



Advanced Medical Systems, Inc.

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

August 11, 1995

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

Re: Amendment 39 to USNRC License No. 34-19089-01

Dear Mr. Caldwell:

On August 10, 1995, Advanced Medical Systems, Inc. (AMS) received the referenced amendment and transmittal letter. The purpose of this letter is to provide and solicit clarification on a few items.

In regard to your reference to our July 20, 1995 letter, the first sentence of that letter did, indeed, contain a typographical error. It referred to a letter dated "July 29, 1995" even though the actual date of that letter, as you kindly pointed out, was "July 19, 1995". AMS regrets this error. Please consider this to serve as a correction.

In regard to License Condition 19.H of Amendment 39, the specific milestone dates contained in our letter of July 19, 1995 were those proscribed by Mr. John Madera in our telephone conversation of June 13, 1995. License Conditions 19.D, 19.E and 19.F, however, address a number of actions that go beyond the scope of those that form Mr. Madera's milestones. AMS does not intend to extend the scope of the July 19, 1995 milestones to address these additional actions for reasons that are described below.

In my August 8, 1995 correspondence to you, I informed you that all of Mr. Madera's milestone dates have been met. To reiterate:

Item	Scheduled Start Date	Scheduled Completion Date	Current Status
Treat basement water	May 17, 1995	--	Complete
Install new manhole	July 3, 1995	--	Complete
Excavate in vicinity of 4" line, disconnect foundation drainage system, and remediate 4" line, 15" line and foundation drainage system.	July 3, 1995	July 28, 1995	Complete
Grout in existing lateral connection and existing manhole	July 3, 1995	August 11, 1995**	Complete

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Item	Scheduled Start Date	Scheduled Completion Date	Current Status
Re-connect foundation drainage system to new manhole	July 3, 1995	August 11, 1995	Complete
Remediate ⁶⁰ Co activity that exists at the outfall of the existing lateral system in the NEORSD Interceptor	July 8, 1995**	Revised start date is August 11, 1995**	Started.

As required in License Condition 19.F, AMS initiated remediation of the NEORSD interceptor by making every possible effort to gain access to that location for the purpose of developing a remediation plan. To date, the NEORSD has not provided AMS access to the interceptor. Therefore, while we have completed Condition 19.G.ii, and have met Mr. Madera's milestone date for initiating the remediation process, AMS cannot possibly satisfy Condition 19.F without cooperation from the NEORSD.¹ If you wish to discuss this issue further, I would be glad to arrange a conference call with our legal counsel.

Finally, in the transmittal letter that accompanied Amendment 39, you indicated that you wish to receive weekly status reports by telephone in regard to the projects described in License Conditions 19.D, 19.E, and 19.F. For your information, Condition 19.D is complete and, due to the NEORSD's lack of cooperation and unwillingness to grant access to the London Road interceptor, AMS is unable to complete Condition 19.F. Item 19.E is complete with the exception of submitting a long-term surveillance program description for USNRC review. In my letter to you of August 8, 1995, you were informed that this description will be submitted by September 30, 1995. Since there is nothing to be gained by discussing the status of these specific items, weekly telephone calls are unnecessary and will not be made by AMS. As I have done throughout this project, I will continue to provide you with written and verbal reports of the status of all of the outstanding items on Amendment 39 when changing conditions are sufficiently noteworthy to warrant USNRC consideration.

Sincerely,



Robert Meschter, RSO

cc: D. Cesar
D. A. Miller, Esq., Stavole & Miller

¹ It is important to note that in our June 13, 1995 telephone conversation with Mr. Madera, AMS made it clear that any USNRC-imposed action that required NEORSD involvement would be completely beyond our ability to control or implement. We advised you at that time that it would serve no purpose to enter such conditions in our license. Therefore, we were surprised and disappointed when the USNRC elected to impose such a condition in Amendment 36 (June 21, 1995) in spite of our previous discussion.



Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504 216 • 881 • 6600 FAX: 216 • 881 • 9709

PRIORITY ROUTING

First	Second
RA	RC
DRA	EIC
DRP	SGA
DRS	OI
DRSS	PAO
DRMA	

FILE ~~7/17~~ X

August 11, 1995

Ohio State Emergency Response Commission
c/o Ohio EPA/DERR
attn: Kenneth A. Schultz
1800 WaterMark Drive
Columbus, Ohio 43216-1099

Additional Public Comment Pursuant to Public Notice Regarding Intent to Issue Order Designating Advanced Medical Systems, Inc. As An Additional Planning Facility

Dear Members of the Commission:

Since our letter to you of August 9, 1995, the Northeast Ohio Regional Sewer District ("District") has found further substantial evidence of the hazard presented by the Advanced Medical System ("AMS") facility. We regret that this material could not be made part of our earlier submission, but believe that it is of such importance as to warrant additional comment.

Specifically, we wish to call the attention of the Ohio State Emergency Response Commission ("SERC") to a letter sent by AMS to the Nuclear Regulatory Commission on July 19, 1995. That letter makes several important statements about conditions around the exterior of the facility:

Attempts to remove the contaminated drains at the back of the building were halted when excavation approached the Source Garden and when the west building wall was reached. Because of the existence of 20,000 curies of ⁶⁰Co in the Source Garden, exposure rates to excavators in this vicinity are calculated to be 30,000 mR per hour or more. At the west wall of the building, which houses a high-level waste storage area, exposure rates are currently in excess of 100 mr/hr and are rising as the excavation proceeds under the building. Since only hand-excavation of the drainage system under the building is possible, the risk of cave-ins is also of great concern.

July 19, 1995 Letter of Robert Meschter to James Caldwell, page 1, paragraph 5 (emphasis added).

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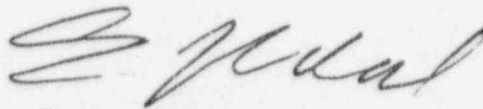
Public Comment
Page Two
August 11, 1995

These levels are far in excess of federal regulations and present obvious safety risks to persons outside of the facility. Such persons obviously include emergency responders.

Please contact Thomas E. Lenhart or Lawrence K. English of my legal staff at (216) 881-6600, or Richard N. Connelly, Manager, Water Quality and Industrial Surveillance (a Cuyahoga County LEPC representative), at (216) 641-6000, for more information.

Thank you for your consideration of this new information.

Sincerely,



Erwin J. Odeal
Executive Director

att.

cc: Martha McCorkle, City of Cleveland Law Dept.
Thomas Root, Cleveland Fire Prevention Bureau
Michael S. Kalstrom, Cuyahoga County LEPC
James L. Caldwell, NRC Region III



Advanced Medical Systems, Inc.

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

Hand delivered to Skinner
while at AMS on
7/20/95

July 19, 1995

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

Re: Advanced Medical Systems, Inc. - License No. 34-19089-01

Dear Mr. Caldwell:

The purpose of this letter is to summarize the information relayed to you in the July 18, 1995 telephone conversation between the USNRC and representatives of Advanced Medical Systems, Inc. (AMS). In that conversation, and in reference to Item D of Amendment 38 to our materials license, we informed the USNRC that we successfully remediated the four-inch discharge line and the foundation drainage system at the front of the building in the vicinity of the old manhole. No detectable ^{60}Co exists in the soils in that area, and a new foundation drainage system has been installed.

In the process of completing this task, we discovered that the building drainage paths were not as depicted in the 1950-vintage drawings available to us. We expected the foundation drains to connect to the four-inch line in a wye connection at the east side of the building. However, the drains ran continuously over the four-inch line, and stopped about 10 feet to the north of the front door. At the location in the four-inch line where the wye connection should have been, a length of clay pipe was found to complete the connection between the line and the manhole.

AMS continued the excavation along the south and west sides of the building in order to determine where the connection exists. This effort revealed that the four-inch discharge line, which the drawings depict as coming to a stop well before reaching the back wall of the building, continues out the west side of the building to a tee connection with the foundation drainage system. Elevated contamination was identified in this portion of the four-inch line and in the foundation drains in the immediate vicinity. However, negligible contamination was found in the shale layer underneath the drains.

The foundation drains ran another 13 feet north past the tee connection, where they terminated. Approximately four (4) feet of this length ran beneath the isotope shop air lock. The sand and gravel that was used as fill for this area are contaminated. However, the shale layer in this vicinity was free of contamination.

Attempts to remove the contaminated drains at the back of the building were halted when excavation approached the Source Garden and when the west building wall was reached. Because of the existence of 20,000 curies of ^{60}Co in the Source Garden, exposure rates to excavators in this vicinity are calculated to be 30,000 mR per hour or more. At the west wall of the building, which houses a high-level waste storage area, exposure rates are currently in excess of 100 mr/hr and are rising as the excavation proceeds under the building. Since only hand-excavation of the drainage system under the building is possible, the risk of cave-ins is also of great concern.

The current status of the site is shown in Attachment 1. The footer drains along the east (front) and south sides of the building have been replaced and the area has been back-filled with clean gravel and soil. AMS intends to grout in the entire length of the four-inch line that protrudes from the back of the building to ensure no migration of contamination. A grout material called "AV-118 Duriflex" will be used for this purpose. The specifications for AV-118 Duriflex are included as Attachment 2.

The foundation drain that remains in the vicinity of the Source Garden will also be grouted in with AV-118 Duriflex as shown in Attachment 1 and Attachment 3. The excavation under the high-level waste storage area will be filled with Mearl Geocell. The specifications for Mearl Geocell are included as Attachment 4. New foundation drains will be laid outside of the abandoned systems and the cemented in area. These will connect to the new system that is already in place on the south wall (see Attachments 1 and 3). A slurry wall will be installed between the abandoned system and the new system. After back-filling is complete, the ground surface between the building and the new drainage system will be sloped from the building toward the new system and covered with an impermeable liner to minimize the potential for water infiltration into the abandoned area.

The new drainage system will then be connected to the new manhole that has been installed at the front of the building. Approximately 10,000 gallons of clean water will be used to flush this system to ensure complete isolation of the new system from the residual contamination. After the flush, the water that collects in the manhole will be confirmed to meet the release criteria contained in the February 1, 1995 letter from J. Grobe to D. Cesar prior to discharge. A description of the monitoring methodology is being forwarded to you under separate cover. Until NEORSD approval to re-connect the building to the London Road Interceptor is given, water that meets the release criteria will be discharged through an alternate (temporary) path.

After all remediation activities are complete, AMS will institute a system of long-term surveillance over any residual radioactive materials that remain outside the building (e.g., in the lateral connection from the front of the building to the London Road Interceptor and in the abandoned drain lines at the back of the building). As required in Item E.ii of Amendment 38, the surveillance plan will be submitted to the USNRC for approval prior to its implementation.

Finally, please recall that on June 21, 1995 AMS was issued Amendment No. 36 to the referenced license number to permit treatment of contaminated water that currently exists in the basement of the London Road facility. In Item 19 of that amendment, AMS was directed to complete subitems "D" and "E" by July 7, 1995, and to begin item "F" by July 8, 1995. When we informed the USNRC that our ability to meet these deadlines was beyond our control, we were assured by Mr. John Madera and Mr. Wayne Slawinski that the dates were included in the Amendment for tracking purposes only and that a simple written notification of changes in the schedule is all that would be required of AMS.

