

From: "Peters, James" <jpeter3@entergy.com>
To: "jjk@nrc.gov" <jjk@nrc.gov>
Date: 3/6/06 11:50AM
Subject: NCD Effluent

Here's the data you need.

From: Hood, Floyd
Sent: Monday, March 06, 2006 11:46 AM
To: Peters, James
Subject: APYR

APYR:
<<smp_6862_nuc4_500mlpoly_43058.lis>> <<smp_6863_nuc2_1lpoly_43056.lis>>

CC: "Lavera, Ron" <RLavera@entergy.com>

Allo3

IPEC Chemistry Gamma Spectroscopy Report 21-OCT-2005 13:40:17

FILENAME :
DISK\$CANBERRA:[GAMMA.SCUSR.ARCHIVE]SMP_6862_NUC4_500MLPOLY_43058.CNF;1

---- Sample Information ----

Sample Title : NCD eff
Sample ID : 6862 Sample Quantity : 5.00000E+02 cc
Technician : TH
Sequence File : LWPS Nuclide Library : CHEM_WDST.NLB

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
Deposition Start : Deposition End : 21-OCT-2005 12:40:00

---- Sample Decay/Count Information ----

Sample Date : 21-OCT-2005 12:40:00 Acquisition date : 21-OCT-2005 13:30:00
Decay time : 0 00:50:00.81 % dead time : 0.0%
Elapsed live time: 0 00:10:00.00 Elapsed real time: 0 00:10:00.03
Activity Units : UCI Activity Multiplier: 1.00000E+00

---- Detector Parameters ----

Energy cal. time : 21-OCT-2005 08:59:09 Detector name : NUC4
Effic. cal. time : 18-SEP-2004 14:14:48.Counting geometry: 500ml poly

---- Processing Parameters ----

Start channel : 80 End channel : 4096
Sensitivity : 5.00000 Gaussian Sens. : 10.00000
Critical level? : Yes Propagate Errors?: No
Empirical Eff? : No Library-based eff: No
Energy tolerance : 1.25000 Half life ratio : 8.00000
Abundance limit : 50.00000 WTM error limit : 3.00000
MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Post-NID Peak Search Report

***** No peaks found *****

Summary of Nuclide Activity

Page : 2

Sample ID : 6862

Acquisition date : 21-OCT-2005 13:30:00

**** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

| Nuclide | Bckgnd Sum | Energy (keV) | MDA (UCI/cc) |
|---------|---------------|-----------------|-----------------|
| BE-7 | 1. | 477.59 | 6.7801E-07 |
| CR-51 | 8. | 320.08 | 1.5310E-06 |
| CO-56 | 2. | 1238.25 | 3.0530E-07 |
| CO-57 | 7. | 122.06 | 1.1427E-07 |
| CO-58 | 2. | 810.78 | 1.4850E-07 |
| FE-59 | 9. | 192.35 | 3.6601E-06 |
| CO-60 | 1. | 1173.24 | 1.3883E-07 |
| KR-85 | 6. | 513.99 | 4.3728E-05 |
| NB-95M | 5. | 235.68 | 4.2038E-07 |
| MO-99 | 1. | 739.58 | 7.5676E-07 |
| TC-99M | 4. | 140.51 | 8.2040E-08 |
| RU-103 | 4. | 497.08 | 1.6202E-07 |
| AG-108M | 1. | 722.95 | 1.1682E-07 |
| CD-109 | 7. | 88.03 | 4.2365E-06 |
| AG-110M | 1. | 884.67 | 1.5364E-07 |
| SN-113 | 6. | 391.70 | 2.2057E-07 |
| TE-123M | 13. | 159.00 | 1.5456E-07 |
| SB-124 | 3. | 602.72 | 1.5151E-07 |
| SB-125 | 4. | 427.89 | 4.4402E-07 |
| XE-127 | 6. | 202.84 | 1.3948E-07 |
| I-131 | 4. | 364.48 | 1.4284E-07 |
| XE-131M | 9. | 163.93 | 5.6360E-06 |
| I-132 | 1. | 667.69 | 1.2062E-07 |
| TE-132 | 9. | 228.16 | 1.4492E-07 |
| BA-133 | 2. | 356.00 | 1.3388E-07 |
| I-133 | 0. | 529.87 | 5.7216E-08 |
| XE-133 | 6. | 81.00 | 5.0441E-07 |
| XE-133M | 8. | 233.22 | 1.1688E-06 |
| CS-134 | 2. | 604.70 | 1.2013E-07 |
| XE-135 | 4. | 249.79 | 9.8198E-08 |
| XE-135M | 4. | 526.56 | 2.2236E-06 |
| CS-136 | 0. | 1048.07 | 1.0150E-07 |
| CS-137 | 12. | 661.60 | 3.6470E-07 |
| XE-138 | 7. | 258.31 | 5.1956E-06 |
| BA-140 | 0. | 537.31 | 6.7251E-08 |
| LA-140 | 3. | 487.03 | 2.9066E-07 |
| CE-141 | 6. | 145.44 | 1.7755E-07 |
| LA-142 | 1. | 641.17 | 2.4886E-07 |
| CE-144 | 11. | 133.51 | 1.0996E-06 |
| NP-239 | 8. | 106.12 | 5.3188E-07 |
| AM-241 | 10. | 59.54 | 2.5008E-06 |

