



Advanced Medical Systems, Inc.

1020 Loncon Road
Cleveland, OH 44110
(216) 692-3270

June 6, 1995

Mr. James Caldwell
Nuclear Materials Inspection, Section 2
United States Nuclear Regulatory Commission
801 Warrenville Road
Lisle, Illinois 60523-4351

Re: Application to Amend USNRC License No. 34-19089-01

Dear Mr. Caldwell:

Recently, Advanced Medical Systems, Inc. (AMS) was issued Amendment No. 32/33 to the referenced license number to permit treatment of contaminated water that currently exists in the basement of the London Road facility. In light of current conditions and process history, AMS wishes to amend the license as follows:

1. Remove the requirement that the solubility of treated water be determined by a contract analytical laboratory prior to pumping treated water to the collapsible storage containers.
2. Increase the release criterion for treated water that is pumped to the collapsible storage containers prior to evaporation to 1,000 pCi/l of water.
3. Permit the AMS Radiation Safety Officer to implement minor changes to Radiation Work Permit No. 95-10 and the work plan described in letters to the USNRC dated February 2, 1995, February 14, 1995, March 3, 1995, March 8, 1995, and March 10, 1995, to accommodate static or dynamic conditions encountered during the water treatment process.

Attachments 1, 2 and 3 to this letter contain additional information to support this request. The license amendment fee, in the amount of \$680, is being forwarded under separate cover. If you have any questions, please call me at (216) 692-3270. Your prompt attention to this matter is appreciated.

Sincerely,

Robert Meschter, RSO

cc: D. Cesar
D. A. Miller, Esq., Stavole & Miller
H. Billingsley, Esq., Arter & Hadden

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ATTACHMENT 1

Remove the requirement that the solubility of treated water be determined by a contract analytical laboratory prior to pumping treated water to the collapsible storage containers.

Item 19.A.ii of License No. 34-19089-01 states that water will be treated until it meets the release criteria, as determined by a contract analytical laboratory, prior to being pumped to the storage containers located in the facility warehouse.¹ AMS wishes to remove the requirement that the solubility of treated water be determined by a contract analytical laboratory prior to pumping.

The reasons for this procedural change are three-fold. First, awaiting confirmatory results from the commercial analytical laboratory prior to transferring treated water to the bladder tanks is resulting significant delays in the water treatment process, and does not permit us to continue work over the weekends. In light of current and pending weather conditions in the Cleveland area, eliminating all unnecessary delays will contribute greatly to programmatic success.

Second, AMS has purchased, calibrated, and is operating an in-house gamma spectroscopy system that is being used to guide the water clean-up effort. This system has sufficient precision and accuracy to ensure that water pumped to the bladder tanks does not contain more than 200 pCi of ⁶⁰Co per liter of water. To date, the results generated at AMS agree favorably with those generated by the contract analytical laboratory (see the following data sheets entitled "Analysis of Water Samples").

Finally, the Diversified Technologies Systems, Inc. water treatment system uses activated charcoal (primary reduction media) and membrane separation (polishing medium) in a multi-stage treatment system. Residual radioactivity in water that passes through the system meets the solubility criteria contained in Information Notice 94-07, "Solubility Criteria for Liquid Effluent Releases to Sanitary Sewerage Under the Revised 10 CFR Part 20", since it has a performance specification for salt rejection of 99% (see the specifications provided in my letter to Wayne Slawinski, dated June 2, 1995). Furthermore, solubility testing performed to date by the contract analytical laboratory confirms that the ⁶⁰Co in the basement water, even without the end-stage processing, is soluble (see the following data sheets entitled "Analysis of Water Samples" wherein none of the treated water samples that have been analyzed for insolubility have demonstrated positive results.)