As expected, AMS was unable to receive the necessary permits and authorizations in time to meet the July 7, 1995 deadline. Therefore, pursuant to the instructions of Mr. Madera and Mr. Slawinski, AMS forwarded amended milestone dates in a letter dated June 29, 1995. Once AMS discovered that the building drawings (circa 1950) did not accurately depict the true construction of the foundation drainage system we again forwarded amended milestones to account for the additional excavation that is required (see letter dated July 12, 1995).

AMS is still dependent upon the timely approval of the USNRC and the NEORSD to complete the remainder of this project. Therefore, AMS is now submitting the following amended milestone dates:

Item	Scheduled Start Date	Scheduled Completion Date	Current Status
Treat basement water	May 17, 1995	--	Complete
Install new manhole	July 3, 1995	--	Complete
Excavate in vicinity of 4" line, disconnect foundation drainage system, and remediate 4" line, 15" line and foundation drainage system.	July 3, 1995	July 28, 1995	The entire foundation drainage system has been removed.
Grout in existing lateral connection and existing manhole	July 3, 1995	August 11, 1995**	Awaiting NEORSO authorization to brace compression plug
Re-connect foundation drainage system to new manhole	July 3, 1995	August 11, 1995	Pending
Remediate ⁶⁰ Co activity that exists at the outfall of the existing lateral system in the NEORSO Interceptor	July 8, 1995**	Revised start date is August 11, 1995**	Awaiting NEORSO authorization to access manhole.

** Actual start date subject to timely NEORSO approval to access the London Road Interceptor at the location of the outfall.

Again, these dates are subject to change based upon a variety of external factors. In the event that additional changes are necessary, I will immediately communicate the revised dates to the USNRC, along with the reason for the change.

AMS is looking forward to the USNRC's timely review of our plans for the final stages of this project. Work at the site is proceeding in advance of receiving your comments. If you need additional information or if I can answer any questions, please call me at (212) 692-3270.

Sincerely,

Robert Meschter 7-20-95

Robert Meschter, RSO

Chris Reed

Chris Reed Sguins for R. Meschter

cc: D. Cesar
D. A. Miller, Esq., Stavole & Miller



Ans File

Northeast Ohio Regional Sewer District

4747 East 49th Street • Cuyahoga Heights, Ohio 44125-1011 216 • 641 • 6000 FAX: 216 • 641 • 8118

August 11, 1995

David Cesar, Treasurer
Advanced Medical Systems, Inc.
1020 London Road
Cleveland, OH 44110

Re: Your Letter of August 3, 1995

Dear Mr. Cesar:

Your letter of August 3, 1995 states that "those comments which are relevant will be incorporated into the Emergency Plan. Those which are not incorporated are deemed to be irrelevant and will not add to the effectiveness of the AMS [Advanced Medical Systems, Inc.] Emergency Plan." Your Plan as submitted demonstrated that AMS either lacks the expertise to evaluate emergency preparedness requirements, or fails to utilize that expertise. For either reason, the Plan as submitted makes it unacceptable for AMS to render decisions about what will or will not improve the Emergency Plan.

Please provide to this office at your earliest opportunity a listing those of items AMS deems irrelevant to emergency preparedness. To force emergency responders to once again review the AMS Emergency Plan for deficiencies without such a listing is a waste of resources of the emergency response organization. Your cooperation on this matter is would be appreciated.

Very truly yours,

Richard N. Connelly
Manager, Water Quality and Industrial Surveillance

cc: Michael S. Kalstrom, Secretary, Cuyahoga County LEPC
James L. Caldwell, Deputy Director, NRC Region III
Commander Robert Cermak, Cleveland Police Dept.
Edmund Mecklenburg, Cuyahoga County Emergency Management
Edwin Price, Cuyahoga County Community Services
Dr. Rao, University Hospitals
Chief Thomas Root, Cleveland Fire Marshal, Cleveland Fire Prevention Bureau
James Williams, Ohio Emergency Management Agency
Jane Harf, Ohio State Emergency Response Commission

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Advanced Medical Systems, Inc.

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

FAX MESSAGE

RETURN FAX #(216)692-3269

PAGE 1 OF 1

DATE: 8-10-95

TO: M. Weber, J. Malera

FROM: Bob Meschter

MESSAGE: RECEIVED AMEND 39 TO
OUR LICENSE TODAY. SEVERAL
POINTS NEED RESOLUTION AND OR
CLARIFICATION. WE'LL FORWARD
UA FAX BY THE END OF BUSINESS
DAY - 8/11/95 - OUR COMMENTS &
CONCERNS. THIS FAX SHOULD CONSTITUTE
"NOTIFICATION" PER PARAGRAPH 2 OF
YOUR COVER LETTER DATED AUG 08 1995

THANK YOU
Robert Meschter

C.C. D. CESAR
J. MILLER

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Northeast Ohio Regional Sewer District

3826 Euclid Avenue • Cleveland, Ohio 44115-2504 216 • 881 • 6600 FAX: 216 • 881 • 9709

August 9, 1995

Ohio State Emergency Response Commission
c/o Ohio EPA/DERR
attn: Kenneth A. Schultz
1800 WaterMark Drive
Columbus, Ohio 43216-1099

Public Comment Pursuant to Public Notice Regarding Intent to Issue Order
Designating Advanced Medical Systems, Inc. As An Additional Planning Facility

Dear Members of the Commission:

With this letter, the Northeast Ohio Regional Sewer District ("District") states its support for the issuance of an order by the Ohio State Emergency Response Commission ("SERC") pursuant to the petition filed by the Cuyahoga County Local Emergency Planning Committee ("LEPC") to add the Advanced Medical System ("AMS") facility to those over which the LEPC exercises emergency planning jurisdiction, and pursuant to SERC Resolution No. 95-74 stating its intent to issue such order. The District supports the issuance of such an order for the reasons stated below and those stated in the District letter of June 9, 1995 [Exhibit "A"].

Although the AMS facility presents severe and unusual hazards to emergency responders and to the community, it has not been properly integrated into local emergency planning. In particular, the Emergency Plan proposed by AMS is riddled with serious omissions, as is evidenced by the catalogue of defects found in the District's June 23, 1995 *Comments on Proposed Emergency Plan* [Exhibit "B"].

Even simple, common sense emergency preparedness provisions are absent. For example, both the electrical substation and the natural gas meter are on the same side of the facility as adjoining railroad tracks, yet no preparations are made for a failure of both electrical and natural gas power in the event of a train derailment. Similarly, the Emergency Plan fails to make important planning commitments. For example, while AMS contends that full-scale emergency exercises are planned, it does not appear that any schedule has been agreed to among the relevant emergency responders, nor is one suggested in the proposed Plan. This is an important omission, as only through actual joint exercises can many weaknesses in the Plan be identified.

The facility also lacks the personal protection equipment necessary for emergency responders to safely enter many areas of the building. For example, during a June 21, 1995 visit, an NEORSRD representative was denied access to the facility because not enough dosimeters were available. At the time, fewer than 10 people were at the facility.

AUG 11 1995

The mission of the Northeast Ohio Regional Sewer District is to enhance public health and welfare through the efficient, cost-effective conveyance and treatment of wastewater. This is accomplished by an organization dedicated to professionalism, fairness and consistency that anticipates and responds to the changing environmental needs of the community.

The Emergency Plan as proposed by AMS also highlights grave problems with AMS internal procedures and the building itself. For example, the ventilation, fire and evacuation alarms, personnel reporting, health physics procedures and stack monitor systems will not perform "under the most severe conditions." See Exhibit "B" comments on Plan Page 2-9, Sec. 2.2.2. The Plan further states, "Under the most severe conditions, the ventilation system cannot be expected to confine radioactivity." The building "is expected to maintain its structural integrity under all but the most severe natural phenomenon." *Id.*, Page 2-9, Sec. 2.2.3. AMS' own consultant concedes that "Severe natural disasters could conceivably compromise the protective nature of the building and its radioactive materials storage areas."

These problems and omissions are not merely matters of form. The AMS building is of doubtful structural integrity. The testimony of Carol Berger, AMS' consulting radiation health physicist, is quite striking in this regard: "[T]he structural integrity of the building has been compromised. The health and safety of the surrounding population has been put into certainly greater risk than they were prior to that time [the allowance of water accumulation at the facility]." Transcript of March 7, 1995 Hearing before NRC Staff, page 27 [Exhibit "C"].

On page 29 of the same transcript, Henry Billingsley, an attorney for AMS, is equally insecure about the stability of the structure: "The problem we have in the facility right now is serious. But more important, the problem we are going to have shortly has the potential to be a catastrophe." He continued as follows:

The real problem is, if there is a sudden influx of water against the foundation, and the foundation of that building heaves, or the foundation walls collapse in part or in whole, or if the floor of that building heaves, there will be open communication between the highly contaminated groundwater in the basement of the facility right now and the exterior of the building.

Id., page 30.

Further, at a hearing on December 13, 1994, before the Honorable George W. White, U.S. District Judge, Northern District of Ohio, Eastern Division [Exhibit "D"], Mr. Billingsley confirms that the Waste Hold-Up Tank (WHUT) room may be compromised if further water enters the basement. Exhibit "D", page 8. At page 41-42, Mr. Billingsley quotes an AMS consulting engineer as stating that the WHUT room is going to flood.

While the facility's lack of structural integrity has been blamed on the District by AMS, the NRC had concerns about the structural integrity of this building months before the District took action to prevent the continued contamination of the public sewer system. See Exhibit "E", which includes documents produced by the NRC in response to a Freedom of Information Act request regarding NRC efforts to assess the facility's structural integrity. Note that the NRC was seeking extensive data on the foundation of the AMS facility, including information on "Unusual Events" such as "extreme precipitation events, flooding, winds, tornados, off-site explosions, off-site chemical releases, land subsidence, or seismic events," long before the installation of a compression plug in the AMS sewer

connection by the District. See Exhibit "E", paragraph 7.

That the structure does not presently prevent the release of radioactive material is clear. AMS' own attorney describes the facility as a "giant contamination machine", rendering radioactive any waters that come in contact with the facility's sewer connection. See Attachment L, page 18, to April 3, 1995 Letter of Michael S. Kalstrom to Jane Harf, the content of which is hereby incorporated by reference. Very recently, the District's own sampling of soil taken from around the building shows 0.5 - 1.0 milliRem/hr radiation levels.


Similarly, as indicated above, reports of the amounts and whereabouts of Cobalt-60 are vague and conflicting. For example, as late as June 16, 1995, AMS stated that "the total quantity of residual radioactive materials at the facility has not been fully characterized." June 16, 1995 Letter of David Cesar to John Madera, page 4 [Exhibit "F"]. This same page speaks of 80 Curies of Cobalt-60 solid waste generated during the water treatment operations onsite. This is a staggering figure and is believed to be incorrect, but there can be no confidence in any of the data presently available from the company.

