



# Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504

216 • 881 • 6600

FAX: 216 • 881 • 9709

April 18, 1996

Mr. John Madera  
U. S. Nuclear Regulatory Commission  
Region III  
901 Warrenville Road  
Lisle, Illinois 60532-4351

Re: Proposed Discharge of Advanced Medical Systems, Inc. Tanks 695 and 164

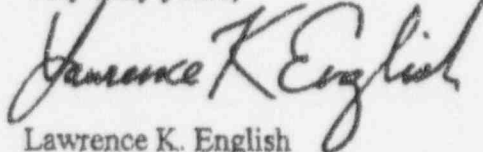
Dear Mr. Madera:

Attached please find test data that demonstrates that Tanks 695 and 164 at Advanced Medical Systems, Inc. contain readily detectable components of insoluble Cobalt-60. Note that one of the tanks, Tank 164, shows well over 35 picoCuries/liter of insoluble material. Each of these tanks holds approximately 20,000 gallons of contaminated water.

The insolubility determination was made according to NRC-approved test methods following good sample collection, chain-of-custody and laboratory practices. As you know, the relevant regulation, 10 CFR 20.2003, indicates that only radioactive material which is shown to be readily soluble in water or is readily dispersible biological material may be discharged. Therefore, a discharge of Tanks 695 or 164 would be a violation of 10 CFR 20.2003. The NRC should therefore prohibit its discharge.

In the event that the NRC chooses not to prohibit these discharge, please give the District adequate time to pursue other avenues. Please note once again that *post facto* notification provided by NRC with respect to its determinations on its testing is inadequate notice.

Very truly yours,

  
Lawrence K. English  
Assistant General Counsel

cc: William B. Schatz  
Richard N. Connelly

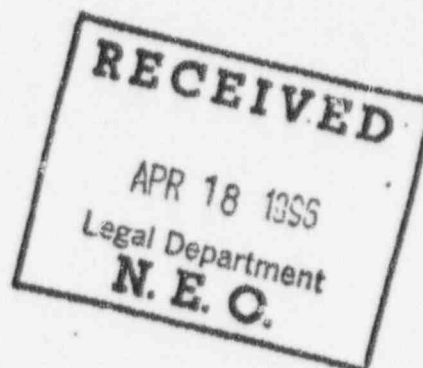
# OUTREACH LABORATORY

ANALYTICAL REPORT

PROJECT NO: 980082  
 CLIENT: N.E.O.R.S.D.  
 DATE SUBMITTED: 17-Apr-96  
 DATE REPORTED: 18-Apr-96

Sample ID	Date	Matrix	MDA ng/l	Cobalt-60 pg/l	
LRW-8107-220 SOLUBLE	4/16/96	Water	4.8	4.8 +/- 2.3	FRACK TANK SN695N
LRW-8107-220 INSOLUBLE	4/16/96	Solid	2.6	2.7 +/- 1.8	
LRW-8107-221 SOLUBLE	4/16/96	Water	5.0	8.1 +/- 2.7	S164ST
LRW-8107-221 INSOLUBLE	4/16/96	Solid	9.5	37.1 +/- 12.4	

Post-It® Fax Note	7671	Date	4-18-96	Page	2
To	L. ENGLISH	From	B. J. KASBERG		
Co./Dept.	LEGAL	On			
Phone #		Phone #	LATEST HOT!		
Fax #		Fax #	AMS RESULTS		



MDA = Minimum Detectable Activity

BDL = Below Detection Limit

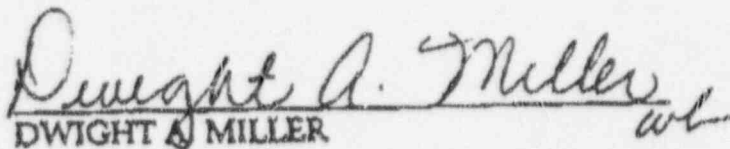
உதாரணம்:

NOTICE OF PROPOSED DISCHARGE

TO: NORTHEAST OHIO REGIONAL SEWER DISTRICT  
FROM: ADVANCED MEDICAL SYSTEMS, INC.  
DATE: April 18, 1996

Please take notice that Advanced Medical Systems, Inc. proposes to discharge tank 695, a 20,000 gallon steel frac tank containing foundation footer drain system water at the end of the business day on Wednesday, April 24, 1996.

Please guide yourself accordingly.

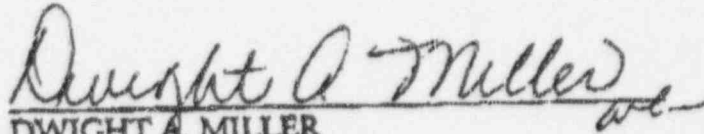
  
DWIGHT A. MILLER

NOTICE OF PROPOSED DISCHARGE

TO: NORTHEAST OHIO REGIONAL SEWER DISTRICT  
FROM: ADVANCED MEDICAL SYSTEMS, INC.  
DATE: April 18, 1996

Please take notice that Advanced Medical Systems, Inc. proposes to discharge tank 164, a 20,000 gallon steel frac tank containing foundation footer drain system water at the end of the business day on Wednesday, April 24, 1996.

Please guide yourself accordingly.

  
DWIGHT A. MILLER



# Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504

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LEGAL DEPARTMENT

FAX NUMBER 216-881-4407

## FAX TRANSMISSION

TO: NUCLEAR REGULATORY COMMISSION

ATTN: JOHN MADERA

RE: MORE INSOLUBLE COBALT AT AMS

FROM: LAWRENCE K. ENGLISH

DATE: 4/18/96 TIME: 4:45

FAX #: 708-515-1259 PAGES: 6 including cover sheet

COMMENTS: \_\_\_\_\_  
\_\_\_\_\_

THE PAGES COMPRISING THIS FACSIMILE TRANSMISSION CONTAIN CONFIDENTIAL INFORMATION FROM THE LEGAL DEPARTMENT OF THE NORTHEAST OHIO REGIONAL SEWER DISTRICT. THIS INFORMATION IS INTENDED SOLELY FOR USE BY THE INDIVIDUAL ENTITY NAMED AS THE RECIPIENT HEREOF. IF YOU ARE NOT THE INTENDED RECIPIENT, BE AWARE THAT ANY DISCLOSURE, COPYING, DISTRIBUTION OR USE OF THE CONTENTS OF THIS TRANSMISSION IS PROHIBITED. IF YOU HAVE RECEIVED THIS TRANSMISSION IN ERROR, PLEASE NOTIFY US BY TELEPHONE IMMEDIATELY SO WE MAY ARRANGE TO RETRIEVE THIS TRANSMISSION AT NO COST TO YOU.