To continue to require confirmatory analyses before transferring water that will never be discharged restricts the through-put of the processing system with no resulting benefit. Instead, the total quantity of water that will eventually have to be treated (and the quantity of associated solid waste generated) increases as we wait for the confirmatory results. AMS will, however, continue to forward confirmatory samples to the commercial laboratory for analysis. The results of the confirmatory analyses, along with those performed in-house, are available for USNRC review. Confirmatory measurement results will be required prior to transferring any untreated water to the bladder tanks

¹ Item 19.A.2 of Amendment 33 states that the release criteria are no detectable non-soluble cobalt-60 and less than 200 pCi/l of soluble cobalt-60.

ATTACHMENT 2

Increase the release criterion for treated water that is pumped to the collapsible storage containers prior to evaporation to 1,000 pCi/l of water.

Item 19(B)iii of License No. 34-19089-01 states that the water in the basement of the facility shall be processed until it contains no detectable non-soluble cobalt-60 and less than 200 pCi/liter of soluble cobalt-60. Due to delays that have been beyond the control of AMS, the quantity of highly-contaminated water (e.g., greater than 10,000 pCi/l of cobalt-60) in the basement has increased significantly since this process began. Because of current (and anticipated) spring rain conditions, that quantity is continuing to increase to the point that we are concerned about whether the water treatment contractor can process the water to the specified release limits faster than new contaminated water is produced.

From our experience to date, we have determined that the treatment contractor is able to process water fairly rapidly to levels that are below 1,000 pCi/l. However, it takes much more time in the final polishing of the water to achieve levels that are below 200 pCi/l. Please recall, in our letter to Jack Grobe dated January 27, 1995, we advised you that the treatment methodologies available to us were designed to meet conventional release criteria for ^{60}Co at commercial nuclear power stations (e.g., 5×10^{-5} μCi per milliliter), and that special measures would be required in order to discharge at lower concentrations.

On March 22, 1995, AMS requested amendment of License No. 34-19089-01 to permit evaporation of water stored in the warehouse of the London Road facility. To date, there has been no response from the USNRC on this matter, even though AMS is rapidly running out of space to store the treated water. However, AMS has received permission from the U. S. Environmental Protection Agency to evaporate water via the system described in our installation and operation applications submitted in March, 1995.

In order to speed up the water treatment process, and to ensure that the process will not have to be stopped for lack of storage space in the warehouse, AMS wishes to amend Item 19(B)iii of License No. 34-19089-01 to read as follows:

- iii. Water removed from the sewer manhole, lateral, building sump pit, and basement shall contain no detectable non-soluble cobalt-60 and less than 1,000 pCi/l soluble cobalt-60. Water that is treated to meet these release criteria will subsequently be pumped to 25,000 gallon storage containers located in the facility warehouse and evaporated, as described in letters dated March 3, 8, 10, and 22, 1995. Samples of the treated water shall be submitted for confirmatory analysis to a commercial analytical laboratory. Confirmatory measurement results shall be received prior to transferring any untreated water to the bladder tanks.