At the April 12, 1995 meeting of the SERC, Mr. John Grobe of the NRC stated that the exact amount of radioactive material in the WHUT room is presently unknown. He also stated that he couldn't say how much protection would be provided by the 55-gallon drums in which some of the radioactive waste was stored, hence those drums could not be called "sealed". Most importantly, he stated that scenarios could be generated in which firefighters could be injured. Notwithstanding the above, officials of the NRC have indicated that intervention by local authorities is not necessary, because the NRC will be vigilant from now on. As the present contaminated condition of the facility developed under exclusive NRC scrutiny, it is clear that such a position is unrealistic.

The District has abundant further documentation to demonstrate the necessity for local oversight. Please contact Thomas E. Lenhart or Lawrence K. English of my legal staff at (216) 881-6600, or Richard N. Connelly, Manager, Water Quality and Industrial Surveillance (a Cuyahoga County LEPC representative), at (216) 641-6000, for more information.

Thank you for your consideration of this letter of support.

Sincerely,



Erwin L. Odeal
Executive Director

att.

cc: Thomas Root, Cleveland Fire Prevention Bureau
Martha McCorkle, City of Cleveland Law Dept.
Michael S. Kalstrom, Cuyahoga County LEPC
James L. Caldwell, NRC Region III

EXHIBIT "A"



Northeast Ohio Regional Sewer District

1826 Euclid Avenue • Cleveland, Ohio 44115-2504 216 • 881 • 6600 FAX: 216 • 881 • 9709

June 9, 1995

Ohio State Emergency Response Commission
c/o Ms. Jane Harf, Chairperson
1800 Watermark Drive
P.O. Box 163669
Columbus, Ohio 43216-3669

Re: Cuyahoga County Local Emergency Planning Committee Petitions

Dear Members of the Commission:

With this letter, the Northeast Ohio Regional Sewer District ("District") wishes to formally state its support for the petitions filed by the Cuyahoga County Local Emergency Planning Committee ("LEPC") to require a detailed inventory of any facility harboring ten (10) Curies or more of Cobalt-60 in any form other than sealed source and to add the Advanced Medical System ("AMS") facility to those over which the LEPC has emergency planning jurisdiction. The District is an emergency responder in the area in which the AMS facility is located, and can state categorically that the LEPC is well-versed in the needs of emergency response organizations, and is in the best position to effectively evaluate and coordinate response to problems posed by AMS.

The LEPC would serve to fill a regulatory void that has existed at the AMS facility. For many years, the NRC has failed to enforce its own regulations as they apply to this facility. These failures specifically include an ongoing failure to require AMS to completely inventory materials at its facility. This inventory was "required" by the NRC to be complete by June 1, 1993; it has yet to be completed. The NRC has also failed to enforce its requirement that AMS participate in biennial full-scale emergency exercises. In the entire history of NRC oversight of this facility, there has never been a full-scale emergency exercise.

The members of the State Emergency Response Commission must thus understand that the paper requirements imposed by the NRC may well never be effectively enforced by the NRC. It has been the well-documented experience of the District, moreover, that the NRC does not work cooperatively with local agencies to find mutually-satisfactory responses to problems, or even acknowledge that many local problems exist. In contrast, the LEPC - through such programs as its highly successful CAPCEP program - has excellent working knowledge of the demands of emergency planning and emergency response coordination.

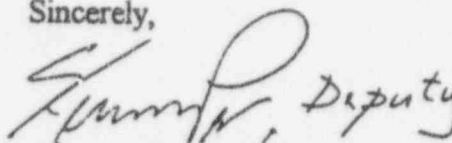
Ohio State Emergency Response Commission
June 9, 1995
Page Two

Accordingly, for effective protection of emergency responders, local enforcement jurisdiction must be conferred and realistic reporting requirements must be imposed, as has been requested by the LEPC.

The District has abundant documentation to demonstrate the persistent and comprehensive failure of the NRC to effectively control this licensee. Please contact Thomas E. Lenhart or Lawrence K. English of my legal staff at (216) 881-6600, or Richard N. Connelly, Manager, Water Quality and Industrial Surveillance (a Cuyahoga County LEPC representative), at (216) 641-6000, for more information.

Thank you for your consideration of this letter of support.

Sincerely,

A handwritten signature in dark ink, appearing to read "Erwin J. Odeal", followed by the word "Deputy" written in a cursive script.

Erwin J. Odeal
Executive Director

cc: Michael S. Kalstrom, Secretary, Cuyahoga County LEPC
James L. Caldwell, Deputy Director, NRC Region III

EXHIBIT "B"



Northeast Ohio Regional Sewer District

1826 Euclid Avenue • Cleveland, Ohio 44115-2504 216 • 881 • 6600 FAX: 216 • 881 • 9709

VIA CERTIFIED U.S. MAIL

June 23, 1995

David Cesar, Treasurer
Advanced Medical Systems, Inc.
121 North Eagle Street
Geneva, Ohio 44041

Re: Comments on Proposed Emergency Plan

Dear Mr. Cesar:

Thank you for forwarding a copy of the Advanced Medical Systems, Inc. Emergency Plan for your facility located at 1020 London Road, Cleveland, Ohio. As you are aware, the Northeast Ohio Regional Sewer District did not receive this plan until April 26, 1995; accordingly, the following comments are timely submitted pursuant to 10 CFR 30.32(4), which allow offsite response organizations 60 days in which to comment on a proposed emergency plan.

We have reviewed the document in detail, and have found that in many cases the Plan reflects intentions rather than existing conditions, intended outcomes rather than actual procedures, and apparently oral understandings rather than written commitments.

Further, there is abundant information that is relevant to emergency response, yet the necessary information—where available—is difficult to locate because of poor organization and confusing pagination. In addition, many of the conditions known to exist at Advanced Medical Systems have been omitted from this proposed Emergency Plan. For example, there does not appear to be any room-by-room indication of specific levels of radioactivity or the specific condition of radioactive materials contained therein. Also, several creditable emergency scenarios have not been evaluated; the "worst case" scenario presented does not adequately address a variety of other release issues. Further, no attention whatsoever is paid to offsite releases that could contaminate surrounding properties short of requiring evacuation.

To best assist you in locating and correcting these and other omissions, we have gone through the proposed Emergency Plan page by page and offer our comments in the page-referenced schedule which is attached hereto and incorporated herein by reference.

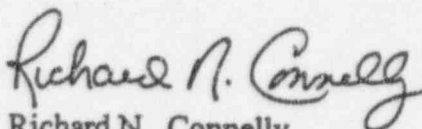
The mission of the Northeast Ohio Regional Sewer District is to enhance public health and welfare through the efficient, cost-effective conveyance and treatment of wastewater. This is accomplished by an organization dedicated to professionalism, fairness and consistency that anticipates and responds to the changing environmental needs of the community.

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David Cesar, Treasurer
June 23, 1995
Page 2

Should any of the attached require clarification or other discussion, please contact me at (216) 641-6000. I look forward to your prompt attention to the matters raised herein.

Sincerely,



Richard N. Connelly
Manager, Water Quality & Industrial Surveillance

RNC/ydm

Enclosure

cc: Michael S. Kalstrom, Secretary, Cuyahoga County LEPC
James L. Caldwell, Deputy Director, NRC Region III
Commander Robert Cermak, Cleveland Police Dept.
Thomas E. Lenhart, NEORSD
Lawrence K. English, NEORSD
Edmund Mecklenburg, Cuyahoga County Emergency Management
Edwin Price, Cuyahoga County Community Services
Dr. Rao, University Hospitals
Chief Thomas Root, Cleveland Fire Marshal, Cleveland Fire Prevention Bureau
James Williams, Ohio Emergency Management Agency
Jane Harf, Ohio State Emergency Response Commission

Page-Referenced Comments

on

Proposed Emergency Plan for Advanced Medical Systems, Inc.

by

Northeast Ohio Regional Sewer District

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<u>Cover Letter</u>		
1		According to 10 CFR 30.32(i)(4), the District's response need not be sent until June 25, 1995. No document entitled "Emergency Plan" was included in the package forwarded. The initial "Emergency Pre-Plan Operating Procedures" contains a 1-1/4 page Section called "Emergency Plan;" however, review encompassed the entire package forwarded.
2		Emergency Medical Services should be included in distribution list for AMS Emergency Plan. Richard N. Connelly should be listed as the contact for the Northeast Ohio Regional Sewer District.
<u>Emergency Pre-Plan Operating Procedures</u>		
Cover page		This initial "Emergency Pre-Plan Operating Procedures" does not contain operating procedures. How do the initial "Emergency Pre-Plan" and the second "Emergency Pre-Plan" attached as Appendix "A" to the "Onsite Radiological Contingency Plan" correlate to one another? How do the two Pre-Plans relate to the Onsite Radiological Contingency Plan?
1	2	The page heading lists "Section 2- Emergency Plan." What is included in Section 1 and where can it be found?

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1	2	<p>Reference is made to a consultant's report describing "an absolute worst-case incident." What is the meaning of the modifier "absolute" to the phrase "worst-case"?</p> <p>For the paragraph numbered 1 to be meaningful, it appears necessary to move up the text of paragraph 3.</p> <p>Each of the numbered paragraphs one through seven speaks of steps that will be taken in the future. The Emergency Plan should only contain those conditions which presently exist; if in fact any one of the seven items is actually installed or becomes operational, the plan should be amended.</p>
1	2	<p>Per the second paragraph from the bottom of the page, each of the enumerated changes should have been completed already, insofar as the date of these comments is more than the "8-12 weeks" from the January, 1995 revision date of this plan. Accordingly, please confirm those enumerated items that are complete, or delete those items.</p> <p>The descriptions in paragraph 1) do not in all cases correspond to the Figure 1-8, included as part of the proposed Onsite Radiological Contingency Plan. In particular, no "Isotope Shop Warehouse" can be found, although both an Isotope Shop and a warehouse area may be found. Similarly, no "Isotope Shop Workshop" could be found on Figure 1-8.</p> <p>No HEPA room could be found on either Figure 1-8 or Figure 1-9. This is of particular concern, inasmuch as the HEPA filters may be found in both the High Level Waste Storage room located next to the Hot Cell on the first floor, as well as in the HEPA equipment room itself located on the second floor, according to the <i>Advanced Medical Systems, Inc. Decommissioning Cost Estimate for the London Road Site in Cleveland, Ohio</i> prepared by Scientific Ecology Group, Inc. ("SEG"). Such ambiguity should be eliminated.</p> <p>No "Clean Equipment Room" could be found on Figures 1-8, 1-9 or 1-10. While SEG described its location, no "High Level Waste Storage" area or room was found on the drawings.</p> <p>More importantly, it appears from Figures 1-8, 1-9 and 1-10, that there are restricted areas in the facility that are not listed among the</p>