Unidentified Energy Lines

None

Flags: "T" = Tentatively associated

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FILENAME : DISK\$CANBERRA:[GAMMA.SCUSR.ARCHIVE]SMP_6863_NUC2_1LPOLY_43056.CNF;1

---- Sample Information ----

Sample Title : NCD sampler#2
 Sample ID : 6863 Sample Quantity : 1.00000E+03 cc
 Technician : TH
 Sequence File : GENERIC_LIQUID.A Nuclide Library : CHEM_MAIN.NLB

---- Sample Deposition Information ----

Dep. Correction? : No Dep. Duration :
 Deposition Start : Deposition End : 21-OCT-2005 12:40:00

---- Sample Decay/Count Information ----

Sample Date : 21-OCT-2005 12:40:00 Acquisition date : 21-OCT-2005 13:12:19
 Decay time : 0 00:32:19.16 % dead time : 0.0%
 Elapsed live time: 0 00:17:45.00 Elapsed real time: 0 00:17:45.20
 Activity Units : uCi Activity Multiplier: 1.00000E+00

---- Detector Parameters ----

Energy cal. time : 21-OCT-2005 08:58:41 Detector name : NUC2
 Effic. cal. time : 21-OCT-2004 17:42:29.Counting geometry: 1L Poly

---- Processing Parameters ----

Start channel : 80 End channel : 4096
 Sensitivity : 5.00000 Gaussian Sens. : 10.00000
 Critical level? : Yes Propagate Errors?: No
 Empirical Eff? : No Library-based eff: No
 Energy tolerance : 1.25000 Half life ratio : 8.00000
 Abundance limit : 75.00000 WTM error limit : 3.00000
 MDA Width (FWHM) : 3.00000 MDA Confid Level : 5.00000 %

Post-NID Peak Search Report

| It | Energy | Area | Bkgnd | FWHM | Channel | Left | Pw | %Err | Fit | Nuclides |
|----|--------|------|-------|------|---------|------|----|------|-----|----------|
| 0 | 609.21 | 25 | 4 | 0.72 | 1218.63 | 1211 | 14 | 25.2 | | |

Summary of Nuclide Activity

Page : 2

Sample ID : 6863

Acquisition date : 21-OCT-2005 13:12:19

Total number of lines in spectrum 1
 Number of unidentified lines 0
 Number of lines tentatively identified by NID 1 100.00%
 **** There are no nuclides meeting summary criteria ****

Flags: "K" = Keyline not found "M" = Manually accepted
 "E" = Manually edited "A" = Nuclide specific abn. limit

