

RECEIVED
REGION 1

2006 FEB 16 PM 1:26

February 13, 2006

Mr. Jim Kottan
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

**SUBJECT: ADDENDUM TO ANALYSIS OF THIRD SET OF WATER SAMPLES FROM
THE INDIAN POINT POWER STATION, BUCHANAN, NEW YORK
[INSPECTION NO. 050-247/2005-011] [RFTA NO. 06-001]**

Dear Mr. Kottan:

The Oak Ridge Institute for Science and Education (ORISE) received four water samples on December 28, 2005 from the Indian Point Power Station in Buchanan, New York. The original results were sent to you in a letter report dated January 13, 2006. In an e-mail on January 20, 2006, you requested that sample 1677W0014 be reanalyzed for radiostrontium. Two 0.1 Liter (L) aliquots of the sample were analyzed for radiostrontium (Procedures AP4, Revision 13; CP3, Revision 2). The concentrations of the two aliquots were 0.2 ± 1.2 pCi/L and 0.2 ± 1.1 pCi/L, respectively. The minimum detectable concentrations for the aliquots were 2.1 pCi/L and 2.0 pCi/L.

The Quality Control (QC) requirements were met for this analysis and are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

Sincerely,



Dale Condra, Manager
Laboratory

RDC:WPI:ar

c: T. McLaughlin, NRC/NMSS/TWFFN 7F27 E. Abelquist, ORISE
E. Knox-Davin, NRC/NMSS/TWFFN 8A23 S. Kirk, ORISE
M. Miller, NRC Region I J. White, NRC Region I
J. Noggle, NRC Region I File 1677

| Distribution approval and concurrence : | Initials |
|-----------------------------------------|-------------|
| Technical Management Team Member | WCA for JSK |
| Quality Manager | ATP |

Voice: 865.241.3242

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RECEIVED
REGION 1

February 2, 2006 2006 FEB -6 PM 2: 42

Mr. Jim Kottan
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

**SUBJECT: REVISED REPORT FOR ANALYSIS OF WATER SAMPLES FROM THE
INDIAN POINT POWER STATION, BUCHANAN, NEW YORK
[INSPECTION NO. 050-247/2005-011] [RFTA NO. 06-001]**

Dear Mr. Kottan:

The Oak Ridge Institute for Science and Education (ORISE) received seven water samples on October 28, 2005 from the Indian Point Power Station in Buchanan, New York. The sample identification and collection data are in Table 1. The samples were analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 15), for tritium (H-3) by liquid scintillation analysis (Procedure AP2, Revision 15, Procedure CP4, Revision 3), and for strontium (Sr-90) by gas-flow proportional counting (Procedure AP4, Revision 13; Procedure CP3, Revision 2). The GS results are presented in Table 2. The results for H-3 are presented in Table 3. The results for Sr-90 are presented in Table 4. The data for all analyses are reported in microcuries per milliliter ($\mu\text{Ci}/\text{mL}$).

This letter report is a revision to a letter report sent December 8, 2005. The data in the data tables were changed, at your request, to have the concentrations and TPUs contain the same number of significant digits. No other changes have been made.

ORISE's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at 865.241.3242 or Wade Ivey at 865.576.9184 should you have any questions.

Sincerely,

Dale Condra

Dale Condra, Manager
Laboratory

RDC:WPI:ar

Enclosures

c: T. McLaughlin, NRC/NMSS/TWFN 7F27
E. Knox-Davin, NRC/NMSS/TWFN 8A23
File 1677
E. Abelquist, ORISE
S. Kirk, ORISE

| Distribution approval and concurrence : | Initials |
|-----------------------------------------|-------------|
| Technical Management Team Member | WCA for JSK |
| Quality Manager | RT |