Page	Section	Comments
1	2	<p>areas that AMS anticipates monitoring. For example, Figure 1-9 indicates that the "roof area" is a restricted area. In the event of a fire in this area, asphaltic materials could catch fire and presumably expose and/or carry cobalt-60 residues. The roof area should thus be included in those areas which are monitored.</p> <p>In paragraph 5), the "local monitoring company" is not identified, nor is there a contact name, phone number or facility identification number provided for this local monitoring company. In the event of an emergency at the 1020 London Road facility in which none of the AMS personnel were available to contact this local monitoring company, emergency responders should be given enough information and authority to obtain detailed information from that local monitoring company.</p> <p>In paragraph 6) there is reference to the "cell office." Is the cell referred to the Hot Cell? What office is indicated by "cell office"?</p> <p>As indicated above, no "Clean Equipment Room" is included in Figures 1-8, 1-9 or 1-10.</p> <p>Paragraph 6) indicates that AMS personnel only will be notified in the event of a gamma radiation alarm. It is the District's understanding that the Radiation Safety Officer resides far from the 1020 London Road facility. Therefore, there should be agreed levels for direct notification of emergency responders for high-level gamma alarms.</p> <p>In the second last paragraph, reference is made to the "E-Plan." Abbreviations should be avoided to minimize any potential for confusion.</p>
2	2	<p>The joint exercise described addresses only "local firehouse personnel." All emergency responders should be involved in joint exercises, to ensure familiarity with the facility and enable coordination of effort.</p> <p>As to any such joint exercise, it does not appear that any schedule has been agreed to, nor is one suggested. This is an important omission, as only through actual joint exercises can non-obvious weaknesses in the Emergency Plan be identified and ameliorated.</p>

Page	Section	Comments
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Onsite Radiological Contingency Plan

Cover page		<p>Does the "Emergency Pre-Plan Operating Procedures" differ from the "On-Site Radiological Contingency Plan" enough that those few points raised in the former could not be melded into the latter to form a single document?</p> <p>As indicated above, pagination is problematic throughout the document forwarded. For example, the cover sheet itself apparently should be Roman numeral "I." In addition, after page "iii," there are two pages called "Revision Sheet" that are not numbered at all.</p> <p>The revision dates on the cover page of the On-Site Radiological Contingency Plan do not agree with those on the "Revision Sheets." Is there a reason for the discrepancy?</p> <p>No date is given for the approval signature of Robert Meschter, Radiation Safety Officer.</p> <p>Insofar as the plan is for the 1020 London Road site, that address should be listed on the cover page to eliminate a possible source of confusion.</p>
ii	Contents	<p>In many cases, the page numbers listed and the contents themselves diverge. This could create dangerous delays in locating information.</p> <p>The Table of Contents omits some materials that are included in the Onsite Radiological Contingency Plan. For example, no reference is made to figures 1-8, 1-9 and 1-10, although facility diagrams would be of great importance to emergency responders. Less important examples include the omission of the Revision Sheet.</p>
[iii-iv]		<p>Effective dates on the Revision Sheets do not correspond to those on the cover page of the On-Site Radiological Contingency Plan.</p> <p>No date certain is given for the Effective Date of Revision "C."</p>
iv		<p>The Statement of Policy appears to place all responsibility for emergency planning upon the Radiation Safety Officer ("RSO"). There should be a statement of policy by Advanced Medical Systems recognizing their responsibility for implementation of the plan.</p>

Page	Section	Comments
iv		<p>The Statement of Policy indicates that the Radiation Safety Officer is responsible for "the direction and control of emergency situations." In an actual emergency situation, command is given to the Fire Chief, and the RSO would be at most a technical advisor to the emergency responders, rather than a supervisor thereto.</p> <p>Does the RSO have sufficient training to serve as an advisor in regard to fires, first aid emergencies, or spills? That is, what level of fire, first aid, spill control or Hazardous Waste Operations and Emergency Response ("HAZWOPER") training does the RSO possess? Is the RSO health physics trained? To what extent? That is, does the RSO have the training to do the things that the Advanced Medical Systems Statement of Policy makes him responsible for? Emergency responders should not be put in a position of being directed, controlled, advised, or audited by persons whose competence has not been demonstrated.</p> <p>The Statement of Policy speaks of "emergency response staff". Who is this staff? What training do they possess?</p> <p>The Statement of Policy speaks of "authority to marshal the resources to control the emergency." What does this mean?</p> <p>There does not appear in the Statement of Policy any ability on the part of the RSO to pass authority on to any subsequent Radiation Safety Officer or to any other personnel. This omission could impair the ability of personnel at AMS to respond to emergencies at the facility in the event of injury to the current RSO or other unavailability.</p> <p>The signature by Mr. Cesar does not indicate his position at Advanced Medical Systems, nor is it dated.</p> <p>Since this Onsite Radiological Contingency Plan is in regard to the 1020 London Road facility, that address should be referenced below Mr. Cesar's signature.</p>
1-1		<p>The Introduction section refers to authorized possession of "up to 78K ci" of Cobalt-60. This does not agree with the table at the bottom of page 1-1, nor does it agree with the current Amendment No. 33 to the AMS NRC license, which authorizes more than 300,000 Curies of Cobalt-60. What is the reason for these discrepancies?</p>

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		<p>The Introduction also speaks "an additional 15 curies of radwaste stored in certain restricted areas of the facility." This does not agree with other estimates of radwaste presented by AMS elsewhere, nor does it agree with numbers presented by the Nuclear Regulatory Commission at public meetings. What is the source of this discrepancy?</p> <p>What are the "certain restricted areas" in which radwaste is store? What are the relative hazards of the areas in which radwaste is stored?</p> <p>The Introduction also indicates that the proposed plan was prepared "in accordance with Regulatory Guide 3.67". Omissions with respect to Regulatory Guide 3.67 were found in the proposed plan, including Sections 4.3 (Local Offsite Assistance to Facility), 4.4 (Coordination with Participating Government Agencies), 7.2 (Training), 7.3 (Drills and Exercises), and 7.7 (Letters of Agreement) of Regulatory Guide 3.67.</p>
1-1	1.1	<p>The licensed activity description contemplates operations involving only teletherapy and radiography machines manufactured by AMS' Geneva, Ohio facility. This does not correspond to the scope of activities contemplated in the current License Amendment from the NRC. What is the reason for this discrepancy?</p> <p>Is the origin of equipment on which AMS operates relevant to emergency response? If not, references thereto should be deleted.</p> <p>The phrase, "The material is used under the supervision of the radiation safety officer" is overbroad, insofar as the current RSO's activities are restricted with respect to certain isotope operations in the current AMS NRC license amendment. See, e.g., paragraph 11(A) of Amendment No. 33 to the AMS NRC license.</p> <p>As indicated above, the table of types and quantities of licensed materials does not correspond to the present AMS NRC license, nor to inventory information from either the NRC or AMS.</p>
1-2	1.1	<p>The top paragraph indicates that "approximately 29 curies of radioactive material are in a locations other than the Hot Cell and WHUT Room and in a form that would allow the material to be dispersed in an emergency." This number does not agree with the 15 curie figure in the Introduction on page 1-1, nor does it agree</p>

with NRC estimates. What is the source of this discrepancy? What is the basis for this 29 curie figure?

What is meant by the phrase "breach the facility"? What evaluations conducted by professional engineers form the basis for the estimated amount that would be dispersed "in an emergency that would breach the facility"?

The "majority" of the "dispersible" radioactive material is said to be stored in 55-gallon drums or steel boxes. What is the definition of the term "dispersible radioactive material"?

What is the specific number of curies contained in 55 gallon drums or steel boxes? Where are these drums or boxes located?

1-2

1.2

What is meant by the phrase "controlled access building"? What are the details of such access control? How does a "controlled access" area differ from a "controlled area" or a "restricted area", terms which arise elsewhere in the proposed plan?

In what way are the access controls provided during (a) an electrical blackout, (b) a telephone service interruption, or © a combination of (a) and (b)?

Figure 1-11, described in Section 1.2, is difficult to locate quickly, and does not prominently display the location of Advanced Medical Systems.

The proximity of the AMS facility to populated areas, including special populations such as the elderly, to other facilities containing hazardous materials, and to the railroad tracks adjacent to the building, should be highlighted.

Security is said to be maintained by ADT, yet no telephone number or other contact information is provided.

Reference is also made to "remote security links" between ADT and, presumably, the facility. What backup systems exist in the event of a power outage combined with a telephone service discontinuity?

What is the nature of the site security system that windows on both the first and second floor can remain broken for months at a time

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		and a pick-up truck can breach the parking lot fence and be set on fire in the parking lot without raising alarms or prompting rapid response?
		Where are the Letters of Agreement contemplated under Section 7.7 of the NRC Regulatory Guide 3.67 with the fire and other emergency response authorities?
		Fire response is "estimated to be within five minutes." However, according to page 4, Section 7.4, subparagraph 2a, of the second set of Emergency Pre-Plan Operating Procedures, fire personnel are expected to do nothing until AMS personnel arrive. What is the fire department and other emergency responders expected to do in the estimated hour it takes the Radiation Safety Officer to arrive at the facility?
		Reference is made to Figure 1-8, 1-9 and 1-10. These drawings are difficult to locate quickly. Further, these drawings appear to date back to 1986. Have there been no significant facility changes since 1986?
		The description of the figures indicates "Restricted areas are shaded." The entire basement is restricted; for consistency, therefore, the entire basement should be shaded.
		Shading should vary in intensity or color according to radiation hazard presented.
		The restricted areas delineated on Figures 1-8, 1-9 and 1-10 do not appear coextensive with those areas described in the <i>Decommissioning Cost Estimate for the London Road Site in Cleveland, Ohio</i> prepared by Scientific Ecology Group, Inc., which appears to be the most recent survey of areas in the facility.
		The addition of water treatment equipment may present new obstructions and new restricted areas because of radiation removed from the water that had collected at the facility; accordingly, the building layout drawings should be updated.
1-2	1.2.1	The statement, "As AMS no longer manufactures sealed sources, the facility safeguards afford additional protection given current operations," is of no assistance to emergency responders and should be deleted.

The statement "Health and safety considerations have been based on minimum hazard in restricted areas and zero hazard in controlled areas. The Company actively strives to minimize restricted areas of the facility to confine emergency situations to the Isotope Shop area," appears overly optimistic. While it appears that the quoted sentences refer to radiological hazards, the emergency plan must contemplate hazards other than those radiological in character. For example, were the bladders storing treated contaminated water to suffer a failure, certainly some hazard would be presented to personnel in that area and adjoining areas.

Other examples of hazards which do not appear to have been addressed include fires involving filters, filter bags, and filter media (activated charcoal) used to remove Cobalt from the contaminated water on-site, fires associated with the filtration equipment itself, breaches of any other water retention systems on-site, fires or explosions involving the evaporation apparatus contemplated by AMS, and so on.

1-3

1.2.1

The "Isotope Facility" is not defined.

The phrase, "Because of proximity to these areas, special care has been exercised in planning the safety program," does not assist emergency responders and should be deleted.

The "Isotope Shop Area" is not delineated on any of the Figures. In what way does the "Isotope Shop Area" differ from the "Isotope Shop" designated on the Figures?

The discussion of why windows may not be found in the Isotope Shop Area is unnecessary and should be deleted.