ATTAC

| Date/Time | Sample No. | Count Time in seconds | Counts in Region 1 (Item B) | Counts in Region 2 (Item C) | B + C (Item D) | Sample count rate (R _s) in cps D ÷ A (Item E) | Background count rate (R _b) from Attachment 2 (Item F) | σ _s $\frac{\sqrt{D}}{A}$ (Item G) | Efficiency (% _{mca}) in dpm from Attachment 3 (Item H) | Complete One Calculation Only | | | Confirmatory Result |
|-----------|--------------------|-----------------------|-----------------------------|-----------------------------|----------------|---|--|--|--|---|---|--|---------------------|
| | | | | | | | | | | Concentration in pCi/g $\frac{E - F}{H \times 0.031}$ | MEDA to pCi/g $\frac{4.66 \times \sqrt{F}}{G \times 0.037}$ | | |
| | | | | | | | | | | | | | |
| 8/10/95 | Batch 7 | 600 | 117 | 103 | 220 | 0.367 | 0.2832712 | | 0.0162782 | 138.5 | | | N/A |
| 5/26/95 | Batch 9 V-4 | 600 | 4471 | 3691 | 8162 | 13.603 | | | | 21.886 | | | |
| | V-B V-3 | | 11811 | 9156 | 20967 | 34.941 | | | | 57.613 | | | |
| | V-B V-2 | | 67403 | 53350 | 120753 | 201.25 | | | | 334151 | | | |
| | V-A V-1 | | 80170 | 63668 | 143838 | 239.7 | | | | 484945 | | | |
| | Batch 8 | | | | | | | | | | | | |
| | Batch 9 | | 113826 | 89739 | 203565 | 339.3 | | | | 573.092 | | | |
| 5/26/95 | V-4 | 600 | 12525 | 10023 | 22548 | 37.6 | 0.303851 | | 0.016348 | 63.493 | | | |
| 5/26/95 | Batch 9 | 600 | 212 | 161 | 373 | 0.62146 | | | | 522 | | | |
| 5/26/95 | Batch 9 | 600 | 5937 | 4604 | 10541 | 17.5 | | | | 22.054 | | | |
| 5/26/95 | Batch 9 | 600 | 269 | 220 | 489 | 0.815 | | | | 1376 | | | |
| 5/26/95 | Test | 600 | 206 | 192 | 398 | 0.64466 | 0.284867 | | 0.0164534 | 594 | | | |
| 5/31/95 | Batch 7 | 600 | 83 | 67 | 150 | 0.2500 | 0.283885 | | 0.0162711 | <MDA | | | 24 / 21.9 |
| 5/31/95 | Batch 17 | 600 | 101 | 69 | 170 | 0.28333 | | | | <MDA | | | 24 / 21.9 |
| 5/31/95 | Tank 300 (anode) | 600 | 108 | 72 | 180 | 0.3 | | | | <MDA | | | 24 / 21.9 |
| 6/1/95 | Batch 10 | 600 | 84 | 82 | 166 | 0.2767 | 0.2838032 | | 0.0163831 | <MDA | | | |
| 6/1/95 | Reject | 600 | 244 | 145 | 389 | 0.64832 | | | | 601 | | | |
| 6/1/95 | V-2 | 600 | 11984 | 9051 | 21035 | 35.225 | | | | 57.642 | | | |
| 6/1/95 | V-3 | 600 | 396 | 294 | 690 | 1.15 | | | | 1429 | | | |
| 6/1/95 | V-1 | 600 | 45920 | 39746 | 85666 | 149.413 | | | | 246.067 | | | |
| 6/1/95 | Influent | 600 | 52557 | 41524 | 94081 | 156.502 | | | | 258.206 | | | |
| 6/2/95 | Batch 10 | 600 | 122 | 97 | 219 | 0.35067 | 0.2833119 | | 0.0163526 | MDA | | | |
| 6/2/95 | Reject | 600 | 112 | 72 | 184 | 0.28467 | | | | MDA | | | |
| 6/2/95 | V-3 | 600 | 155 | 120 | 275 | 0.45833 | | | | 210.616 | | | |
| 6/2/95 | | | | | 1153 | 9.4914 | | | | 3451 | | | |