4/19/96

Gindy,

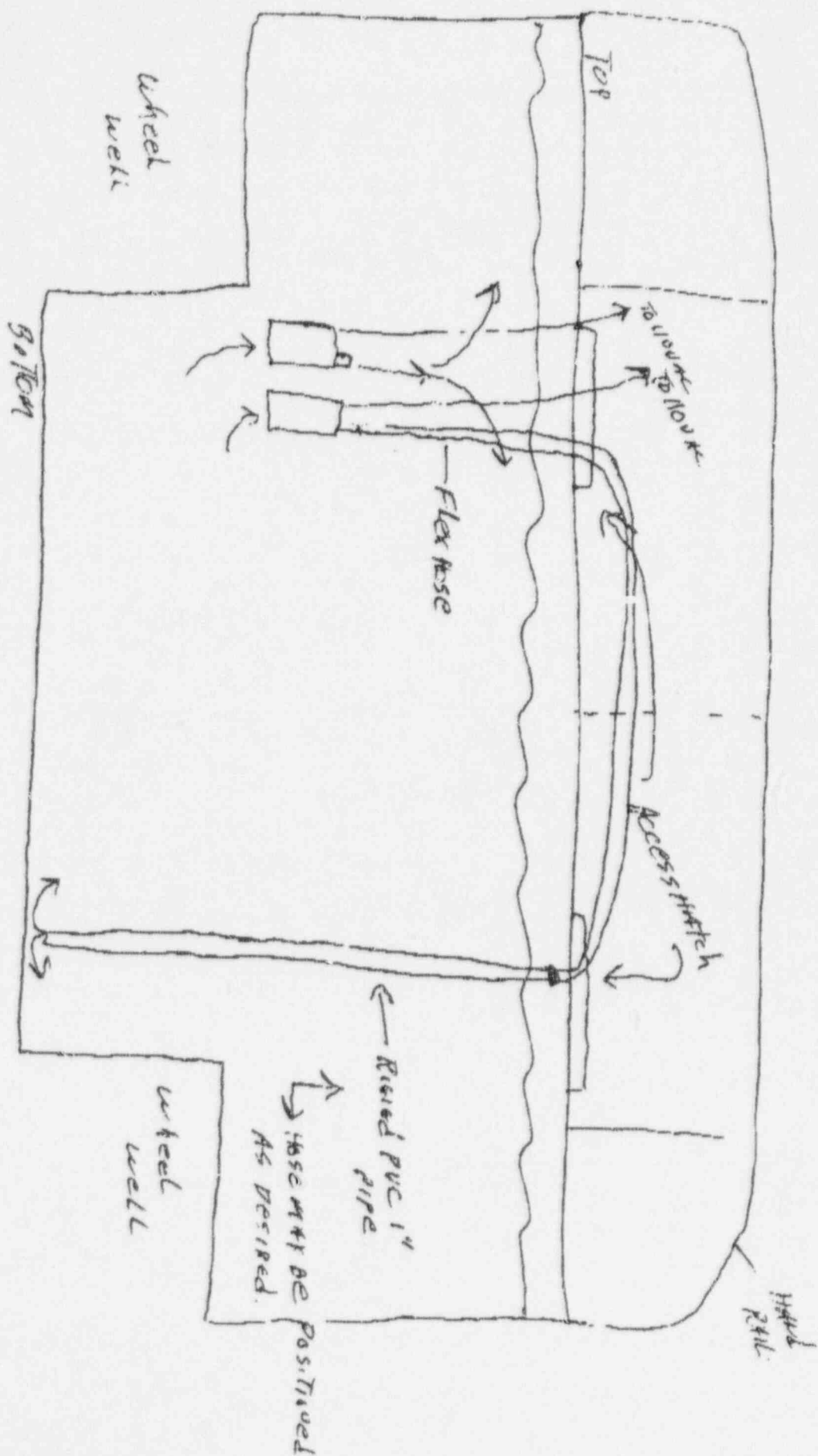
Frac tanks were mixed for 3 days before  
NEORSD took samples. NEORSD's sampling technique -  
same as w/ 3000 gallon tanks - sample from  
bottom, middle & top.

AMS used 2 pumps to mix tank.

AMS has split samples from NEORSD - these are  
being sent to AMS' lab - as well as samples  
taken today by AMS from the TOP of the  
tank. (The tanks have been mixed continually  
since April 12).

— Mike







## CONVERSATION RECORD

TIME

10:10 am

DATE

4/19/96

☐ VISIT☐ CONFERENCE☒ TELEPHONE☒ INCOMING  
OUTGOING

NAME OF PERSON(S) CONTACTED

ORGANIZATION (OFFICE, DEPT. ETC.)

TELEPHONE NO.

Dwight Miller

AMS

SUBJECT

AMS Tanks 695 and 164

SUMMARY

Dwight called to say that AMS would send the samples from Tanks 695 and 164 to its analytical lab (Lockheed) for retesting. AMS should have the results by Monday.

Dwight also said that AMS won't discharge the tanks until everything is straightened out (implication: until AMS gets NRC's and NEORSD's OK). Apparently NEORSD is also claiming that one or both of the tanks contains too much iron.

Water from Tank 695 has been discharged before, without incident. This tank was not used in the 1995 cleanup projects.

Tank 164 was used in the 1995 cleanup projects.

ACTION REQUIRED

Brief management.