In that discussion of windows, however, is found one of the few mentions of the railroad tracks just south of the AMS facility. The problems presented by the railroad tracks go beyond noise. What steps have been taken to address the potential for emergencies involving those railroad tracks? Foreseeable accident scenarios include, for example, train derailments involving nitric acid, toluene, or chlorine.

What measures have been taken to insure that any emergency at the AMS facility will not present dangers to passing railroad personnel, equipment, or cargo?

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		What measures have been taken to notify railroad operators in order to restrict traffic to the area of the facility in an emergency?
		Reference is made in the first paragraph on page 1-3 to "controlled areas." What is the definition of a "controlled area" and how does it differ from areas having "controlled access" or being "restricted"?
		The last sentence in the first paragraph speaks of "possible radiation hazards of cleaning windows on the outside." What hazards are presented by windows on the outside of the AMS facility?
		In the third paragraph on page 1-3, the phrase "controlled access" areas is again used without definition.
		The so-called "controlled access areas" are said to be enclosed by heavy dashed lines on, presumably, Figures 1-8 and/or 1-9. No such heavy dashed lines could be found. Similarly, no heavy dashed lines could be found on the larger floor plans of the facility, either. This discrepancy should be corrected.
		For each type of area -- controlled area, controlled access area, and restricted area -- how is access controlled?
		Reference is made to "high occupancy areas of the rest of the building." What is meant by "high occupancy"? Is "high occupancy" higher than normal expected capacity? How many people are normally expected to be in the building area?
		Is there a sign-in sheet for the facility? If so, where is it located?
1-3	1.2.3	The sentence, "AMS ceased source manufacturing in 1990," does not assist emergency responders and should be deleted.
1-4	1.2.3	The Hot Cell is described as having "Numerous small access ports ... located on the front and side faces of the cell, and a 20-inch square port opens from each side." What is meant by numerous? What is the size of each such "small" access port? In what manner are these ports sealed, if they are indeed sealed at all? What is the exact location of each of these access ports? Are photographs or diagrams of these numerous small access ports available? What is meant by "20-inch square port"? Does that mean it is 20 inches on each side of a square opening, or does it mean that the total area of the port is 20 square inches? Considering the Hot Cell contains a

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		very large amount of radioactive material, this information could be very important to emergency responders.
		In the second paragraph on page 1-4, reference is made to an intercom system. Does this system have emergency back-up power?
		No mention is made of the fact that the new Hot Cell window was replaced in 1984 because the old one cracked. In what ways does the new design and construction differ from the earlier model?
		Inasmuch as the Hot Cell is in close proximity to the primary entrance to the facility, it is probable that fire fighters would certainly cross its path. What will happen to the present Hot Cell window when it is hit by a stream of cold, high-pressure water from a fire hose?
		The description of Master Slave Manipulators does not assist emergency responders and should be deleted.
		The description of the Hot Cell door operation is unclear. A diagram of the device would be helpful.
		The statement is made that the forty-ton door is removable in case of bearing failure. Is it removable on an emergency basis? If not, that fact should be made explicit.
		Because of the large amount of radioactive material contained in the Hot Cell, the emergency plan would have to be updated substantially in the event the forty-ton door were in fact removed for any period of time.
		The phrase "but due to the low rotational speed and infrequent operation of the door, a long service life is anticipated," does not assist emergency responders and should be deleted.
1-5	1.2.3.	The segment beginning with the phrase "The upper bearing is a sealed unit ..." and ending with the phrase "which runs beneath the floor level to the service trench on the south side of the cell" does not assist emergency responders and should be deleted
		The Hot Cell door is said to operate electrically. Is the Hot Cell door provided with an emergency back-up?

Page	Section	Comments
		Similarly, is there an emergency back-up to the electrical interlock for the electric door drive?
		There is an indication that switches prevent the operation of the cell door without a second person present. Is there an emergency override to enable rescue in an emergency?
		The statement regarding shielding for the Hot Cell, "The shielding thickness was chosen as sufficient to handle the largest sources currently available with complete safety, and to provide adequate shielding for the larger sources the future may require," appears inaccurate as it relates to any persons who may enter the Hot Cell, as it relates to occasions during which the Hot Cell door is open, and during all times at which the Hot Cell window may be compromised.
		Moreover, inasmuch as it appears that there are a number of other openings into the Hot Cell of unknown shielding, the statement that "the Hot Cell is shielded by 5-1/2 feet of concrete, with 1/4-inch steel plate on the inside faces," is overbroad and should be modified.
		The statement that "the Hot Cell does not contain any flammable material" conflicts with statements by the NRC to the effect that one paint-can-full of flammable material may be present in the Hot Cell.
1-5	1.2.4	The first two paragraphs of section 1.2.4 does not assist emergency responders and should be deleted.
		The first sentence of the third paragraph of section 1.2.4 appears misleading. There are residential areas right next door to the facility. The phrase "within a block of the facility" may mislead emergency responders into believing they have a greater margin of safety than is the case.
		The Isotope Shop Area and Hot Cell are described as having an air flow system with "carefully balanced flow gradient". Does this air flow system have an emergency back-up? What is the nature of this back-up?
		The sentence beginning with the phrase "The heavy burden of industrial air wastes" does not assist emergency responders and

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		should be deleted.
1-6	1.2.4	<p>Manually-adjustable dampers for the distribution of radioactively contaminated air do not appear well advised. Some emergency back-up for remote control of the ventilation system should be installed. Until such backup is implemented, those dampers should be very clearly labeled as to their operation. The plan cannot assume that the dampers will be accessible to other than non-AMS emergency responders reacting to emergency circumstances.</p> <p>The fact that there does not appear to be an emergency back-up to the ventilation duct dampers suggests that some type of gamma alarm system should be connected to an alarm or flashing light in front of the building in the event phone lines are down. This would enable notification to emergency responders and to the neighborhood at large that there is a potential release of radioactive contamination and that the ventilation systems may not be operating properly.</p> <p>The plan does not appear to make any effort to provide neighborhood notification in the event of an emergency until the Radiation Safety Officer is onsite, which, as has been noted above, may be upwards of one hour.</p> <p>The statement, "The air flow pattern is adjusted initially by balancing the supply and exhaust systems to obtain the desired flow pattern, and periodic checks of manometers are made to assure the desired pattern is maintained," does not assist emergency responders and should be deleted.</p> <p>The description of the ventilation system does not appear to agree with the drawings thereof.</p> <p>The extended description of ducting and exhaust system is difficult to follow. A diagram of ducts, filters, and stacks would be helpful, along with an air flow indication.</p> <p>Time/temperature/fire ratings for filters and equipment would be helpful in assessing the safety of these systems.</p> <p>What is the status of ventilation ducts originally connected to rooms in the basement?</p>

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		<p>The second paragraph on page 1-6 speaks of a "monitoring and safety system" which shuts down exhaust and supply fans at "any increase of activity above the preset level." What is the preset level? How was it determined? How is it detected?</p> <p>The control system is said to automatically shutdown "either exhaust fan" in the event of a pressure drop. In the event this automatic system fails, where is a manual back-up located?</p> <p>The third paragraph on page 1-6 speaks of a "natural gas burning emergency generator with automatic rapid changeover." Where is this emergency generator located? Is this emergency generator equipped with a manual start-up mode in the event the automatic start-up fails? Is there a battery back-up for the facility in the event that natural gas service is terminated (e.g., in the event of a train wreck, tornado or earthquake)?</p> <p>What is the schedule for testing the emergency generator?</p> <p>The emergency generator apparently provides power only to "air handling equipment, the monitoring facilities and the liquid waste facilities" and the "emergency lighting system". What liquid waste facilities require emergency power? Are all aspects of air handling provided with emergency power? What monitoring facilities are provided with power?</p> <p>Does the phrase "monitoring facilities" also include gamma alarm systems? If so, please make that clear. If not, they should be included.</p> <p>Why are electrical door interlocks not included in list for emergency power back-up? What other systems are left without back-up by the gas burning emergency generator?</p> <p>What is the inspection schedule for the natural gas emergency generator? In what way are the results of such inspection logged? At the time of inspection, is the Fire Department given the opportunity to observe and/or certify the results of such inspection?</p> <p>In the final paragraph beginning on page 1-6, what devices are included in "all safety and monitor devices"?</p>
1-7	1.2.4	In the first full paragraph on page 1-7, alarms are said to be

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		transmitted to a "local burglar alarm company". Is this ADT? If so, contact information should be provided sufficient to enable emergency responders to directly obtain information therefrom. If not, an indication of which local burglar alarm company is referred to should be included.
		That alarms are transmitted by the local burglar alarm company to "a responsible person or agency" is unclear. What is the order of contact and/or reporting conducted by the local burglar alarm company? Under what circumstances are alarms transmitted directly to competent emergency responders?
1-7	1.2.5	<p>Is the "Storage Garden" the same as the "Isotope Garden" shown on Figure 1-10? Only one designation should be used to reduce chance of confusion.</p> <p>Description is made of the "Storage Garden" and how its shielding could be improved. Why has shielding not been maximized?</p> <p>What is the nature of waterproofing for the Storage Garden and Irradiation Facility?</p> <p>Why is there an Irradiation Facility contemplated in the plan when no provision therefor may be found in the present AMS NRC license and irradiation is not a use of radioactive materials for which AMS is licensed?</p> <p>Reference is made to a "well drilling point" that extends to the basement floor level beneath each manhole cover so that temporary additional shielding may be obtained by flooding the voids of the sand with water. What is meant by "well drilling point"? Under what circumstances would such additional temporary shielding be necessary?</p> <p>No manhole covers are depicted on any of the facility drawings; please supply. To what do these manholes connect?</p> <p>The statement is made that, "If storage needs ever require it, the rooms can be emptied and filled with concrete, steel shot or other higher density material." What storage needs would create such a requirement?</p>

Inasmuch as AMS contemplates the use of concrete for shielding and storage purposes in this context, AMS should consider covering the loose Cobalt-60 waste on the bottom of the Waste Hold-Up Tank ("WHUT") room with concrete to immobilize that loose Cobalt waste powder and/or sludge.

Absent from the description of the Storage Garden and Irradiation Facility is any mention of how much Cobalt-60 is actually located therein, or the radiation hazard presented thereby. Please supply.

Insofar as a substantial amount of Cobalt-60 sources are located in the Storage Garden and Irradiation Facility, the statement "This area of the facility has an extremely low probability for an emergency situation" appears too optimistic. Due to the very large amount of Cobalt-60 at this facility, even relatively low-probability events should be evaluated.

Figure 1-8

The drawings that are included at this point in the proposed plan use language that does not correspond to that used in the text of the emergency plan, and should be revised.

Color coding of the radiation risks for the various areas of the facility should be included in the drawings, and use consistently throughout each set of the drawings provided.

The date of the drawing is 1986. The assessment of radiation problem areas as delineated by the Scientific Ecology Group in their 1995 reports (or any subsequent comprehensive evaluation) should be incorporated into the plan. Any changes thereto should be addressed by revisions to the plan documents.

The location of water treatment equipment should be delineated on the drawings, along with the location or proposed location of any evaporation equipment.

In the case of the evaporation equipment, the nature of any electrical power cabling or natural gas feed thereto should also be delineated.