Voice: 865.241.3242

Fax: 865.241-3248

E-mail: condrad@orau.gov

TABLE 1

SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK

| ORISE Sample ID | NRC Region I Sample ID | Collection Date | Collection Time |
|-----------------|------------------------|-----------------|-----------------|
| 1677W0001 | Unit 2 SFP | 10/21/2005 | 12:45 |
| 1677W0002 | Unit 1 West SFP | 10/20/2005 | -- ^a |
| 1677W0003 | Unit 1 SFDS | 10/19/2005 | 8:25 |
| 1677W0004 | Unit 2 SFP Wall Gutter | 10/24/2005 | -- ^a |
| 1677W0005 | MW-111 | 10/14/2005 | 10:10 |
| 1677W0006 | NCD Composite | 10/21/2005 | 12:45 |
| 1677W0007 | MW-111 | 9/29/2005 | -- ^a |

^aThe collection time was not provided.

TABLE 2

CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK

| ORISE Sample ID | NRC Region I Sample ID | Radionuclide Concentrations ^a (μCi/mL) | | | |
|-----------------|------------------------|---------------------------------------------------|-----------------------|-----------------------|-------------------------|
| | | Co-58 | Co-60 | Cs-134 | Cs-137 |
| 1677W0001 | Unit 2 SFP | $(3.46 \pm 0.16)E-04^b$ | $(7.95 \pm 0.28)E-04$ | $(8.57 \pm 0.31)E-04$ | $(1.319 \pm 0.046)E-03$ |
| 1677W0002 | Unit 1 West SFP | $(-5 \pm 18)E-07$ | $(2.98 \pm 0.35)E-05$ | $(2 \pm 14)E-07$ | $(6.74 \pm 0.22)E-03$ |
| 1677W0003 | Unit 1 SFDS | $(-5 \pm 24)E-10$ | $(-8 \pm 23)E-10$ | $(-1.9 \pm 2.3)E-09$ | $(9 \pm 22)E-10$ |
| 1677W0004 | Unit 2 SFP Wall Gutter | $(2.4 \pm 3.4)E-09$ | $(4.56 \pm 0.49)E-08$ | $(2.64 \pm 0.12)E-07$ | $(4.88 \pm 0.15)E-06$ |
| 1677W0005 | MW-111 | $(-7 \pm 23)E-10$ | $(1.8 \pm 2.2)E-09$ | $(1.9 \pm 2.2)E-09$ | $(-2.1 \pm 3.6)E-09$ |
| 1677W0006 | NCD Composite | $(-1.4 \pm 1.8)E-09$ | $(0.0 \pm 2.1)E-09^c$ | $(-6 \pm 19)E-10$ | $(4.48 \pm 0.42)E-08$ |
| 1677W0007 | MW-111 | $(2.7 \pm 4.3)E-09$ | $(3.5 \pm 3.1)E-09$ | $(-5 \pm 39)E-10$ | $(-9 \pm 29)E-10$ |

^aThe range of MDCs for the selected radionuclides is 1.0E-10 μCi/mL to 3.4E-10 μCi/mL.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^cZero values are due to rounding.

TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS AND COUNTING
AP2, REVISION 15; CP4, REVISION 3
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ORISE Sample ID | NRC Region I Sample ID | Tritium Concentrations, TPU's, and MDCs^a (μCi/mL) | |
|------------------------|-------------------------------|---------------------------------------------------------------------|--------------|
| 1677W0001 | Unit 2 SFP | $(2.929 \pm 0.083)E-02^b$ | (0.053E-02) |
| 1677W0002 | Unit 1 West SFP | $(4.18 \pm 0.72)E-04$ | (1.1E-04) |
| 1677W0003 | Unit 1 SFDS | $(5.7 \pm 2.6)E-07$ | (4.2E-07) |
| 1677W0004 | Unit 2 SFP Wall Gutter | $(2.208 \pm 0.047)E-02$ | (0.021E-02) |
| 1677W0005 | MW-111 | $(7.29 \pm 0.41)E-06$ | (0.42E-06) |
| 1677W0006 | NCD Composite | $(1.425 \pm 0.053)E-05$ | (0.042E-05) |
| 1677W0007 | MW-111 | $(2.168 \pm 0.028)E-04$ | (0.0042E-04) |