NAME OF PERSON DOCUMENTING CONVERSATION

SIGNATURE

DATE

Michael F. Weber

1 *Michael F. Weber*

4/19/96

*how were samples taken*

*2 pps into tank (like others)*

*C/48*



# Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504

216 • 881 • 6600

FAX: 216 • 881 • 9709

April 26, 1996

Dwight A. Miller, Esq.  
Stavoie & Miller  
55 Public Square  
1604 Illuminating Building  
Cleveland, Ohio 44113  
VIA TELECOPIER (216) 771-8048

Henry E. Billingsley, II  
Arter & Hadden  
925 Euclid Avenue  
1100 Huntington Building  
Cleveland, Ohio 44115-1475  
VIA TELECOPIER (216) 696-2645

Re: Advanced Medical Systems, Inc. Tanks 695 and 164

Gentlemen:

It is our understanding that the Nuclear Regulatory Commission ("NRC") will be sampling Tanks 695 and 164 at the London Road facility of your client, Advanced Medical Systems, Inc. To ensure that disputes about the nature of that sampling are minimized, we hereby request that you provide us prior notice of when that sampling is to occur and allow us to enter the Advanced Medical Systems, Inc. property to observe that sampling.

Further, Mr. Miller had confirmed in writing that the water in those Tanks 695 and 164 was solely from the new foundation drain system. However, at the Wednesday, April 24, 1996 meeting at Judge O'Malley's chambers, you had indicated that this was not so. Please clarify to us, in writing, the precise source of the water in each of Tanks 695 and 164, insofar as the Order on Consent authorizes certain discharges of water from the new foundation footer drain system only.

Finally, and as I had discussed briefly with Mr. Billingsley, we hereby request that you allow us to conduct dye testing of the remaining open parking lot drains on the Advanced Medical Systems, Inc. property to determine whether those drains lead to waters of the State of Ohio or to the facilities of the Northeast Ohio Regional Sewer District.

Please call me at (216) 881-6600, ext. 826, if you have any questions about the foregoing.

Very truly yours,

Lawrence K. English  
Assistant General Counsel

RECEIVED

MAY 02 1996

REGION III

cc: John Madera, NRC Region III  
Donna Kniss, Ohio EPA  
Richard Connelly, NEORSD  
John E. Lynch, Esq.

MAY 02 1996



# Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504

216 • 881 • 6600

FAX: 216 • 881 • 9709

April 19, 1996

Geoffrey C. Wright, Acting Deputy Director  
Division of Nuclear Materials Safety  
U. S. Nuclear Regulatory Commission, Region III  
801 Warrenville Road  
Lisle, IL 60532-4351

PRIORITY ROUTING	
First	Second
RA	RC
DRA	EIC
DRP	SGA
DRS	QI
DNMS	PAO
DRMA	

FILE ML

Re: Contamination Surrounding Advanced Medical Systems, Inc.

Dear Mr. Wright:

When we first spoke, I had conveyed to you the concern that the Northeast Ohio Regional Sewer District ("District") had over the lack of a realistic characterization of the extent to which the area surrounding your licensee, Advanced Medical Systems, Inc., had been contaminated with Cobalt-60. This concern has increased substantially of late, and we seek your immediate action in characterizing and containing the Cobalt-60 that contaminates this area and now appears to be moving into and through groundwater.

You will find attached laboratory results indicating that water taken from the foundation footer drains around your licensee's facility contains more than 35 picoCuries/liter insoluble Cobalt-60. Each of the District, the NRC, and even AMS have found insoluble Cobalt-60 before. Here, however, the insoluble Cobalt-60 is entirely from the new underground drain system. See attached April 17, 1996 letter of Dwight A. Miller, one of the attorneys for your licensee. Accordingly, it appears that Cobalt-60 contamination around your licensee's facility is migrating into the foundations and groundwater.

Your failure to promptly act on this matter increases the risk that your licensee will cause further contamination to the environment and to the District's publicly owned wastewater treatment facility. Please let us know what steps the NRC will actually take to prevent additional contamination from occurring.

Very truly yours,

*Lawrence K. English*  
Lawrence K. English  
Assistant General Counsel

att.

cc: Donna Kniss, Ohio EPA  
James Payne, Ohio Attorney General  
Richard N. Connelly  
John E. Lynch

C/SO

APR 24 1996

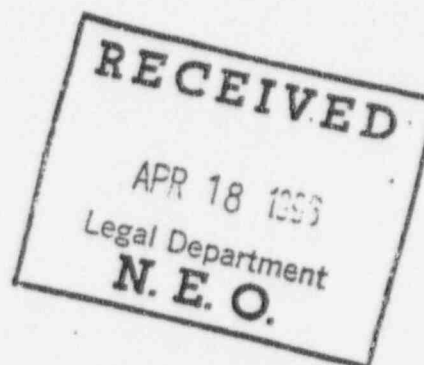
# OUTREACH LABORATORY

ANALYTICAL REPORT

PROJECT NO: 960082CLIENT: N.E.O.R.S.D.DATE SUBMITTED: 17-Apr-96DATE REPORTED: 16-Apr-96

Sample ID	Date	Matrix	MDA pCi/l	Cobalt-60 pCi/l	
LRW-6107-220 SOLUBLE	4/16/96	Water	4.8	4.8 +/- 2.3	FRACK TANK SN695N
LRW-6107-220 INSOLUBLE	4/16/96	Solid	2.6	2.7 +/- 1.8	
LRW-6107-221 SOLUBLE	4/16/96	Water	5.0	6.1 +/- 2.7	S164ST
LRW-6107-221 INSOLUBLE	4/16/96	Solid	8.6	37.1 +/- 12.4	

Post-It* Fax Note	7671	Date	4-18-96	# of pages	2
To	L. ENGLISH	From	B. J. KASBERG		
Co./Dept.	LEGAL	Co.			
Phone #		Phone #	LATEST HOT!		
Fax #		Fax #	AMS RESULTS		



MDA = Minimum Detectable Activity

BDL = Below Detection Limit

MAIL INVOICE IN TRIPLICATE TO:  
B. KOH AND ASSOCIATES, INC.  
c/o NEORS  
10211 A S. DOLFIELD RD.  
OWINGS MILLS, MD 21117  
PHONE: (301) 356-6612

Page 1011

### Sample Collection and Chain of Custody Form

[illegible]