In the Warehouse, several thousand pounds of plastic resin and molded parts are stored. Inasmuch as these present both a physical obstruction and a potential flammable material source, their location in the warehouse should be delineated.

Only a single fire pull is shown on Figure 1-8. Is there only one fire pull? What is done if the fire pull is inaccessible at the same time telephone service is out of order?

No evacuation paths are shown on the facility drawings. Both primary and secondary evacuation paths should be marked. The relative locations of streets, the railroad tracks, the loading dock, parking lots, and evacuation collection points -- both primary and secondary -- should be delineated.

The location of the alarm enunciator board (if an enunciator board is in fact installed) should be shown, and instructions in how to shut off audible alarms should be provided.

A lighted windsock or flag should be installed at the facility to aid emergency responders in determining the wind direction; the location of same should be delineated on the Figure(s).

A list of at least nine doors which are ordinarily locked is included on page 2-5. Doors that are ordinarily locked should be clearly marked on the emergency plan.

The location of fire extinguishers should be shown on the diagrams.

The location of the emergency generator and any back-up thereto should be clearly marked.

The plan indicates that protective clothing and air equipment may be found at various points throughout the facility. Those points should be clearly marked on the plan drawings.

It appears that both the CEI substation providing electricity and the gas meter providing natural gas are on the same side of the facility as the railroad tracks. What provisions are made for a failure of both electrical and natural gas power in the event of, for example, a train derailment?

In NRC inspection reports, there have been indications that there are located at the facility several thousand and/or several thousand pounds of lead bricks to stack in front of the Hot Cell in the event of a Hot Cell window breach. Where are these bricks located? This should be included on the Figure.

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Figure 1-9		<p>All of the comments that were made for figure 1-8 regarding present levels of contamination, evacuation paths, etc., apply to Figure 1-9.</p> <p>It appears that there is no fire pull whatsoever on the second floor. If that is the case, that problem should be ameliorated, and the location of such fire pull should be marked.</p> <p>The roof area is shown to be a restricted area, though not listed as such in the text. What measures have been taken to avoid distribution of Cobalt-contaminated material therefrom in the event of roof involvement in a fire?</p>
Figure 1-10		<p>There is no indication of North on this drawing.</p> <p>Two stairwells into the Basement are indicated, but the text indicates that only one is ordinarily used. Which stairwell is usually used?</p> <p>No door is shown on either stairwell. What doors exist, and are they normally locked or unlocked?</p> <p>A door is shown in front of the WHUT Room entry. What material comprises that door?</p> <p>Why is there no indication of the relative radiation levels throughout the basement, inasmuch as it has been stated by AMS that levels vary widely throughout the basement?</p>
Figure 1-11		<p>The AMS facility is very difficult to locate on this map.</p> <p>Populated areas and special populations, as well as hazardous material facilities should be clearly marked on Figure 1-11.</p>
Figure 1-12		<p>The map apparently used for Figure 1-11 is copyrighted 1990. Have any changes taken place since 1990 in this area?</p>
2-1	2.0	<p>The phrase "abnormal conditions" should be defined.</p> <p>The phrase "central measures" should be defined.</p>
	2.1	<p>This Section is identified as "Criteria for Accommodation of Abnormal Conditions." The plan should be prepared to control,</p>

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		contain and terminate abnormal conditions; accommodation should not be the goal.
2.1.1		<p>Reference is made to Isotope Shop Procedures. No such procedures were found in the plan. Please provide or describe.</p> <p>Reference is made to ISP's. If these are Isotope Shop Procedures, those Isotope Shop Procedures that are relevant to emergency planning should be distributed to all emergency responders for their review and comment as incorporated into this proposed emergency plan. In the event that Isotope Shop Procedures are not to be incorporated into the emergency plan, any reference thereto should be deleted.</p> <p>The statement is made that "Facility personnel strictly follow the operating procedures (ISP's) and are well trained in these procedures as well as overall plant safety." Which "facility personnel" are referred to? What training do the personnel have in plant safety? What is the level of their training in first aid, fire and spill containment?</p> <p>Reference is made to operating procedures which are "designed to maintain conformance with accordance with certain operating federal regulations." Which federal regulations pertaining to safety and/or emergency response are referred to? Why is it that only "certain" operating federal regulations, rather than all applicable operating federal regulations, are sought to be conformed with? Specify which "certain operating federal regulations" are sought to be conformed with.</p>
2.1.2		<p>Reference is made to "systems designed to prevent and detect releases of hazardous materials." Please identify what hazardous materials are maintained at the facility.</p> <p>Please specify which systems are designed to prevent the release of said hazardous materials.</p> <p>Please specify which systems are designed to detect releases of hazardous materials from the facility.</p> <p>In what way does the ventilation system prevent and/or detect releases of hazardous materials? What is included in the radioactive waste handling system? In what way does the radioactive waste</p>

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		handling system prevent and/or detect releases of hazardous materials?
		What personnel have hazardous waste material training?
		Has an inventory of hazardous materials at the facility been provided to the Local Emergency Planning Committee?
		What health physics procedures or systems are designed to prevent and/or detect releases of hazardous materials?
		What stack monitor systems are designed to prevent and/or detect releases of hazardous materials?
2.1.2.1		The discussion of the safety and monitoring devices in section 2.1.2.1 appears to be largely redundant to page 1-6. The proposed emergency plan should be organized to minimize or eliminate redundancy.
		Given the discussion in the "Emergency Pre-Plan Operating Procedures" of upgrades that are apparently planned, is the discussion on either page 1-6 or page 2-1 current?
		The statement is made that "The alarm can be erased only by correcting the difficulty after depressing the acknowledgment button." It appears from the text directly above this statement that the only "difficulty" that is contemplated is a "controlled item malfunction." What are the "controlled items"? What conditions beyond controlled item malfunctions constitute a "difficulty" for which an alarm will sound? What measures are taken when a hazardous condition, rather than a malfunction, exists?
		What signals are sent off-site and/or what records are made when an alarm goes off? To whom? What record is made or what signal is sent when an alarm is acknowledged?
		The statement is made that "Evaluation tests indicate that no unusual hazardous exist in these [equipment room, cell machinery room, isotope shop area] areas under normal cell procedure, but the precautions should be taken nevertheless." This statement does not appear to agree with the content of the 1995 Scientific Ecology Group study.

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		The statement is made that alarms in only five of the six major systems will be transmitted to the local alarm monitoring company. Is the local alarm monitoring company ADT? If so, so state.
		Which of the five of the six major systems have their alarms transmitted? Why has the sixth major system not been connected to the local alarm monitoring company?
		It is stated that the local alarm monitoring company will report it to "a responsible person". Is that responsible person an AMS employee? Who? Does this responsible person have a back-up? Inasmuch as the Radiation Safety Officer lives a considerable distance from the facility, alarms should be transmitted directly to the emergency responders themselves.
		The statement is made that "The emergency generator will not trip the other five alarms if it restores power before the fans stop." This appears to make the emergency generator the device which triggers other alarms. If the emergency generator is not operating because of a natural gas service interruption, what alarms go off?
		What notification is given to any personnel at the facility and to off-site responders that the facility is operating on emergency power?
		What back-up for the emergency generator exists?
2-2		This page presents six apparently serious situations in which an alarm is sounded at the facility. Which of these emergencies is not transmitted to the local alarm company?
2-3		Something is missing in the transition from page 2-2 to 2-3.
		With respect to Hot Cell Systems subparagraph A, is there an emergency override to the two-person requirement for the electrical interlock on the Hot Cell door? Is there back-up emergency power for the electrical interlock and door operation motors? Is there any mechanical or hydraulic back-up in the event of complete power failure to the facility -- both electrical and natural gas?
		In Hot Cell Systems subparagraph B is a description of the device used to find loose Cobalt-60 pellets in the Hot Cell. How many loose Cobalt-60 pellets remain in the Hot Cell? Why have they not been cleaned up?

Does the Cell Probe described work in a power failure situation? What measures are being taken to provide back-up emergency power to this device?

Regarding Hot Cell Systems subparagraph C, why is the preset level for the gamma alarm set at "approximately" 2 mR/hr? Is the gamma alarm equipped with a battery back-up in the event both electricity and natural gas services fail?

What is the inspection/calibration schedule for this gamma alarm?

The Decontamination Room ventilation discussion appears redundant. The paragraph should be tailored to emphasize the alarm system, and the redundancy should be eliminated.

Does the gamma alarm in the Isotope Shop Area have a battery back-up in case of a failure of both electricity and natural gas?

Why is the Hot Cell gamma alarm set at 2 mR/hr, while the Isotope Shop Area alarm is set at 5 mR/hr? In that an alarm can apparently be set at 2 mR/hr, why is a higher level of radiation tolerated in the Isotope Shop Area?

Is there an emergency back-up for the light above the basement door? Does that emergency back-up have a battery back-up?

2-4

Are there emergency back-ups for the electrical interlocks on the air locks? Are there manual overrides in case of loss of both electrical power and natural gas?

With respect to the Equipment Room, why is the setting of the gamma alarm "approximately" 2 mR/hr?

Is there battery back-up for this gamma alarm in the event of loss of both electrical and natural gas service?

In all capital letters, the following statement is made:
"PERSONNEL ARE NOT PERMITTED IN THIS ROOM WHEN THERE IS NO SIGNAL GREEN LIGHT OR WHEN THERE IS A RED LIGHT." What circumstances exist in the room to justify such caution? Under what circumstances does the red light come on? What measures must be taken to enable the red light to be turned off? What conditions exist in the equipment room justifying

an alarm in the event of the door being opened?

Reference is made to a Shielded Work Room. No Shielded Work Room is found on Figure 1-8; where is this Shielded Work Room located?

The gamma alarm in this Shielded Work Room is set at "approximately 5 mR/hr." Why is this an approximate figure? Inasmuch as alarms may be set at 2 mR/hr, why is this set at a higher level?

Does a battery back-up exist for this gamma alarm in the event of loss of both natural gas and electrical service?

2-5

The statement is made that "Only authorized personnel have keys to any isotope area." No "Isotope Area" is delineated on Figure 1-8 or elsewhere. What area is referred to?

Who are the "authorized personnel" that have keys to the locked areas of the facility? How may they be contacted in off-hours?

A back-up set of keys to these areas should be placed in the pump house, perhaps in a separate lockbox therein, or provided to the fire department.

The statement is made that "Doors to restricted areas are kept locked at all times." Is the phrase "isotope area" coextensive with the phrase "restricted areas"?

None of the more than nine doors stated to be locked at the facility are delineated as such on any facility drawings.

It is not clear from the drawings where the air lock from the cell control area to the change area is, inasmuch as there is no "cell control area" or "change area" delineated on the facility drawings.

It is not known where the doors from the warehouse to the "above air lock" are located, insofar as no "above air lock" is delineated on the drawings.

The phrase in the paragraph numbered 6, "equipment room on second floor," is ambiguous, inasmuch as there are both HVAC equipment areas and Hot Cell ventilation equipment areas.