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

TABLE 4

**CONCENTRATIONS OF STRONTIUM-90
IN WATER SAMPLES
BY GAS-FLOW PROPORTIONAL COUNTING
AP4, REVISION 13; CP3, REVISION 2
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ORISE Sample ID | NRC Region I Sample ID | Strontium Concentrations and MDCs ^a (μCi/mL) | |
|--------------------|---------------------------|------------------------------------------------------------|--------------|
| 1677W0001 | Unit 2 SFP | (5.87 ± 0.24)E-06 ^b | (0.12E-06) |
| 1677W0002 | Unit 1 West SFP | (1.300 ± 0.035)E-04 | (0.0002E-04) |
| 1677W0003 | Unit 1 SFDS | (-0.2 ± 1.2)E-09 | (2.1E-09) |
| 1677W0004 | Unit 2 SFP Wall Gutter | (3.70 ± 0.12)E-07 | (0.02E-07) |
| 1677W0005 | MW-111 | (1.1 ± 1.3)E-09 | (2.2E-09) |
| 1677W0006 | NCD Composite | (9.97 ± 0.42)E-08 | (0.20E-08) |
| 1677W0007 | MW-111 | (1.4 ± 1.2)E-09 | (2.1E-09) |

^aMDCs are in parenthesis and based on four hour count times.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE
OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

January 13, 2006

RECEIVED
REGION I

2006 JUN 23 AM 8:09

Mr. Jim Kottan
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: REPORT FOR ANALYSIS OF THIRD SET OF WATER SAMPLES FROM THE INDIAN POINT POWER STATION, BUCHANAN, NEW YORK [INSPECTION NO. 050-247/2005-011] [RFTA NO. 06-001]


Dear Mr. Kottan:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received four water samples on December 28, 2005 from the Indian Point Power Station in Buchanan, New York. After a phone conversation with Mark Roberts on December 28, 2005, the analytical work associated with these samples was changed from routine to urgent. The sample identifications and collection data are presented in Table 1. The samples were analyzed by gamma spectroscopy (GS) (Procedure CPI, Revision 15), for tritium (H-3) by liquid scintillation analysis (Procedure AP2, Revision 15; Procedure CP4, Revision 3), and for total radiostrontium (Sr) by gas-flow proportional counting (Procedure AP4, Revision 13; Procedure CP3, Revision 2). The GS, H-3, and Sr results are presented in Tables 2-4, respectively.

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

Sincerely,


Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

Enclosures

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27
E. Knox-Davin, NRC/NMSS/TWFN 8A23
M. Miller, NRC Region I
J. Noggle, NRC Region I
E. Abelquist, ORISE/ESSAP
S. Kirk, ORISE/ESSAP
J. White, NRC Region I
File 1677

| Distribution approval and concurrence : | Initials |
|-----------------------------------------|-------------|
| Technical Management Team Member | WCA for JSK |
| Quality Manager | ATP |

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

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ORISE TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Collection Date | Collection Time |
|------------------------|-------------------------------|------------------------|------------------------|
| 1677W00014 | MW-101 | 12/8/2005 | 12:50 |
| 1677W00015 | MW-105 | 12/8/2005 | 12:20 |
| 1677W00016 | MW-107 | 12/8/2005 | 11:15 |
| 1677W00017 | MW-38 | 12/8/2005 | 10:30 |

ORISE TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations ^a (pCi/L) | | | |
|-----------------|------------------------|--------------------------------------------------|------------|-----------|------------|
| | | Co-58 | Co-60 | Cs-134 | Cs-137 |
| 1677W00014 | MW-101 | -0.2 ± 3.1 ^b | 2.5 ± 3.6 | 1.8 ± 3.4 | -1.4 ± 5.3 |
| 1677W00015 | MW-105 | 1.5 ± 3.3 | 1.5 ± 3.3 | 0.4 ± 3.5 | 0.4 ± 2.9 |
| 1677W00016 | MW-107 | 1.7 ± 2.7 | -0.2 ± 2.6 | 2.5 ± 2.8 | -1.1 ± 2.4 |
| 1677W00017 | MW-38 | -1.5 ± 3.7 | 0.3 ± 3.3 | 4.4 ± 3.3 | -0.7 ± 3.0 |