960082

blankship.xls

STAVOLE & MILLER  
ATTORNEYS AND COUNSELLORS AT LAW  
1604 ILLUMINATING BUILDING  
55 PUBLIC SQUARE  
CLEVELAND, OHIO 44113

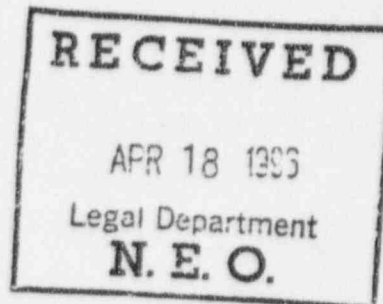
G. ANTHONY STAVOLE  
DWIGHT A. MILLER  
—  
TIMOTHY B. MILLER

AREA CODE 216  
TELEPHONE 771-0011  
FAX NO. 771-8048

IN REPLY REFER TO  
FILE NO. \_\_\_\_\_

April 17, 1996

Mr. Lawrence K. English  
Northeast Ohio Regional Sewer District  
3826 Euclid Avenue  
Cleveland, Ohio 44115-2504



Re: Discharges from Advanced Medical Systems, Inc.

Dear Mr. English:

I am responding to your letter of April 16, 1996. As you noted, our pre-printed Notice of Discharge indicated that Tanks 695 and 164 were 3000 gallon PVC tanks. They were, in fact, 20,000 steel frac tanks. While your notation of this obvious clerical error is correct, the rest of your letter is not.

For instance, the Notices clearly indicated the tank numbers and indicated that they were ready for discharge. Judge White's Order does not require any more information than this. You were properly notified of our intent to discharge.

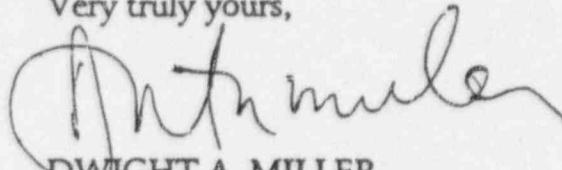
Moreover, not only did the Radiation Safety Office make these two tanks available for sampling, your personnel in fact did sample from the tanks and gave us splits of each sample which we still retain.

In addition, our preprinted notice clearly says that the water in these two tanks came from the new underground drain system and your organization has actually tested and accepted a prior discharge of water from one of these tanks late last year.



Just to keep your concerns to a minimum, I am enclosing two (2) new notices of discharge. We will be discharging these tanks not later than April 24, 1996.

Very truly yours,



DWIGHT A. MILLER

DAM/wb





# Northeast Ohio Regional Sewer District

26 Euclid Avenue • Cleveland, Ohio 44115-2504

216 • 881 • 6600

FAX: 216 • 881 • 9709

April 23, 1996

Mr. John Madera, Chief  
Nuclear Materials Licensing Section  
U.S. Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, Illinois 60532-4351

Re: Discharge of 20,000 Gallon Frac Tanks by the Advanced Medical Systems, Inc.

Dear Mr. Madera:

This letter is to confirm the message that you placed in my voice mail at 2:58 p.m. on April 22, 1996. This message relates to the proposed discharge by the Advanced Medical Systems (AMS) of two 22,000 gallon steel frac tanks (AMS tanks 695 and 164) that District sampling has shown contain insoluble Cobalt-60.

In your message, you stated that AMS has agreed (with the NRC) not to discharge the water from either of these tanks until results for samples taken by AMS have been received. You further stated that upon receipt of these results by the NRC, the NRC will take one of two actions.

If the AMS results confirm the presence of insoluble Cobalt 60, the NRC will require some form of treatment of the water to remove the Cobalt prior to discharge. If the AMS results do not indicate the presence of insoluble Cobalt 60, you stated that the NRC would obtain and analyze samples from these two tanks.

If I have misunderstood or improperly stated the position of the NRC regarding the proposed discharges by AMS, please contact me immediately. Your cooperation in keeping the District informed in this matter is appreciated.

Sincerely,

Thomas Lenhart  
Assistant General Counsel

cc: Richard Connelly  
Lawrence English

4/51



# Advanced Medical Systems, Inc.

1020 London Rd.  
Cleveland, Ohio 44110  
216-692-3270

April 24, 1996

Mr. Hubert Miller  
Regional Administrator, Region III  
United States Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, Illinois 60523-4351

Re: Strategic Plan (USNRC License No. 34-19089-01)

Dear Mr. Miller:

Advanced Medical Systems, Inc. (AMS) is in receipt of your December 6, 1995 letter wherein additional information relating to the September 17, 1995 Demand for Information (DFI) was solicited. We responded to the issues raised in that letter, except for those pertaining to the Shewmaker structural integrity report, in Revision I of the "Strategic Plan for the London Road Facility". This document was forwarded to you on January 15, 1996.

On April 22, 1996, Ms. Cynthia Pederson (USNRC) requested a more formal response than what was contained in our January 15th submittal. In compliance with her request, enclosed are our item-specific responses to your December 6th letter, along with a description of follow-up actions associated with each item. If you have any questions or if I can provide you with additional information, please call me at (216) 692-3270.

Sincerely,

Robert Meschter, R.S.O.

cc: D. Cesar  
D. A. Miller, Esq. - Stavole & Miller  
C. D. Berger, C.H.P. - IEM  
Assistant General Counsel for Hearings and  
Enforcement, USNRC  
D. A. Cool - Director, Division of Industrial and  
Medical Nuclear Safety, USNRC  
C. D. Pederson - Director, Division of Radiation  
Safety and Safeguards, USNRC  
G. Wright - Acting Deputy Director, Division of  
Radiation Safety and Safeguards, USNRC  
M. Weber - Region III, USNRC

C/52

MAY 03 1996

9605310020 SPP

RESPONSE FOR USNRC REQUEST FOR ADDITIONAL INFORMATION  
IN REGARD TO THE SEPTEMBER 17, 1995 DEMAND FOR INFORMATION (DFI)

**USNRC Comment:** You designated the recovery of the capabilities of the hot cell, and the subsequent reduction of sealed source and bulk cobalt 60 inventory, as intermediate priority actions, to be completed within the next one to three years in accordance with your priority scheme. We consider that a higher priority should be given to these actions. Furthermore, given the importance of the inventory reduction we request estimated completion dates rather than the "TBD" stated in Table 3 of your response. You should describe the actions taken to date and planned, to identify a market for the sealed and bulk sources. We request specific justification if the actions discussed (in this paragraph) are not designated as high priority actions with specific schedules assigned.