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		Is the Cell Machinery room on the second floor the same as the Hot Cell Ventilation Equipment room?
		The phrase "room adjacent to cell machinery room" is ambiguous, both because the meaning of Cell Machinery Room is not clear, and because each room on the second floor appears to have more than one adjacent room.
		The phrase "Basement door opening to clean side of basement" is unclear, insofar as no clean side of the basement is marked.
		Item nos. 2, 3, 4, and 5 list plural doors. These should be clearly identified and marked.
		As indicated above, these locked doors should be set out in some high-attention color on the facility drawings to alert emergency responders to the fact that apparent access routes are not available. While firefighters may have tools to knock open locked doors, not all other emergency responders are so equipped.
		The paragraph numbered 10 on page 2-5 states that "The perimeter of the entire facility is tied-in with a local alarm monitoring company (ADT)." It is known that a number of windows on both the first and second floors have been broken and have remained broken for months, that there were thefts from an NRC vehicle parked in front of the AMS facility, and that a pick-up truck breached the fence to the facility parking lot and was set on fire, each apparently without an alarm being raised. What is the nature of this perimeter control?
2-5	2.1.2.2	Reference is made to "various monitoring devices" connected to the HEPA system. What is the nature of those "various monitoring devices"?
		Reference is made to both local and remote alarms. What are the thresholds for these local and remote alarms? Who is actually notified in the event of each?
		Any alarm dealing with a failure of the HEPA system should be transmitted directly to emergency responders inasmuch as this ventilation system exhausts to the outside environment.
		Does the ventilation system have a battery back-up in the event that

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		both electrical and gas power are lost?
		The statement is made that "A portable HEPA system is available for special isolated area use." What is meant by the term "special isolated area"? Where is this portable HEPA system located? Is it outside of any of the many areas above that are listed as being locked off? How is the portable HEPA system powered? Is the system easy enough to use that emergency responders could put it in place?
2-6	2.1.2.3	<p>What is meant by the phrase "solid radioactive waste"? What is meant by the term "designated container"? How do the "designated containers" differ from the 55-gallon drums that they are apparently placed in?</p> <p>How many barrels of solid radioactive waste are stored at the facility? Why are these storage areas not clearly delineated on the facility drawings?</p> <p>What is meant by the phrase "restricted locations"? Where are these restricted locations located? Do those areas marked in 1986 as restricted areas remain so?</p> <p>The statement that "The packaging and shipment of radioactive wastes are controlled by procedures ISP-25 and ISP-26," does not assist emergency responders and should be deleted.</p>
2-6	2.1.2.4	<p>Reference is made to fire pull boxes plural, although only one box is indicated on the facility drawings. If there is more than one pull box, its location should be indicated on the drawing. If there is not more than one, that fact should be confirmed.</p> <p>Reference is made to "A commercial alarm company that notifies off-site fire organizations." Is this commercial alarm company ADT? If so, contact information and any codes necessary to obtain information about this site should be provided.</p> <p>What is meant by the phrase "off-site fire organizations"? Is this different from the Cleveland Fire Department?</p> <p>Throughout the proposed emergency plan, there is inconsistency about whether and under what circumstances off-site fire departments are directly notified in the event of an emergency. This</p>

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		must be clarified.
		The statement is made that "In the event of a fire, personnel follow establish routes of evacuation from the effected areas." No established routes of evacuation are described in the plan or delineated on the facility drawings, nor do there appear to be provisions made for secondary routes in the event the primary route is cut-off by smoke, fire, or other obstruction.
2.1.2.5		This Section contemplates an active role on the part of personnel that were involved in an emergency situation. This may be unrealistic, insofar as any number of catastrophic incidents can disable the personnel from being able to report anything. Similarly, personal problems such as heart attacks, stroke, etc. can disable individuals not involved directly in an emergency situation. What measures are taken to insure that personnel have the capacity to participate in any active alarm procedures? What measures are taken to insure that there is no situation for which personnel reporting does not have some automatic emergency back-up reporting/alarm system?
2-6	2.1.2.6	<p>Reference is made to "periodic" checks of radiation levels in areas in which radioactivity is handled. What is the schedule for such period checks? What records thereof are maintained? Where may they be found?</p> <p>What kind of metering is done for monitoring areas and personnel contamination?</p> <p>What is meant by the phrase "work areas"? Are these areas coextensive with either "restricted areas", "controlled areas", "controlled access areas", or any other type area described above?</p> <p>Are there battery back-ups to the meters in these areas in the event of failure of both electrical and natural gas service?</p>
2-6	2.1.2.7	<p>What is the nature of the "stack monitor"? What is done with the chart recordings made thereby? Are they accessible and/or meaningful to emergency responders?</p> <p>What is the "preset level" for the stack monitor?</p> <p>What is a "sufficient increase in activity above the preset level"?</p>

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		<p>Since there are automatic shut-offs for exhaust and supply fans, why are these supply air ducts referred to on page 1-6 left to manual adjustment?</p> <p>What is meant by "activation point"?</p> <p>Only the manner in which the "activation point" is calculated is set forth in section 2.1.2.7. This calculation should be performed and the activation point itself should be set forth.</p>
2-7	2.1.3.1	<p>The fact that the facility is designed and built to conform to Cuyahoga County building codes is not sufficient to provide necessary structural performance information. Cuyahoga County building codes do not appear sufficient to determine whether or not the Hot Cell, the Isotope Shop, or the WHUT room can withstand, for example, a boiler explosion, a natural gas explosion, a train wreck, a tornado, a severe earthquake, sabotage, or other foreseeable catastrophes.</p> <p>Inasmuch as no disaster modeling is contemplated under Cuyahoga County building codes, a professional engineer's opinion based on actual observation of the facility should be obtained to insure that the facility is of appropriate structural integrity to house the highly-radioactive Cobalt-60 that is present therein in the event of the expanded set of catastrophic events.</p> <p>This area is of particularly grave concern, given the extensive testimony by AMS' health physicist and AMS' attorneys before the NRC and the Federal District Court that the facility was on the brink of collapse.</p> <p>In the discussion of the Hot Cell construction, no mention is made of the several openings into it other than the window. As indicated above, these openings and the nature of any seals thereof should be set forth.</p>
	2.1.3.2	<p>The phrase "confinement barriers" is used as an apparent synonym for containers for radioactive waste. What testing (DOE, DOT, ASTM, NRC or other standard-making body) provides the basis for the assertion that such containers provide barrier function?</p> <p>Reference is made to lead shielded transfer containers. Inasmuch as lead melts at only 327°C, what shielding is providing for common</p>

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		fire situations, which involve temperatures significantly higher than 327°C?
		Reference is made to the HEPA filters that confine radioactive material. What are the temperature and fire ratings of these HEPA filters?
2.1.3.3		<p>The statement is made that "During minor incidents, no evacuation will be required and response team access will be through normal access routes." What is a "minor incident"?</p> <p>What is the "response team"?</p> <p>What are the "normal access routes"? What routes are used when normal access routes are obstructed?</p> <p>The statement is made that "The RSO's staff is responsible for normal facility monitoring and are quite familiar with these routes." Who is the "RSO's staff"? Is the RSO's staff to be distinguished from other AMS employees? How?</p> <p>What constitutes "normal facility monitoring"?</p>
2-8	2.1.3.4	<p>A statement is made that "There is only a remote probability of a facility breach is a restricted area from fire." (It is presumed that the second word "is" was meant to be "in".) It is known that protective clothing (spun-bonded polyolefin (Tyvek) overalls, plastic gloves, etc.) are stored at the site, along with filter media, all in restricted areas. Combined with the number of broken windows in the facility, it does not appear that an additional facility breach is required to present an opportunity for distribution of contaminated materials outside of the facility. What assessment has been made for distribution of Cobalt contaminated particulates in the event of a fire involving the plastic materials in the facility?</p> <p>Reference is made to fire extinguishers being located "throughout the facility". No fire extinguisher locations are found on any of the facility drawings, and should be supplied. Moreover, as water has been deemed inappropriate for fighting fires in restricted areas, foam or Halon or other chemical fire-control materials should be available in sufficient amount to control fires at the facility.</p>
2-8	2.1.3.5	The statement is made that "The cell is 6' by 6' by 11' high. It has a

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		4' floor and 4' ceiling." Is the later sentence meaning that the thickness of the floor and ceiling are 4"? Please clarify.
		The Hot Cell door is described here as having a 402-ton hinged door, elsewhere it was described as being 42-tons. Please clarify.
2-8	2.1.4	The statement is made that AMS "routinely checks and documents the performance of these systems." The systems that are checked are not specified, nor is the nature of the checks and/or documentation of the performance of those systems specified. Please address.
		Section 2.1.4 refers to monthly checks of the alarm system. How can this be reconciled with the number of broken windows on the first and second floors?
2-8	2.2	This section is introduced as the "Demonstration of Engineered Provisions for Abnormal Conditions." Once again, "abnormal conditions" is not defined. Moreover, demonstration of these provisions does not appear to be included in section 2.2.
	2.2.1	This Section makes reference to "all operating personnel". In what way does this differ from other AMS employees, the RSO staff, and other descriptions of personnel?
		Of these "operating personnel", who has emergency training, and of what is that training comprised? That is, under what "abnormal conditions" have these "operating personnel" been trained?
2-9	2.2.2	This Section indicates that the ventilation, fire and evacuation alarms, personnel reporting, health physics procedures and stack monitor systems will no longer perform "under the most severe conditions." Please specify the conditions under which each of the ventilation, fire and evacuation alarms, personnel reporting, health physics procedures and stack monitor systems will fail.
		The ventilation system is described as confining radioactivity "under most conditions." Specify those conditions under which the ventilation system will not confine radioactivity.
		The statement is made "Failure of the ventilation system will not result in radioactive release due to the damper system." The only "damper system" described in the proposed emergency plan is that

on page 1-6, and this is a manual system. Any manual system should have automatic emergency back-up systems, including battery back-up in the event of loss of both natural gas and electricity service, for such a confident statement to be accurate.

The statement is made that "Under the most severe conditions, the ventilation system cannot be expected to confine radioactivity." The ventilation system should be redesigned to provide confinement of radioactive materials.

The fire and area alarms are described as being "functional at all times". Are these fire and area alarms connected to off-site monitoring by means of telephone lines? If so, what provision is made for the failure of telephone service?

Reference is made to "fire and area alarms" being functional at all times. What alarms are not functional at all times?

The alarms are described as being "regularly checked". In what manner and according to what schedule are the alarms checked?

The fire and area alarms are set to receive power from "emergency systems". Are these emergency systems the same as the natural gas driven emergency generator? If so, provisions should be made for power in the event of cessation of both electricity and natural gas service.

The statement is made that "During an abnormal situation, personnel would conduct radiation level surveys, according to emergency procedures." What measures exist for conducting radiation level surveys by emergency responders while they wait for the radiation safety officer to arrive on the scene in the event of an off-hours emergency?

Where may the "emergency procedures" are employed during an "abnormal situation" be found?

The statement is made that "The stack monitor is expected to be operational in all but the most severe conditions." Under what circumstances does the stack monitor no longer function?