^aThe range of MDCs for the selected radionuclides is 3.9 pCi/L to 5.9 pCi/L.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS
AP2, REVISION 15; CP4, REVISION 3
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Tritium Concentrations, TPUs, and MDCs^a (pCi/L) |
|----------------------------|-----------------------------------|---------------------------------------------------------------------------|
| 1677W00014 | MW-101 | 70 ± 120 ^b (200) |
| 1677W00015 | MW-105 | -10 ± 120 (200) |
| 1677W00016 | MW-107 | 130 ± 120 (200) |
| 1677W00017 | MW-38 | 740 ± 130 (200) |

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE TABLE 4

CONCENTRATIONS OF TOTAL RADIOSTRONTIUM
IN WATER SAMPLES
BY GAS-FLOW PROPORTIONAL COUNTING
AP4, REVISION 13; CP3, REVISION 2
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK

| ESSAP Sample ID | NRC Region I Sample ID | Total Radiostrontium Concentrations, TPUs, and MDCs ^a (pCi/L) |
|--------------------|---------------------------|--------------------------------------------------------------------------------|
| 1677W00014 | MW-101 | 3.1 ± 1.3 ^b (2.0) |
| 1677W00015 | MW-105 | -0.2 ± 1.2 (2.1) |
| 1677W00016 | MW-107 | 0.8 ± 1.2 (2.0) |
| 1677W00017 | MW-38 | 0.4 ± 1.2 (2.1) |

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

RECEIVED
REGION I

January 3, 2006

2006 JAN 13 AM 10:11

Mr. Jim Kottan
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

SUBJECT: REPORT FOR ANALYSIS OF SECOND SET OF WATER SAMPLES FROM THE INDIAN POINT POWER STATION, BUCHANAN, NEW YORK [INSPECTION NO. 050-247/2005-012] [RFTA NO. 06-001]


Dear Mr. Kottan:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received six water samples on December 12, 2005 from the Indian Point Power Station in Buchanan, New York. After a phone conversation with Marie Miller on December 16, 2005, the analytical work associated with these samples was changed from routine to urgent. The sample identifications and collection dates are presented in Table 1. The samples were analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 15), for tritium (H-3) by liquid scintillation analysis (Procedure AP2, Revision 15; Procedure CP4, Revision 3), and for total radiostrontium (Sr) by gas-flow proportional counting (Procedure AP4, Revision 13; Procedure CP3, Revision 2). The GS results are presented in Table 2. The results for H-3 are presented in Table 3. The results for Sr are presented in Table 4.

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

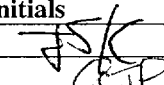
Sincerely,


Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:db

Enclosures

| | | |
|-----|-----------------------------------|---------------------------|
| cc: | T. McLaughlin, NRC/NMSS/TWFN 7F27 | E. Abelquist, ORISE/ESSAP |
| | E. Knox-Davin, NRC/NMSS/TWFN 8A23 | S. Kirk, ORISE/ESSAP |
| | M. Miller, NRC Region I | J. White, NRC Region I |
| | J. Noggle, NRC Region I | File 1677 |

| Distribution approval and concurrence : | Initials |
|-----------------------------------------|--------------------------------------------------------------------------------------|
| Technical Management Team Member |  |
| Quality Manager | |