**AMS Response:** In regard to recovery of the Hot Cell's capabilities, page 7, lines 12 through 17 of Revision 1 of the "Strategic Plan for the London Road Facility" (Strategic Plan), which was submitted to the USNRC on January 15, 1996, shows that the Hot Cell's capabilities were recovered and the system became fully operational with respect to its ability to decontaminate, leak test, package, and ship sealed sources, on December 27, 1995. AMS began returning sources to NPI shortly thereafter. Table 3 on page 16 and 17 of the Plan shows the scheduled end dates for the referenced activities.

In regard to inventory reduction efforts, page 7, lines 38 through 43 of Revision 1 of the Strategic Plan states that discussions with a variety of potential recipients of the sealed sources and bulk cobalt were underway. Table 3 on page 17 of the Plan shows the scheduled end date for these discussions. Because discussions were still underway as of the date of Revision 1 of the Plan, these items remained open. Since that time, and as shown on page 7 of Revision 2 of the Strategic Plan (submitted to the USNRC on April 8, 1996), the discussions were completed and on March 20, 1996 AMS prepared and distributed a description of the type, form and curie content of the sources to agencies and firms with potential interest. As of the date of this letter, AMS continues to receive responses to its March 20th letter.

**Action Taken:** No further action required. However, Revision 3 of the Strategic Plan, which will be forwarded to the USNRC by July 15, 1996, will show the inventory reduction efforts elevated to a "high" priority, and will report on the outcome of the March 20, 1996 mailing.

**USNRC Comment:** We also regard the training of the offsite emergency response personnel in AMS' Emergency Plan, and the subsequent emergency exercise, as high priority actions. We expect this training to take place expeditiously after NRC approves the Emergency Plan, as you stated in your response, and the exercise to follow within two months after the training is completed. Therefore, you should designate these actions as high priority actions. We request specific justification if the actions discussed (in this paragraph) are not designated as high priority actions with specific schedules assigned.

**AMS Response:** Table 2 in Revision 1 of the Strategic Plan shows training of offsite emergency response personnel and performance of the emergency exercise to be high priority actions. Page 5, line 29 of the Plan states that "within 60 days after USNRC approval of the revised Emergency Plan, a training session for first responders will be scheduled". Page 5, line 36 of the Plan states that "within 60 days after all first responders have received initial training in the provisions of the AMS Emergency Plan, the emergency exercise will be scheduled and staged".

**Action Taken:** No further action required.

USNRC Comment: Regarding Item A.2 of the DFI (offsite disposal of wastes), we consider this action to be a high priority action, given that (1) these wastes are the only radioactive material at AMS which are in a potentially dispersible form, and (2) offsite disposal of wastes is now possible due to the recent reopening of the licensed low-level waste disposal facility at Barnwell, South Carolina. We request specific justification if the actions discussed [in this paragraph] are not designated as high priority actions with specific schedules assigned.

**AMS Response:** With the exception of the excavated soils from the sewer remediation project, the majority of the solid waste remaining at the AMS facility is stored in Type-A 55-gallon drums or B-25 boxes. As such, they meet the DOT criteria for the water spray test (simulated exposure to rainfall), free drop test (from a height of four feet), compression test, and penetration test. Although the contents of the containers are listed as "potentially dispersible" in the Strategic Plan and the Conceptual Decommissioning Plan, they are not likely to be dispersed even in the event of a major natural disaster. Furthermore, as shown in Section 2 of the "Emergency Plan for the London Road Facility" (Revision 0, September 21, 1995), even if the potential for dispersal is assumed, the radiological impact on members of the general public would be negligible.

The 60,000 curies of sealed sources and bulk cobalt at the London Road facility no longer serve a useful purpose in light of on-going operations. Their mere presence places great physical and financial demands on AMS that would either not exist or would be reduced in magnitude if the inventory were no longer present.

AMS would like nothing better than to immediately dispose of the packaged waste and immediately complete all the rest of the items listed on Table 2 of Revision 1 of the Strategic Plan. However, due to limits on personnel availability and financial resources, it is simply not possible for AMS to act on all of these outstanding issues at once. Given a choice between dedicating its limited resources to inventory reduction, which has significant programmatic and financial benefits, or disposal of the packaged low-level radioactive waste, which has negligible programmatic or financial benefits, since both choices entail significant expenditure of funds, AMS has placed a higher priority on the inventory reduction and relegated the solid waste disposal to a lower priority.

**Action Taken:** None.

USNRC Comment: Regarding Item B (inventory), we agree that the health and safety significance of reducing the inventory of sealed and bulk sources, which requires the use of the hot cell, outweighs the health and safety significance of removing the stuck plug of the hot cell's front storage well and completing the physical inventory. However, the further postponement of the removal of the plug and the subsequent completion of the physical inventory necessitates that AMS request an amendment to License Condition 14. The new completion date for the physical inventory should expeditiously follow the completion date for the reduction of the inventory of sealed and bulk sources, and must not extend past June 30, 1998, the date of the next required physical inventory.

**AMS Response:** Page 8, lines 27 through 31 of Revision 1 of the Strategic Plan states that an amendment to License No 34-19089-01 to postpone the inventory requirement may be necessary because of the low priority assigned to removal of the stuck plug. However, the decision to submit an amendment application is dependent upon the timeliness of USNRC action on AMS's recent license renewal.

**Action Taken:** No further action required.

USNRC Comment: Regarding Item D (decommissioning/decontamination of the WHUT room), your response did not address these issues. Please describe your plan of action for the decommissioning/decontamination of the WHUT Room.