ATTACHMENT 5 ANALYSIS OF WATER SAMPLES

| Initials | Date/Time | Sample No. | Count Time in seconds | Counts in Region 1 (Item A) | Counts in Region 2 (Item B) | Counts in Region 3 (Item C) | B+C (Item D) | Sample count rate (R _s) in cps D + A (Item E) | Background count rate (R _b) from Attachment 2 (Item F) | n _s $\frac{\sqrt{D}}{A}$ (Item G) | Efficiency (ε _{sp}) in cps from Attachment 3 (Item H) | Complete One Calculation Only | | Confirmatory Result |
|----------|-----------|-------------------|--------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------|---|--|--|---|---|--|------------------------|
| | | | | | | | | | | | | Concentration in pCi/l $\frac{E - F}{H \times 0.037}$ | MDA in pCi/l $\frac{4.66 \times G}{H \times 0.037}$ | |
| NU | 5/19/95 | V-2 Eff | 600 | 25262 | 19926 | 45188 | 75333 | 27036 | 0.0164817 | 123.062 | N/A | | | N/A |
| NU | 5/19/95 | V-1 Eff | 600 | 90678 | 71539 | 162217 | 27036 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | V-3 Eff | 600 | 790 | 665 | 1459 | 27036 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | Sys. Inc | 600 | 117364 | 92267 | 209631 | 27036 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | BATCH #6 | 600 | 265 | 209 | 474 | 0.790 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | BATCH #6 | 600 | 190 | 113 | 303 | 0.505 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | BATCH #7 | 600 | 364 | 279 | 643 | 1.07166 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/19/95 | BATCH #6 | 600 | 127 | 88 | 215 | 0.35833 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/20/95 | outside Tank #579 | 600 | 114 | 81 | 195 | 0.325 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/23/95 | outside Tank #579 | 600 | 97 | 79 | 176 | 0.2933 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/23/95 | BATCH #7 | 600 | 130 | 106 | 240 | 0.4 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/23/95 | BATCH #7 | 600 | 143 | 104 | 247 | | | | | | | | N/A |
| NU | 5/24/95 | 2. mcdm | 600 | 12052 | 97052 | 219004 | 365 | 0.241946 | 0.0164817 | 123.062 | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 600 | 154 | 123 | 277 | 0.4617 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 600 | 154 | 103 | 257 | 0.4283 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 600 | 142 | 101 | 243 | 0.405 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 1800 | 420 | 362 | 780 | 0.348 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 600 | 134 | 117 | 251 | 0.41833 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #7 | 600 | 172 | 125 | 295 | 0.4983 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #8 | 600 | 1410 | 1057 | 2467 | 4.1116 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/24/95 | BATCH #8 | 600 | 203510 | 16184 | 364634 | 607.72 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/25/95 | BATCH #7 | 600 | 140 | 94 | 234 | 0.339 | 0.0164817 | 123.062 | N/A | | | | N/A |
| NU | 5/25/95 | BATCH #7 | 1800 | 424 | 311 | 735 | 0.408 | 0.0164817 | 123.062 | N/A | | | | N/A |