Minimum Detectable Activity Report

| Nuclide | Bckgnd Sum | Energy (keV) | MDA (uCi/cc) |
|---------|------------|--------------|---------------------|
| BE-7 | 7. | 477.59 | 7.7507E-07 |
| NA-22 | 5. | 1274.54 | 1.6040E-07 |
| NA-24 | 3. | 1368.53 | 1.3692E-07 |
| AR-41 | 1. | 1293.16 | 1.1293E-07 |
| CR-51 | 13. | 320.08 | 7.6770E-07 |
| MN-54 | 4. | 834.83 | 1.0333E-07 |
| CO-56 | 4. | 846.75 | 1.0460E-07 |
| MN-56 | 4. | 846.75 | 1.2707E-07 |
| CO-57 | 28. | 122.06 | 7.8189E-08 |
| CO-58 | 4. | 810.78 | 9.9290E-08 |
| FE-59 | 0. | 1291.60 | 7.7692E-08 |
| CO-60 | 4. | 1173.24 | 1.3373E-07 |
| ZN-65 | 5. | 1115.52 | 2.8190E-07 |
| BR-84 | 4. | 881.60 | 6.0846E-07 |
| KR-85 | 12. | 513.99 | 2.5285E-05 |
| KR-85M | 27. | 151.17 | 1.1930E-07 |
| KR-87 | 11. | 402.59 | 2.5034E-07 |
| KR-88 | 25. | 196.30 | 3.1560E-07 |
| RB-88 | 0. | 1836.01 | 1.6164E-06 |
| KR-89 | 0. | 220.90 | Half-Life too short |
| RB-89 | 1. | 1031.88 | 8.4091E-07 |
| NB-95 | 3. | 765.80 | 9.1283E-08 |
| NB-95M | 16. | 235.68 | 2.7997E-07 |
| ZR-95 | 8. | 756.72 | 2.2784E-07 |
| MO-99 | 5. | 739.58 | 7.8458E-07 |
| TC-99M | 41. | 140.51 | 8.7627E-08 |
| RU-103 | 4. | 497.08 | 7.6082E-08 |
| RU-106 | 8. | 621.80 | 1.0844E-06 |
| AG-108M | 1. | 614.37 | 5.9540E-08 |
| CD-109 | 34. | 88.03 | 2.5800E-06 |
| AG-110M | 5. | 657.75 | 9.8409E-08 |
| SN-113 | 9. | 391.70 | 1.1671E-07 |
| SB-122 | 4. | 564.20 | 1.0675E-07 |
| TE-123M | 32. | 159.00 | 8.2699E-08 |
| SB-124 | 4. | 602.72 | 8.3652E-08 |
| SB-125 | 8. | 427.89 | 2.6607E-07 |
| XE-127 | 26. | 202.84 | 1.0675E-07 |
| I-131 | 8. | 364.48 | 8.4109E-08 |
| XE-131M | 18. | 163.93 | 2.7947E-06 |

| | | | |
|--------|-----|--------|------------|
| I-132 | 4. | 667.69 | 1.1060E-07 |
| TE-132 | 31. | 228.16 | 9.9378E-08 |

Minimum Detectable Activity Report (continued)

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Sample ID : 6863

Acquisition date : 21-OCT-2005 13:12:19

| Nuclide | Bckgnd Sum | Energy (keV) | MDA (uCi/cc) |
|---------|---------------|-----------------|-----------------|
| BA-133 | 13. | 356.00 | 1.3871E-07 |
| I-133 | 5. | 529.87 | 8.8679E-08 |
| XE-133 | 36. | 81.00 | 3.1239E-07 |
| XE-133M | 17. | 233.22 | 6.6110E-07 |
| CS-134 | 7. | 604.70 | 1.0247E-07 |
| I-134 | 4. | 847.03 | 1.8392E-07 |
| I-135 | 3. | 1260.41 | 4.8950E-07 |
| XE-135 | 18. | 249.79 | 8.6277E-08 |
| XE-135M | 5. | 526.56 | 5.9429E-07 |
| CS-136 | 3. | 818.51 | 9.2661E-08 |
| CS-137 | 16. | 661.60 | 1.7595E-07 |
| CS-138 | 1. | 1435.86 | 3.3837E-07 |
| XE-138 | 27. | 258.31 | 2.0208E-06 |
| BA-140 | 4. | 537.31 | 2.7293E-07 |
| LA-140 | 1. | 1596.49 | 1.1217E-07 |
| CE-141 | 33. | 145.44 | 1.4544E-07 |
| LA-142 | 6. | 641.17 | 2.5564E-07 |
| CE-144 | 40. | 133.51 | 6.9247E-07 |
| NP-239 | 31. | 106.12 | 3.3445E-07 |
| AM-241 | 21. | 59.54 | 6.1987E-07 |

Rejected Report
Sample ID : 6863

Page : 4
Acquisition date : 21-OCT-2005 13:12:19

| | Half-Life | | | Activity 1-Sigma | | |
|---------|-----------|---------------------------|---------|------------------|---------------|---------------------|
| Nuclide | Half-life | Ratio | Energy | %Abund | (uCi/cc) | %Error Rejected by |
| RU-103 | 39.35D | 0.00 | 497.08* | 89.00 | --- | Not Found --- Abun. |
| | | 610.35 | 5.60 | 2.997E-06 | 25.22 | |
| | | 621.80 | 9.80 | --- | Not Found --- | |
| | | % Abundances Found = 5.36 | | | | |
| XE-135 | 9.11H | 0.08 | 249.79* | 89.90 | --- | Not Found --- Abun. |
| | | 608.18 | 2.89 | 6.115E-06 | 25.22 | |
| | | % Abundances Found = 3.11 | | | | |

Flag: *** = Keyline