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

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ORISE TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION DATA
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Collection Date | Collection Time |
|------------------------|-------------------------------|------------------------|------------------------|
| 1677W0008 | Gypsum Plant Stream | 11/30/2005 | 15:20 |
| 1677W0009 | Trap Rock Quarry | 11/30/2005 | 15:50 |
| 1677W0010 | Algonquin Outfall | 11/30/2005 | 15:25 |
| 1677W0011 | 5th Street Well | 11/30/2005 | 16:05 |
| 1677W0012 | Lefarge Gypsum Plant #1 | 12/6/2005 | 11:10 |
| 1677W0013 | Lefarge Gypsum Plant #3 | 12/6/2005 | 9:55 |

ORISE TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations ^a (pCi/L) | | | |
|-----------------|-------------------------|--------------------------------------------------|------------|------------|------------|
| | | Co-58 | Co-60 | Cs-134 | Cs-137 |
| 1677W0008 | Gypsum Plant Stream | 0.0 ^b ± 1.9 ^c | 0.1 ± 1.8 | 0.1 ± 2.1 | -0.3 ± 1.7 |
| 1677W0009 | Trap Rock Quarry | 0.4 ± 1.7 | -0.1 ± 2.1 | -0.4 ± 1.8 | 0.6 ± 1.6 |
| 1677W0010 | Algonquin Outfall | 1.1 ± 2.3 | -0.5 ± 2.2 | 0.5 ± 2.4 | -1.6 ± 2.2 |
| 1677W0011 | 5th Street Well | 0.9 ± 2.2 | 0.8 ± 2.6 | -0.1 ± 2.1 | -0.6 ± 2.1 |
| 1677W0012 | Lefarge Gypsum Plant #1 | -2.8 ± 3.2 | 0.8 ± 3.9 | 0.3 ± 3.6 | 0.2 ± 3.5 |
| 1677W0013 | Lefarge Gypsum Plant #3 | 0.4 ± 2.5 | 0.3 ± 3.1 | 3.8 ± 2.8 | -0.8 ± 4.4 |

^aThe range of MDCs for the selected radionuclides is 3.9 pCi/L to 4.2 pCi/L.

^bZero values are due to rounding.

^cUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS
AP2, REVISION 15; CP4, REVISION 3
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations, TPU's, and MDCs^a (pCi/L) |
|------------------------|-------------------------------|-------------------------------------------------------------------------|
| 1677W0008 | Gypsum Plant Stream | 10 ± 120 ^b (210) |
| 1677W0009 | Trap Rock Quarry | 4 ± 120 (210) |
| 1677W0010 | Algonquin Outfall | 30 ± 120 (210) |
| 1677W0011 | 5th Street Well | -70 ± 120 (210) |
| 1677W0012 | Lefarge Gypsum Plant #1 | 40 ± 120 (210) |
| 1677W0013 | Lefarge Gypsum Plant #3 | 20 ± 120 (210) |

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE TABLE 4

**CONCENTRATIONS OF TOTAL RADIOSTRONTIUM
IN WATER SAMPLES
BY GAS-FLOW PROPORTIONAL COUNTING
AP4, REVISION 13; CP3, REVISION 2
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations, TPUs, and MDCs^a (pCi/L) | | | |
|----------------------------|-----------------------------------|----------------------------------------------------------------------------|---|------------------|-------|
| 1677W0008 | Gypsum Plant Stream | 0.5 | ± | 1.0 ^b | (1.8) |
| 1677W0009 | Trap Rock Quarry | 0.9 | ± | 1.0 | (1.7) |
| 1677W0010 | Algonquin Outfall | 0.3 | ± | 1.0 | (1.8) |
| 1677W0011 | 5th Street Well | 0.4 | ± | 1.0 | (1.8) |
| 1677W0012 | Lefarge Gypsum Plant #1 | 1.2 | ± | 1.1 | (1.8) |
| 1677W0013 | Lefarge Gypsum Plant #3 | 0.1 | ± | 1.0 | (1.7) |

^aMDCs are in parenthesis and are based on a four hour count time.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