AT
ANALYSIS

ENT 5
PER SAMPLES

| Latitude | Date/Time | Sample No. | Count Time in seconds | Counts in Region 1 (Item B) | Counts in Region 2 (Item C) | B+C (Item D) | Sample count rate (R _{sub}) in cps D + A (Item E) | Background count rate (R _b) from Attached 3 (Item F) | σ _r √D A (Item G) | Efficiency (ε _{sub}) in dps from Attached 3 (Item H) | Complete One Calculation Only | | Confirmatory Result |
|----------|-----------|------------|--------------------------|-----------------------------------|-----------------------------------|-----------------|---|---|---------------------------------------|---|---|--|------------------------|
| | | | | | | | | | | | Concentration in pCi/g $\frac{E - F}{H \times 0.017}$ | MDA in pCi/g $\frac{4.65 \times G}{H \times 0.017}$ | |
| 2 | 4/1/01 | 7-877 | 1200 | 397 | 741 | 638 | 1023377 | 0.266170 | | 0.01619 | 129.58 | | 111.3 |
| 2 | 3/16/05 | 7-877 | 1200 | 196 | 169 | 365 | 0.30187 | 0.286132 | | | 29.58 | | |
| 2 | 3/12/05 | 7-877 | 1200 | 339 | 263 | 602 | 0.237127 | 0.247512 | | 0.016518 | 130. | | N/A |
| 2 | 5/12/05 | 7-877 | 1200 | 0591 | 6718 | 15280 | 38095 | | | | 629.73 | | |
| 2 | 7/12/05 | 7-877 | 600 | 13078 | 10511 | 23410 | 390183 | | | | 1379.56 | | |
| 2 | 7/12/05 | 7-877 | 600 | 25100 | 20375 | 46075 | 76.7916 | | | | 4633.1 | | |
| 2 | 5/12/05 | 7-877 | 1200 | 191 | 130 | 221 | 268333 | | | | 193 | | |
| 2 | 5/12/05 | 7-877 | 1200 | 127 | 83 | 200 | 233337 | | | | 176. | | |
| 2 | 5/12/05 | 7-877 | 1200 | 15763 | 12375 | 27942 | 0.46578 | 0.291473 | | 0.016518 | 7618.06 | | |
| 2 | 5/16/05 | 7-877 | 600 | 13743 | 10927 | 24670 | 411.265 | | | | 6726.18 | | |
| 2 | 5/16/05 | 7-877 | 600 | 8994 | 7188 | 16182 | 269.38 | | | 0.016518 | 4400.22 | | |
| 2 | 5/16/05 | 7-877 | 600 | 3700 | 2961 | 6661 | 11.1147 | | | | 17.720 | | |
| 2 | 5/16/05 | 7-877 | 600 | 783 | 175 | 958 | 2.31616 | | | | 3.366 | | |
| 2 | 5/16/05 | 7-877 | 600 | 607 | 490 | 1097 | 1.8233 | | | | 75.18 | | |
| 2 | 5/16/05 | 7-877 | 600 | 643 | 475 | 1118 | 1.6633 | | | | 25.75 | | |
| 2 | 5/16/05 | 7-877 | 600 | 870 | 656 | 1526 | | | | | < MDA | | |
| 2 | 5/16/05 | 7-877 | 600 | 106 | 69 | 175 | 0.29166 | | | | | | |
| 2 | 5/16/05 | 7-877 | 1200 | 327 | 228 | 555 | 0.30835 | | | | | | |
| 2 | 5/16/05 | 7-877 | 550 | 66 | 76 | | | | | | | | |
| 2 | 5/16/05 | 7-877 | 600 | 429 | 319 | 748 | 1.24117 | 0.274307 | | 0.016518 | 1593 | | N/A |
| 2 | 5/16/05 | 7-877 | 600 | 93 | 79 | 172 | 0.28666 | | | | 19.6 | | |
| 2 | 5/16/05 | 7-877 | 600 | 99 | 79 | 178 | 0.29166 | | | | 1.3 | | |
| 2 | 5/16/05 | 7-877 | 600 | 2512 | 310 | 702 | 1.170 | | | | 1468 | | N/A |