AMS Response: Page 5, lines 1 through 19 of Revision 1 of the Strategic Plan states that the methodology for decommissioning the AMS facility, including decommissioning/decontamination of the WHUT Room, is contained in the "Conceptual Decommissioning Plan for the London Road Facility". This document was submitted to the USNRC on October 20, 1995. Therein, AMS indicated that the preferred decommissioning methodology for the WHUT Room is SAFSTOR, followed by release for unrestricted use after a safe storage period of up to 50 years.

This methodology is preferred (e.g., over DECON) because of its overwhelming reduction in occupational exposures and quantities of radioactive waste due to radioactive decay. It is also compatible with a previous position in regard to the WHUT Room taken by the USNRC in an October 20, 1988 letter from A. B. Davis (USNRC) to Dr. Seymour S. Stein (AMS). In that letter, the USNRC concurred with AMS's February 8, 1988 and July 6, 1988 request to delay decontamination of the WHUT Room until personnel exposure rates are reduced significantly, stating that "isolation can be carried out safely with some benefit in the reduction in occupational exposure and waste requiring disposal" (see page 1 of the October 20, 1988 letter).

Action Taken: No further action required.

USNRC Comment: AMS is required, by License Condition 22, to decontaminate restricted areas if surface contamination levels exceed 40,000 disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup>). Consistent with ALARA principles your plan should address steps that will be taken to further reduce contamination levels and permit a greater degree of worker safety and accessibility throughout the facility. Therefore, you should re-address this issue and describe your plan of action for the decontamination of the AMS facility.

AMS Response: In this comment, we assume the USNRC is referring to License Condition 23.F, where the July 23, 1990 letter from S. J. Stein (AMS) to J. Madera (USNRC) is cited. The Stein letter served to transmit Isotope Shop Procedure No. ISP-1. Section 3.3.2(b)(1) of this procedure contains the following action level for surface contamination in restricted areas: "Contamination levels [except Hot Cell] exceeding  $4.0 \times 10^4$  dpm/100 cm<sup>2</sup> shall be reduced ALARA." Excluding the Hot Cell, the only locations at the London Road facility with removable contamination in excess of 40,000 dpm/100 cm<sup>2</sup> are the Isotope Shop, the Source Garden, the Decontamination Room, and the WHUT Room. Of these, only the Isotope Shop and the Decontamination Room are accessed by personnel and then only rarely (e.g., during Hot Cell entries or for performance of routine surveillance activities).

When the exposure potential associated with a decontamination effort (e.g., direct and inhalation exposure potential) is assessed in light of the limited need to access the Isotope Shop and the Decontamination Room, the existing contamination levels in these areas (e.g., an average of 50,000 cpm/100 cm<sup>2</sup> in the Isotope Shop and 3,000,000 dpm/100 cm cm<sup>2</sup> in the Decontamination room) are considered to be as low as reasonably achievable. However, if these areas are accessed more frequently than the current, this position will be re-evaluated.

Action Taken: Revision 3 of the Strategic Plan, which will be submitted to the USNRC before July 15, 1996, will address decontamination of the Isotope Shop and the Decontamination Room to levels



that are ALARA in the Section entitled "On-Going Actions" (subsection entitled "Housekeeping Improvements").

USNRC Comment: Please provide us information regarding the expected long term (3-5 years) integrity of the collapsible storage tanks.

AMS Response: Pursuant to vendor specifications, the rubberized fabrics that form the tanks comply with MIL-T-52983, MIL-T-53029 and MIL-T-53066 military specifications for performance and durability. In a December 12, 1995 discussion between the manufacturer of the collapsible storage tanks (Mr. David H. Dack, Aero Tec Laboratories Inc., Spear Road Industrial Park, Ramsey, New Jersey) and R. Meschter (AMS), the manufacturer stated that tanks that have been deployed for at least eight (8) years have suffered no loss of integrity. Since the AMS tanks are located in a controlled (indoor) environment and are frequently inspected, their containment ability should endure for at least eight years.

Action Taken: None required.

USNRC Comment: The structural integrity inspection conducted by R. Shewmaker of NRC Headquarters has been completed. We will forward the complete inspection report to you as soon as it is available. The inspection revealed several concerns which may have an effect on several issues discussed in the DFI (e.g., the Emergency Plan, and the Decommissioning Plan). Therefore, in your response to this letter, please address the issues discussed in the structural integrity inspection report.

AMS Response: In an April 9, 1996 letter from R. Meschter (AMS) to G. C. Wright (USNRC), the USNRC was informed that AMS scheduled an independent evaluation of the findings of the Shewmaker inspection report. Once the evaluation is complete, a discussion of the issues contained in the Shewmaker report would be submitted to the USNRC by June 12, 1996. In an April 11, 1996 letter from G. C. Wright to R. Meschter, the USNRC approved this schedule.

Action Taken: This comment will be resolved in the AMS response to the Shewmaker inspection report, which will be submitted to the USNRC prior to June 12, 1996.



# Advanced Medical Systems, Inc.

1020 London Rd.  
Cleveland, Ohio 44110  
216-692-3270

April 24, 1996

Mr. Hubert Miller  
Regional Administrator, Region III  
United States Nuclear Regulatory Commission  
801 Warrenville Road  
Lisle, Illinois 60523-4351

Re: Strategic Plan (USNRC License No. 34-19089-01)

Dear Mr. Miller:

Advanced Medical Systems, Inc. (AMS) is in receipt of your December 6, 1995 letter wherein additional information relating to the September 17, 1995 Demand for Information (DFI) was solicited. We responded to the issues raised in that letter, except for those pertaining to the Shewmaker structural integrity report, in Revision 1 of the "Strategic Plan for the London Road Facility". This document was forwarded to you on January 15, 1996.

On April 22, 1996, Ms. Cynthia Poderson (USNRC) requested a more formal response than what was contained in our January 15th submittal. In compliance with her request, enclosed are our item-specific responses to your December 6th letter, along with a description of follow-up actions associated with each item. If you have any questions or if I can provide you with additional information, please call me at (216) 692-3270.