December 08, 2005

RECEIVED
REGION I
2005 DEC 12 PM 1:53

Mr. Jim Kottan
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406

**SUBJECT: REPORT FOR ANALYSIS OF WATER SAMPLES FROM THE INDIAN POINT
POWER STATION, BUCHANAN, NEW YORK
[INSPECTION NO. 050-247/2005-011] [RFTA NO. 06-001]**

Dear Mr. Kottan:

The Environmental Survey and Site Assessment Program (ESSAP) of the Oak Ridge Institute for Science and Education (ORISE) received seven water samples on October 28, 2005 from the Indian Point Power Station in Buchanan, New York. The sample identifications and collection dates are in Table 1. The samples were analyzed by gamma spectroscopy (GS) (Procedure CP1, Revision 15), for tritium (H-3) by liquid scintillation analysis (Procedure AP2, Revision 15, Procedure CP4, Revision 3), and for strontium (Sr-90) by gas-flow proportional counting (Procedure AP4, Revision 13; Procedure CP3, Revision 2). The GS results are presented in Table 2. The results for H-3 are presented in Table 3. The results for Sr-90 are presented in Table 4. The data for all analyses are reported in microcuries per milliliter ($\mu\text{Ci/mL}$).

ESSAP's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

Please contact me at (865) 241-3242 or Wade Ivey at (865) 576-9184 should you have any questions.

Sincerely,



Dale Condra
Laboratory Manager
Environmental Survey and
Site Assessment Program

RDC:WPI:ar

Enclosures

cc: T. McLaughlin, NRC/NMSS/TWFN 7F27
E. Knox-Davin, NRC/NMSS/TWFN 8A23
File/1677

E. Abelquist, ORISE/ESSAP
S. Kirk, ORISE/ESSAP

| Distribution approval and concurrence : | Initials |
|-----------------------------------------|-------------|
| Technical Management Team Member | JSR |
| Quality Manager | TUB for ATP |

P. O. BOX 117, OAK RIDGE, TENNESSEE 37831-0117

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ORISE TABLE 1

**SAMPLE IDENTIFICATIONS
AND COLLECTION DATES
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Collection Date | Collection Time |
|------------------------|-------------------------------|------------------------|------------------------|
| 1677W0001 | Unit 2 SFP | 10/21/2005 | 12:45 |
| 1677W0002 | Unit 1 West SFP | 10/20/2005 | -- ^a |
| 1677W0003 | Unit 1 SFDS | 10/19/2005 | 8:25 |
| 1677W0004 | Unit 2 SFP Wall Gutter | 10/24/2005 | -- |
| 1677W0005 | MW-111 | 10/14/2005 | 10:10 |
| 1677W0006 | NCD Composite | 10/21/2005 | 12:45 |
| 1677W0007 | MW-111 | 9/29/2005 | -- |

^aThe collection time was not provided.

ORISE TABLE 2

**CONCENTRATIONS OF SELECTED
GAMMA EMITTING RADIONUCLIDES
IN WATER SAMPLES
BY GAMMA SPECTROSCOPY CP1, REVISION 15
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations ^a (μCi/mL) | | | |
|-----------------|---------------------------|---------------------------------------------------|-------------------------------|--------------------|--------------------|
| | | Co-58 | Co-60 | Cs-134 | Cs-137 |
| 1677W0001 | Unit 2 SFP | 3.5E-04 ± 1.6E-05 ^b | 8.0E-04 ± 2.8E-05 | 8.6E-04 ± 3.1E-05 | 1.3E-03 ± 4.6E-05 |
| 1677W0002 | Unit 1 West SFP | -5.4E-07 ± 1.8E-06 | 3.0E-05 ± 3.5E-06 | 2.2E-07 ± 1.4E-06 | 6.7E-03 ± 2.2E-04 |
| 1677W0003 | Unit 1 SFDS | -5.0E-10 ± 2.4E-09 | -8.0E-10 ± 2.3E-09 | -1.9E-09 ± 2.3E-09 | 9.0E-10 ± 2.2E-09 |
| 1677W0004 | Unit 2 SFP Wall Gutter | 2.4E-09 ± 3.4E-09 | 4.6E-08 ± 4.9E-09 | 2.6E-07 ± 1.2E-08 | 4.9E-06 ± 1.5E-07 |
| 1677W0005 | MW-111 | -7.0E-10 ± 2.3E-09 | 1.8E-09 ± 2.2E-09 | 1.9E-09 ± 2.2E-09 | -2.1E-09 ± 3.6E-09 |
| 1677W0006 | NCD Composite | -1.4E-09 ± 1.8E-09 | 0.0E00 ^c ± 2.1E-09 | -6.0E-10 ± 1.9E-09 | 4.5E-08 ± 4.2E-09 |
| 1677W0007 | MW-111 | 2.7E-09 ± 4.3E-09 | 3.5E-09 ± 3.1E-09 | -5.0E-10 ± 3.9E-09 | -9.0E-10 ± 2.9E-09 |