6/18/05

ANALYSIS OF TEST SAMPLES

| Labels | Date/Time | Sample No. | Count Time in seconds | Counts in Region 1 (Item B) | Counts in Region 2 (Item C) | B + C (Item D) | Sample count rate (R _s) in cps D ÷ A (Item E) | Background count rate (R _b) from Attached 2 (Item F) | σ _s $\frac{\sqrt{D}}{A}$ (Item G) | Efficiency (ε _{net}) in dps from Attachment 3 (Item H) | Complete One Calculation Only | | Confirmation Result |
|--------|-----------|------------|--------------------------|-----------------------------------|-----------------------------------|-------------------|---|---|--|---|---|--|------------------------|
| | | | | | | | | | | | Concentration in pCi/l $\frac{E - F}{H \times 0.037}$ | MDA in pCi/l $\frac{4.66 \times G}{H \times 0.037}$ | |
| Q1 | 5/1/85 | Blank 118 | 1200 | 203 | 142 | 345 | 0.2875 | 0.2531 | | 0.415105 | 3.2 LMDA | At | 43.13 |
| Q2 | 5/1/85 | Blank 119 | 100 | 80 | 77 | 157 | 0.261466 | 0.245122 | | 0.415105 | 3.1 LMDA | | |
| Q3 | 5/1/85 | | 1800 | 262 | 216 | 478 | 0.265555 | 0.240150 | | 0.415105 | 3.1 LMDA | | |
| Q4 | 5/1/85 | Blank 120 | 600 | 631 | 475 | 1106 | 1.843357 | 0.229622 | | 0.415105 | 7.624 | | |
| Q5 | 5/1/85 | " 11 | 1800 | 3853 | 3067 | 6920 | 3.844444 | 0.229121 | | 0.415105 | 5.878 | | |
| Q6 | 5/1/85 | V-1 | 600 | 2441 | 1974 | 4415 | 7.3018 | | | 0.415105 | 118.352 | | N/A |
| Q7 | 5/1/85 | V-2 | 600 | 3405 | 1149 | 2571 | 4.285 | | | 0.415105 | 65.94 | | N/A |
| Q8 | 5/1/85 | W-1 | 600 | 105 | 65 | 168 | 0.228 | 0.242966 | | 0.415105 | 6.1 LMDA | | N/A |
| Q9 | 5/1/85 | TEST | 400 | 558 | 450 | 1008 | 0.23 | 0.241566 | | 0.415105 | 6.1 LMDA | 67 | N/A |
| Q10 | 5/1/85 | TEST | 600 | 1373 | 1084 | 2457 | 4.110217 | 0.220523 | | 0.415105 | 6.73057 | | N/A |
| Q11 | 5/1/85 | effluent | 600 | 1019 | 215 | 1734 | 7.89 | | | 0.415105 | 113.626 | | N/A |
| Q12 | 5/1/85 | V-1 | 1800 | 1456 | 4491 | 16947 | 6.08114 | 0.240468 | | 0.415105 | 9.663 | | N/A |
| Q13 | 5/1/85 | V-2 | 600 | 1833 | 1469 | 3302 | 5.5032 | | | 0.415105 | 8.706 | | N/A |
| Q14 | 5/1/85 | V-3 | 600 | 3308 | 2505 | 5813 | 9.68833 | 0.244998 | | 0.415105 | 15.634 | | N/A |
| Q15 | 5/1/85 | V-4 | 600 | 2418 | 1949 | 4367 | 7.27833 | | | 0.415105 | 11.645 | | N/A |
| Q16 | 5/1/85 | infl | 600 | 10096 | 7967 | 18063 | 3009633 | | | 0.415105 | 417.884 | | N/A |
| Q17 | 5/1/85 | V-4 | 600 | 1700 | 1128 | 2828 | 4.38 | | | 0.415105 | 6.846 | | N/A |
| Q18 | 5/1/85 | effluent | 600 | 6245 | 1742 | 7987 | 18.41167 | 0.217268 | | 0.415105 | 50.158 | | N/A |
| Q19 | 5/1/85 | influent | 600 | 77254 | 20845 | 137099 | 28.9822 | 0.206654 | | 0.415105 | 37.2470 | | N/A |
| Q20 | 5/1/85 | influent | 600 | 34916 | 24322 | 165438 | 781.91 | 0.206654 | | 0.415105 | 46.7539 | | N/A |
| Q21 | 5/1/85 | effluent | 600 | 2562 | 1986 | 4548 | 7.59167 | | | 0.415105 | 12.528 | | N/A |
| Q22 | 5/1/85 | influent | 600 | 1899 | 3773 | 5672 | 1.43166 | 0.206654 | | 0.415105 | 18.96 | | N/A |
| Q23 | 5/1/85 | influent | 1200 | 858 | 672 | 1530 | 1.275 | 0.206654 | | 0.415105 | 16.22 | | N/A |