Sincerely,

Robert Meschter, R.S.O.

cc: D. Cesar  
D. A. Miller, Esq. - Stavole & Miller  
C. D. Berger, C.H.P. - IEM  
Assistant General Counsel for Hearings and  
Enforcement, USNRC  
D. A. Cool - Director, Division of Industrial and  
Medical Nuclear Safety, USNRC  
C. D. Poderson - Director, Division of Radiation  
Safety and Safeguards, USNRC  
G. Wright - Acting Deputy Director, Division of  
Radiation Safety and Safeguards, USNRC  
M. Weber - Region III, USNRC



## Advanced Medical Systems, Inc.

## Fax Cover Sheet

Date 4/26/96

1020 London Road

Cleveland, Ohio 44110

(216) 692-3270

Fax (216) 692-3269

ATTN: M. Weber

FAX NO.: \_\_\_\_\_

COMPANY: \_\_\_\_\_

FROM: BOS M

EXT. \_\_\_\_\_

SUBJECT: \_\_\_\_\_

## MESSAGE

Attached is what we promised  
by end of week.

PLEASE Distribute

ORIGINAL VIA U.S. MAIL

THAX

CSZ

**RESPONSE FOR USNRC REQUEST FOR ADDITIONAL INFORMATION  
IN REGARD TO THE SEPTEMBER 17, 1995 DEMAND FOR INFORMATION (D#1)**

**USNRC Comment:** You designated the recovery of the capabilities of the hot cell, and the subsequent reduction of sealed source and bulk cobalt 60 inventory, as intermediate priority actions, to be completed within the next one to three years in accordance with your priority scheme. We consider that a higher priority should be given to these actions. Furthermore, given the importance of the inventory reduction we request estimated completion dates rather than the "TBD" stated in Table 3 of your response. You should describe the actions taken to date and planned, to identify a market for the sealed and bulk sources. We request specific justification if the actions discussed [in this paragraph] are not designated as high priority actions with specific schedules assigned.

**AMS Response:** In regard to recovery of the Hot Cell's capabilities, page 7, lines 12 through 17 of Revision 1 of the "Strategic Plan for the London Road Facility" (Strategic Plan), which was submitted to the USNRC on January 15, 1996, shows that the Hot Cell's capabilities were recovered and the system became fully operational with respect to its ability to decontaminate, leak test, package, and ship sealed sources, on December 27, 1995. AMS began returning sources to NPI shortly thereafter. Table 3 on page 16 and 17 of the Plan shows the scheduled end dates for the referenced activities.

In regard to inventory reduction efforts, page 7, lines 38 through 43 of Revision 1 of the Strategic Plan states that discussions with a variety of potential recipients of the sealed sources and bulk cobalt were underway. Table 3 on page 17 of the Plan shows the scheduled end date for these discussions. Because discussions were still underway as of the date of Revision 1 of the Plan, these items remained open. Since that time, and as shown on page 7 of Revision 2 of the Strategic Plan (submitted to the USNRC on April 8, 1996), the discussions were completed and on March 20, 1996 AMS prepared and distributed a description of the type, form and curie content of the sources to agencies and firms with potential interest. As of the date of this letter, AMS continues to receive responses to its March 20th letter.

**Action Taken:** No further action required. However, Revision 3 of the Strategic Plan, which will be forwarded to the USNRC by July 15, 1996, will show the inventory reduction efforts elevated to a "high" priority, and will report on the outcome of the March 20, 1996 mailing.

**USNRC Comment:** We also regard the training of the offsite emergency response personnel in AMS' Emergency Plan, and the subsequent emergency exercise, as high priority actions. We expect this training to take place expeditiously after NRC approves the Emergency Plan, as you stated in your response, and the exercise to follow within two months after the training is completed. Therefore, you should designate these actions as high priority actions. We request specific justification if the actions discussed [in this paragraph] are not designated as high priority actions with specific schedules assigned.

**AMS Response:** Table 2 in Revision 1 of the Strategic Plan shows training of offsite emergency response personnel and performance of the emergency exercise to be high priority actions. Page 5, line 29 of the Plan states that "within 60 days after USNRC approval of the revised Emergency Plan, a training session for first responders will be scheduled". Page 5, line 36 of the Plan states that "within 60 days after all first responders have received initial training in the provisions of the AMS Emergency Plan, the emergency exercise will be scheduled and staged".

**Action Taken:** No further action required.

USNRC Comment: Regarding Item A.2 of the DFI (offsite disposal of wastes), we consider this action to be a high priority action, given that (1) these wastes are the only radioactive material at AMS which are in a potentially dispersible form, and (2) offsite disposal of wastes is now possible due to the recent reopening of the licensed low-level waste disposal facility at Barnwell, South Carolina. We request specific justification if the actions discussed [in this paragraph] are not designated as high priority actions with specific schedules assigned.

AMS Response: With the exception of the excavated soils from the sewer remediation project, the majority of the solid waste remaining at the AMS facility is stored in Type-A 55-gallon drums or B-25 boxes. As such, they meet the DOT criteria for the water spray test (simulated exposure to rainfall), free drop test (from a height of four feet), compression test, and penetration test. Although the contents of the containers are listed as "potentially dispersible" in the Strategic Plan and the Conceptual Decommissioning Plan, they are not likely to be dispersed even in the event of a major natural disaster. Furthermore, as shown in Section 2 of the "Emergency Plan for the London Road Facility" (Revision 0, September 21, 1995), even if the potential for dispersal is assumed, the radiological impact on members of the general public would be negligible.

The 60,000 curies of sealed sources and bulk cobalt at the London Road facility no longer serve a useful purpose in light of on-going operations. Their mere presence places great physical and financial demands on AMS that would either not exist or would be reduced in magnitude if the inventory were no longer present.

AMS would like nothing better than to immediately dispose of the packaged waste and immediately complete all the rest of the items listed on Table 2 of Revision 1 of the Strategic Plan. However, due to limits on personnel availability and financial resources, it is simply not possible for AMS to act on all of these outstanding issues at once. Given a choice between dedicating its limited resources to inventory reduction, which has significant programmatic and financial benefits, or disposal of the packaged low-level radioactive waste, which has negligible programmatic or financial benefits, since both choices entail significant expenditure of funds, AMS has placed a higher priority on the inventory reduction and relegated the solid waste disposal to a lower priority.

Action Taken: None.

