or action on ten matters or requests and made four demands concerning INS's activities.

The Director of the Office of Nuclear Material Safety and Safeguards has determined to grant in part and to deny in part the Petition. The Petition is granted with respect of eight of the ten matters or requests and the Petition is denied with respect to the remaining two matters or requests. The Petition is denied with respect to three of the demands and the fourth demand was mooted by the voluntary action of the Licensee. The reasons for this Decision are explained in a "Director's Decision Under 10 CFR § 2.206" (DD-93-09), which is available for public inspection in the Commission's Public Document Room located at 2120 L Street, NW, Washington, DC 20555.

A copy of this Decision will be filed with the Secretary of the Commission's review in accordance with 10 C.F.R. § 2.206. As provided by this regulation, the Decision will constitute the final action of the Commission 25 days after the date of issuance of the Decision unless the Commission on its own motion institutes a review of the Decision within that time.

Dated at Rockville, Maryland, this 7th day of May 1993.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert M. Bernero, Director Office of Nuclear Material Safety and Safeguards