AT
ANALYSIS

IDENT 5

ATER SAMPLES

| Inlets | Date of Test | Sample No. | Count Time in seconds | Counts in Region 1 (Item 2) | Counts in Region 2 (Item 3) | B+C (Item 4) | Sample count rate (C ₄₊₅) in cps D + A | Background count rate (R _B) from Attachment 2 | Net count rate (C ₄₊₅ - R _B) (Item 5) | Efficiency (ε _{net}) in cps from Attachment 3 | Complete One Calculation Only | | Confirmation Result |
|--------|--------------|------------|--------------------------|-----------------------------------|-----------------------------------|-----------------|---|---|---|---|---|---|------------------------|
| | | | | | | | | | | | Concentration in pCi/l $\frac{C_{net}}{t \times 0.017}$ | NDA in pCi/l $\frac{C_{net} \times 0.017}{t \times 0.017}$ | |
| Q1 | 4/16/95 | Sample 2 | 1800 | 107 | 51 | 158 | 0.225 | 0.0000 | 0.225 | 0.0000 | 145 | | |
| Q1 | 4/17/95 | Sample 1 | 3600 | 1048 | 735 | 1783 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 156 | | |
| Q1 | 4/18/95 | Sample 1 | 3600 | 753 | 544 | 1297 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 201 | | |
| Q1 | 4/19/95 | Sample 1 | 3600 | 537 | 411 | 948 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 36.5 | 1215 | ND/1 |
| Q1 | 4/20/95 | Sample 1 | 3600 | 675 | 524 | 1199 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 144 | | |
| Q1 | 4/21/95 | Sample 1 | 3600 | 747 | 573 | 1320 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 36.9 | | |
| Q1 | 4/22/95 | Sample 1 | 600 | 130 | 81 | 211 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 191 | | |
| Q1 | 4/23/95 | Sample 1 | 1800 | 400 | 798 | 658 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 251 | | |
| Q1 | 4/24/95 | Sample 1 | 1800 | 412 | 358 | 770 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | | | |
| Q1 | 4/25/95 | Sample 1 | 1800 | 308 | 242 | 550 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 113 | | |
| Q1 | 4/26/95 | Sample 2 | 1800 | 591 | 438 | 1029 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 80.1 | | |
| Q1 | 4/27/95 | Sample 2 | 1800 | 610 | 453 | 1063 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 58.9 | | |
| Q1 | 4/28/95 | Sample 2 | 1800 | 781 | 179 | 960 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 29.2 | 92 | |
| Q1 | 4/29/95 | Sample 2 | 1500 | 422 | 355 | 777 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 83.9 | | |
| Q1 | 4/30/95 | Sample 3 | 900 | 199 | 148 | 307 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 33.7 | | |
| Q1 | 4/31/95 | Sample 4 | 800 | 405 | 274 | 679 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 10.0 | | |
| Q1 | 4/32/95 | Sample 4 | 600 | 790 | 577 | 1322 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 31.9 | | |
| Q1 | 4/33/95 | Sample 4 | 600 | 1574 | 1281 | 2855 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 73.5 | | |
| Q1 | 4/34/95 | Sample 4 | 600 | 701 | 145 | 346 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 55.0 | | |
| Q1 | 4/35/95 | Sample 4 | 600 | 509 | 392 | 901 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 20.3 | | |
| Q1 | 4/36/95 | Sample 4 | 600 | 104 | 509 | 163 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 26.1 | 167 | |
| Q1 | 4/37/95 | Sample 4 | 600 | 96 | 59 | 155 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 4.92 | | |
| Q1 | 4/38/95 | Sample 4 | 1800 | 76 | 199 | 463 | 0.3467 | 0.0000 | 0.3467 | 0.0000 | 3 | | |

ATTACHMENT 3

The AMS Radiation Safety Officer, after approval by the AMS Isotope Committee, may amend the provisions of Radiation Work Permit No. 95-10 and the work plan described in letters to the USNRC dated February 2, 1995, February 14, 1995, March 3, 1995, March 8, 1995, and March 10, 1995, to accommodate static or dynamic conditions encountered during the water treatment process

It is unfortunate that the USNRC elected to issue a license amendment in order to control the water treatment and sewer remediation process. While this may have, in principle, seemed like an appropriate mechanism for ensuring regulatory oversight, it has seriously compromised the success of the operation.