USNRC Comment: Regarding Item B (inventory), we agree that the health and safety significance of reducing the inventory of sealed and bulk sources, which requires the use of the hot cell, outweighs the health and safety significance of removing the stuck plug of the hot cell's front storage well and completing the physical inventory. However, the further postponement of the removal of the plug and the subsequent completion of the physical inventory necessitates that AMS request an amendment to License Condition 14. The new completion date for the physical inventory should expeditiously follow the completion date for the reduction of the inventory of sealed and bulk sources, and must not extend past June 30, 1998, the date of the next required physical inventory.

AMS Response: Page 8, lines 27 through 31 of Revision 1 of the Strategic Plan states that an amendment to License No 34-19089-01 to postpone the inventory requirement may be necessary because of the low priority assigned to removal of the stuck plug. However, the decision to submit an amendment application is dependent upon the timeliness of USNRC action on AMS's recent license renewal.

Action Taken: No further action required.

Apr 20 1996 09:55 2166923209 P.05

USNRC Comment: Regarding Item D (decommissioning/decontamination of the WHUT room), your response did not address these issues. Please describe your plan of action for the decommissioning/decontamination of the WHUT Room.

AMS Response: Page 5, lines 1 through 19 of Revision 1 of the Strategic Plan states that the methodology for decommissioning the AMS facility, including decommissioning/decontamination of the WHUT Room, is contained in the "Conceptual Decommissioning Plan for the London Road Facility". This document was submitted to the USNRC on October 20, 1995. Therein, AMS indicated that the preferred decommissioning methodology for the WHUT Room is SAFSTOR, followed by release for unrestricted use after a safe storage period of up to 50 years.

This methodology is preferred (e.g., over DECON) because of its overwhelming reduction in occupational exposures and quantities of radioactive waste due to radioactive decay. It is also compatible with a previous position in regard to the WHUT Room taken by the USNRC in an October 20, 1988 letter from A. B. Davis (USNRC) to Dr. Seymour S. Stein (AMS). In that letter, the USNRC concurred with AMS's February 8, 1988 and July 6, 1988 request to delay decontamination of the WHUT Room until personnel exposure rates are reduced significantly, stating that "isolation can be carried out safely with some benefit in the reduction in occupational exposure and waste requiring disposal" (see page 1 of the October 20, 1988 letter).

Action Taken: No further action required.

USNRC Comment: AMS is required, by License Condition 22, to decontaminate restricted areas if surface contamination levels exceed 40,000 disintegrations per minute per 100 square centimeters (dpm/100 cm<sup>2</sup>). Consistent with ALARA principles your plan should address steps that will be taken to further reduce contamination levels and permit a greater degree of worker safety and accessibility throughout the facility. Therefore, you should re-address this issue and describe your plan of action for the decontamination of the AMS facility.

AMS Response: In this comment, we assume the USNRC is referring to License Condition 23.F, where the July 23, 1990 letter from S. J. Stein (AMS) to J. Madera (USNRC) is cited. The Stein letter served to transmit Isotope Shop Procedure No. ISP-1. Section 3.3.2(b)(1) of this procedure contains the following action level for surface contamination in restricted areas: "Contamination levels [except Hot Cell] exceeding  $4.0 \times 10^5$  dpm/100 cm<sup>2</sup> shall be reduced ALARA." Excluding the Hot Cell, the only locations at the London Road facility with removable contamination in excess of 40,000 dpm/100 cm<sup>2</sup> are the Isotope Shop, the Source Garden, the Decontamination Room, and the WHUT Room. Of these, only the Isotope Shop and the Decontamination Room are accessed by personnel and then only rarely (e.g., during Hot Cell entries or for performance of routine surveillance activities).

When the exposure potential associated with a decontamination effort (e.g., direct and inhalation exposure potential) is assessed in light of the limited need to access the Isotope Shop and the Decontamination Room, the existing contamination levels in these areas (e.g., an average of 50,000 dpm/100 cm<sup>2</sup> in the Isotope Shop and 3,000,000 dpm/100 cm<sup>2</sup> in the Decontamination room) are considered to be as low as reasonably achievable. However, if these areas are accessed more frequently than the current, this position will be re-evaluated.

Action Taken: Revision 3 of the Strategic Plan, which will be submitted to the USNRC before July 15, 1996, will address decontamination of the Isotope Shop and the Decontamination Room to levels

that are ALARA in the Section entitled "On-Going Actions" (subsection entitled "Housekeeping Improvements").

**USNRC Comment:** Please provide us information regarding the expected long term (3-5 years) integrity of the collapsible storage tanks.

**AMS Response:** Pursuant to vendor specifications, the rubberized fabrics that form the tanks comply with MIL-T-52983, MIL-T-53029 and MIL-T-53066 military specifications for performance and durability. In a December 12, 1995 discussion between the manufacturer of the collapsible storage tanks (Mr. David H. Dack, Aero Tec Laboratories Inc., Spear Road Industrial Park, Ramsey, New Jersey) and R. Meschter (AMS), the manufacturer stated that tanks that have been deployed for at least eight (8) years have suffered no loss of integrity. Since the AMS tanks are located in a controlled (indoor) environment and are frequently inspected, their containment ability should endure for at least eight years.

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**USNRC Comment:** The structural integrity inspection conducted by R. Shewmaker of NRC Headquarters has been completed. We will forward the complete inspection report to you as soon as it is available. The inspection revealed several concerns which may have an effect on several issues discussed in the DFI (e.g., the Emergency Plan, and the Decommissioning Plan). Therefore, in your response to this letter, please address the issues discussed in the structural integrity inspection report.

**AMS Response:** In an April 9, 1996 letter from R. Meschter (AMS) to G. C. Wright (USNRC), the USNRC was informed that AMS scheduled an independent evaluation of the findings of the Shewmaker inspection report. Once the evaluation is complete, a discussion of the issues contained in the Shewmaker report would be submitted to the USNRC by June 12, 1996. In an April 11, 1996 letter from G. C. Wright to R. Meschter, the USNRC approved this schedule.

**Action Taken:** This comment will be resolved in the AMS response to the Shewmaker inspection report, which will be submitted to the USNRC prior to June 12, 1996.