^aThe range of MDCs for the selected radionuclides is 1.0E-10 μCi/mL to 3.4E-10 μCi/mL.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

^cZero values are due to rounding.

ORISE TABLE 3

**CONCENTRATIONS OF TRITIUM
IN WATER SAMPLES
BY LIQUID SCINTILLATION ANALYSIS AND COUNTING
AP2, REVISION 15; CP4, REVISION 3
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations, TPU_s, and MDC_s^a (μCi/mL) |
|------------------------|-------------------------------|-----------------------------------------------------------------------------------------------|
| 1677W0001 | Unit 2 SFP | 2.9E-02 ± 8.3E-04 ^b (5.3E-04) |
| 1677W0002 | Unit 1 West SFP | 4.2E-04 ± 7.2E-05 (1.1E-04) |
| 1677W0003 | Unit 1 SFDS | 5.7E-07 ± 2.6E-07 (4.2E-07) |
| 1677W0004 | Unit 2 SFP Wall Gutter | 2.2E-02 ± 4.7E-04 (2.1E-04) |
| 1677W0005 | MW-111 | 7.3E-06 ± 4.1E-07 (4.2E-07) |
| 1677W0006 | NCD Composite | 1.4E-05 ± 5.3E-07 (4.2E-07) |
| 1677W0007 | MW-111 | 2.2E-04 ± 2.8E-06 (4.2E-07) |

^aMDCs are in parenthesis.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.

ORISE TABLE 4

**CONCENTRATIONS OF STRONTIUM-90
IN WATER SAMPLES
BY GAS-FLOW PROPORTIONAL COUNTING
AP4, REVISION 13; CP3, REVISION 2
INDIAN POINT POWER STATION
BUCHANAN, NEW YORK**

| ESSAP Sample ID | NRC Region I Sample ID | Radionuclide Concentrations and MDCs^a (μCi/mL) | | |
|----------------------------|-----------------------------------|----------------------------------------------------------------------|------------------------|-----------|
| 1677W0001 | Unit 2 SFP | 5.9E-06 | ± 2.4E-07 ^b | (1.2E-07) |
| 1677W0002 | Unit 1 West SFP | 1.3E-04 | ± 3.5E-06 | (2.0E-08) |
| 1677W0003 | Unit 1 SFDS | -2.0E-10 | ± 1.2E-09 | (2.1E-09) |
| 1677W0004 | Unit 2 SFP Wall Gutter | 3.7E-07 | ± 1.2E-08 | (2.0E-09) |
| 1677W0005 | MW-111 | 1.1E-09 | ± 1.3E-09 | (2.2E-09) |
| 1677W0006 | NCD Composite | 1.0E-07 | ± 4.2E-09 | (2.0E-09) |
| 1677W0007 | MW-111 | 1.4E-09 | ± 1.2E-09 | (2.1E-09) |

^aMDCs are in parenthesis and based on four hour count times.

^bUncertainties represent the 95% confidence level, based on total propagated uncertainties.