From its onset, AMS recognized that the specific procedures that would be required for this project could not be predicted with accuracy. A number of the early assumptions used to generate the work plan (i.e., that the cobalt in the basement water was "insoluble", that permits and authorizations would be issued in a timely fashion, that the treatment process would have a through-put of over 5,000 gallons per day, etc.) have since been disproven. From the first day of the process, constant and continuous "fine-tuning" of the work plan has been necessary. However, we have had to perform these within the excessively tight constraints imposed upon us by Item 19 of the AMS license.²

The USNRC's response to our submittals and applications to amend the license to permit even the simplest changes has been less than timely.^{3,4} For example:

| Item | Date Submitted to USNRC | Date of USNRC Response |
|--|-------------------------|---|
| Submission of work plan for treatment of water at the London Road facility and response to USNRC comments and questions on the work plan | February 2, 1995 | Comments and questions on the work plan received on February 10, 1995. Amendment 32 issued on March 17, 1995. |

² AMS is concerned about the USNRC's practice of enforcing the "letter" of the amendment, rather than its "intent", such that regard for good health physics practices is overlooked. For example, the USNRC's reticence in permitting AMS to contract a second laboratory to provide confirmatory analyses when the first laboratory was taken out of service due to local flooding, resulted in generation of over 10,5000 additional gallons of contaminated water, generation of additional solid waste that must be stored, and resulted in project personnel incurring an additional 50 person-millirem.

³ Please recall that when AMS expressed concern about the USNRC's decision to issue a license amendment to control the water treatment and sewer remediation work, the result of which would "tie the hands" of the on-site project manager and the RSO, the USNRC responded, in our meeting of February 6, 1995, that "field amendments" would be issued so that the project would not be hampered by approval delays.

⁴ The USNRC has not been the only regulatory agency that has delayed this project. For example, the water treatment process was halted on May 5, 1995, pending receipt of a City of Cleveland permit to excavate the soils on the property. This permit application was submitted to the City on March 15, 1995. The City relinquished jurisdiction to the USEPA on May 4, 1995. The USEPA finally issued the permit on May 17, 1995.

| Item | Date Submitted to USNRC | Date of USNRC Response |
|--|-------------------------|-------------------------------------|
| Application to amend license to permit evaporation of water in storage tanks and re-connection of foundation drainage system | March 20, 1995 | No response as of June 6, 1995. |
| Application to amend license to permit the use of Lockheed Analytical Services for confirmatory Analysis. | May 3, 1995 | Amendment 33 issued on May 18, 1995 |
| Application to amend license to extend completion date for Item 19. | May 15, 1995 | No response as of June 6, 1995. |

As a result of regulatory delays and the inability of AMS to obtain timely approval of minor changes to Item 19 of License No. 34-19089-01, AMS has been forced to implement less than optimum procedures in order to remain within the strict confines of Amendments 32 and 33. This has delayed the water treatment process significantly.⁵ To permit the remainder of this operation to proceed as quickly and as efficiently as possible, AMS requests that Item 19.G be added to License Number 34-19089-01:

- G. Minor changes to the provisions of Radiation Work Permit No. 95-10 and the work plan described in letters to the USNRC dated February 2, 1995, February 14, 1995, March 3, 1995, March 8, 1995, and March 10, 1995, may be made to accommodate static or dynamic conditions encountered during the water treatment process. Changes shall be made by the RSO, after approval by the AMS Isotope Committee, and after notification of the USNRC. Changes to the following shall require USNRC approval prior to implementation:
- I. Water shall be treated by the methodology of multi-stage filtration.
 - ii. The water in the collapsible storage tanks shall be evaporated by the methodology described in the letter dated March 20, 1995.
 - iii. Spill procedures implemented during the water treatment process shall be as described in the letters dated March 1, 3, 8 and 10, 1995.
 - iv. Water samples submitted for confirmatory analysis shall be analyzed by the methodology of gamma spectroscopy and solubility testing pursuant to Information Notice 94-07, "Solubility Criteria for Liquid Effluent Releases to Sanitary Sewerage Under the Revised 10 CFR Part 20".

⁵ Please recall that on March 2, 1995, there was approximately 25,000 gallons of water in the basement of the building to be treated. As of June 6, 1995, over 50,000 gallons of basement water have been treated and pumped to the collapsible storage containers. However, due to delays and a water influent rate of approximately 1,000 gallons per day, over 45,000 gallons of basement water remain to be treated.