The statement is made that the facility building "is expected to maintain its structural integrity under all but the most severe natural

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		phenomenon." This is contrary to extensive testimony by AMS' health physicist and attorney.
		What is meant by "the most severe natural phenomenon"? Under what circumstances will failure occur?
		The structural integrity questions raised by AMS' attorneys and health physicist arose under a circumstance of rain water incursion into the building. Inasmuch as the water that had flooded the building is now stored in bladders in the building, will structural integrity be retained in the event of a failure of the bladders?
		What "confinement, shielding and barrier systems" are being referred to?
		The "confinement, shielding and barrier systems in use throughout the facility" are also said to be expected to maintain structure integrity "under all but the most severe natural phenomenon." Under what natural phenomenon would the confinement, shielding and barrier systems fail?
		The statement is made that "the ventilation systems should also be operational under all conditions except those resulting from extremely severe natural phenomenon." In what way do the "extremely" severe natural phenomenon contemplated under section 2.2.3 differ from the "most" severe conditions described in section 2.2.2? That is, under what conditions will the ventilation system fail?
2-9	2.2.4	Reference is made to routine checks of systems designed to prevent the release of radioactivity. What is the nature of the routine? What is the nature of the checks? What systems are included in those designed to prevent the release of radioactivity? Are those systems the ones described above, which do not function in extreme circumstances? At what point do "abnormal conditions" become conditions under which the systems no longer operate fully?
		Reference is made to a "safety assurance program." Where is this safety assurance program set forth? What systems are incorporated in the safety assurance program?
		The safety assurance program is said to insure that systems meet the "performance goals ... listed in 2.1.4." No performance goals

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		are listed in 2.1.4. Moreover, no provisions in section 2.1.4 refers to loss of function of systems in the event of extreme circumstances, as is expressly contemplated by sections 2.2.2 and 2.2.3.
3-1	3.1	Reference is made to an NRC "standard format document". Please provide a copy of such standard format document.
	3.2	The off-site licensee action described in response to a Class I - Alert is vague. In particular, the paragraph numbered 3, which directs AMS to "Augment resources and bring key personnel to standby status" does not appear to be appropriately detailed to alert fire, EMS, or spill control personnel of what preparations should be made.
3-2	3.2.2	<p>The licensee action described in response to a Class II - Site Area Emergency appears to be in conflict with the proposed emergency plan so far. That is, in many cases, contacts are to be made to AMS personnel only. In contrast, licensee action to a Class II - Site Area Emergency appears to require contacting local authorities with the status and reason for emergency as soon as discovered. That the latter directive should control should be made explicit.</p> <p>As in the case for a Class I - Alert, the directive to "augment resources and bring key personnel to standby status" is vague. Similarly, in paragraph 4, the directive to "assess and respond" is insufficient to provide any meaningful response by either AMS personnel or offsite emergency responders.</p> <p>What health physics training do AMS personnel have to prepare and provide release and dose projections as contemplated by paragraph 7 of the response to a Class II - Site Emergency?</p> <p>What are "foreseeable contingencies"? Do these include for example, a boiler explosion, a natural gas explosion, a train wreck, a tornado, an earthquake, and sabotage?</p> <p>Paragraph number 8 contemplates closing out or reducing the class of emergency based on the results of actions. What provisions are made for the eventuality that instead of reducing or eliminating, the emergency escalates?</p> <p>The Class II description indicates that "off-site releases are not</p>

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		<p>expected to exceed those permitted by 10 CFR Part 20 except near the site boundary." What conditions are expected at the site boundary?</p> <p>What provisions are made for emergencies in which off-site releases are expected to or do in fact exceed those permitted by 10 CFR Part 20?</p> <p>What procedures are in place for the monitoring of exposure levels in the neighborhood of the facility? What area evacuation plans exist for evacuation of the neighborhood in the event of a release exceeding Part 20 limits?</p> <p>Just as no provision appears to be made for releases which exceed those permitted under Part 20, there does not appear to be any provision for control of releases which may contaminate neighborhood property in excess of the 8 picoCuries per gram of soil release criteria of the NRC and the 0.8 picoCuries per gram of soil level contemplated by the EPA.</p>
3-2	3.3	<p>The Postulated Accidents list is not sufficient in light of the equipment at the facility, the neighborhood, and other factors, as is discussed in more detail below.</p>
3-3	3.3	<p>The first paragraph on page 3-3 refers to a "fire prevention program". What does this fire prevention program entail? Where is it set forth for review?</p> <p>The HEPA filters are described as being "fire resistant". What are the HEPA filters' fire ratings?</p> <p>What sections of the facility are protected by a sprinkler system? Please indicate those areas on the facility drawings.</p> <p>For those restricted areas, for which a sprinkler system is said to be inappropriate, what carbon dioxide, Halon, or other dry chemical fire control systems is in place? If no such systems are in place, has AMS made plans for their installation?</p> <p>In the second paragraph on page 3-3, the statement is made that "Major fires have been included in this plan due to the potential for off-site impact." Where in the Emergency Plan are the off-site impacts discussed? What is the nature of these off-site impacts?</p>

What follow-up activities are anticipated in the event of off-site impacts?

What steps have been taken to quantify the effects of toxics that could be released by a fire involving the plastic molding resins and molded parts in the warehouse?

What training have the AMS employees received in terms of handling hazardous materials and/or flames involving hazardous materials?

The statement is made that "The firefighting crews will be monitored with personnel monitoring devices." What personnel monitoring devices are referred to? Where are they located? How many of them are there? What provisions are made for training firefighters in their use?

During a June 21, 1995, visit to the facility, an NEORSD representative was denied access to the facility because not enough dosimeters were available. At the time, fewer than 10 people were at the facility. Is fewer than 10 dosimeters adequate?

The statement is made that "Firefighters and rescue teams entering the building will use appropriate respiratory equipment and will be accompanied by an AMS employee or off-site support personnel trained in the use of and equipped with portable radiation detection equipment." What is meant by the term "appropriate respiratory equipment"? Where is such equipment located? How many units of each type of equipment is available?

As the overall emergency plan to this point contemplates only the Radiation Safety Officer being available in an off-hours emergency (i.e., no provision is made for calling out additional AMS staff upon initial alert of a potential problem at the facility), does AMS anticipate that only a single firefighter will be involved in fighting a major fire justifying off-site support?

What is meant by "off-site support personnel"? Are contracts in place with any non-AMS off-site support personnel? What is the level of their training? How many of such personnel are available?

What is the nature of the portable radiation detection equipment those off-site personnel are equipped with? Where is this equipment

located?

The Proposed Emergency Plan recommends that fires within restricted areas "be fought with dry chemicals - CO₂, Halon or equivalent - to prevent possible runoff of contaminated water." Large-scale dry chemical firefighting equipment and supplies are not available to the Cleveland Fire Department. Accordingly, how does AMS propose that fires within restricted areas be fought? Is it AMS' intention to provide the fire department with such chemicals? In the absence of such supply, is it AMS' intent that all fires within restricted areas be allowed to burn, potentially releasing contaminated materials to the environment? If that is not the intent, what runoff controls does AMS intend to install to provide flow control?

The discussion of response to risks from tornados and earthquakes does not appear adequate. Just as major fires were to be included in the proposed emergency plan due to their potential for off-site impacts, so too should risks from train derailment, tornados and earthquakes.

The discussion of vandalism is unrealistic. Vandalism is, unlike theft, activity unrelated to the economic value of the materials. The numerous broken windows at the facility, the theft of equipment from the NRC mobile unit, the crashing of the AMS security gate, and the burning of the pick-up truck in the AMS parking lot, render vandalism and sabotage concerns quite realistic. These should be directly addressed.

3-3

3.4

As to the referenced Consultant's Report, the facility drawings disclose that there are at least two natural gas boilers that are a permanent part of the facility. One of these is located on the second floor, in a restricted area. The second appears to be located in the warehouse area, potentially proximate to the thermoplastic resins stored on-site. (The reason this is phrased in terms of "potentially" located is that the exact location of the thermoplastic resins on-site is not indicated in the proposed emergency plan.) Notwithstanding, no boiler explosion scenarios are postulated in the proposed emergency plan.

In addition to the permanent boilers, AMS contemplates the addition of a gas-fired evaporation system. This would be in close proximity to contaminated activated charcoal filter media, as well

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		as, ultimately, deflated polymeric water storage bladders. Some consideration of a fire involving the filter media and empty bladders should be considered.
		Similarly no involvement of natural gas fed explosions are discussed, although the natural gas meter appears to be just outside the Isotope Shop. In fact, the gas meter is between the isotope shop and the railroad tracks.
		Similarly no discussion whatsoever is made of the effect of a train wreck of any character on this facility.
		Further, although one pick-up truck has already been set on fire in the parking lot of the AMS facility, no discussion has been made of a potential truck explosion on the facility. Such a scenario should contemplate that, just as the perimeter fence could be breached, that garage doors as are seen on the north side of the facility may also be breached.
		Further, no provision is made in the evaluations for delays in emergency response because of the loss of all utilities -- including electricity, natural gas, and telephone service.

Consultants's Report

Page 1	3-4	<p>The Dose Assessment prepared by Integrated Environmental Management appears to have been prepared by a certified health physicist. Structural integrity questions are better evaluated by a certified professional engineer.</p> <p>The first paragraph of the letter report indicates that it is a "preliminary assessment". When will a final assessment be prepared, including a professional engineer's assessment of the structural integrity of the building as related to catastrophic events such as train derailments, tornados or earthquakes?</p> <p>The dose assessment prepared by AMS' consultant appears to be based on a inventory of dispersible radioactivity communicated to the consultant by the Treasurer of AMS. This inventory of dispersible radioactivity does not agree with figures provided by the Nuclear Regulatory Commission. What is the specific basis of this inventory, and has this inventory been accepted by the NRC?</p>
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		<p>The first footnote indicates that radioactivity contained in the Hot Cell was not included in the analysis. Insofar as the window to the Hot Cell is known to be capable of breaking, and that seismic events could certainly breach either the windows or the walls themselves, releases from the Hot Cell should be modeled.</p> <p>The same footnote goes on to state that a scenario for rupture from within the Hot Cell "cannot be postulated". Were a natural gas leak to coincide with the Hot Cell door being open, would an explosion of such natural gas rupture the Hot Cell window? A catastrophic failure of the Hot Cell window should be considered.</p> <p>There are apparently several other openings into the Hot Cell, none of which is directly addressed by the consultant. Why were evaluations of these openings not conducted?</p> <p>Footnote 2 of page 1 indicates that the inventory upon which the consultant based her estimates was a personal communication. Modeling of releases from the facility should be based on empirical measurement, direct observation and proper engineering analysis of the inventory located in the facility.</p> <p>Each page of the report is marked with the legend "Confidential -- Attorney Work Product". These legends should be removed.</p>
Page 2	3-5	<p>A discussion in the first paragraph of page 2 does not address the possibility that containers could be ruptured as a result of explosion, which could then be followed by a fire. The assumption that any such release from a ruptured container "could be quickly cleaned up before contamination could spread" is thus unrealistically optimistic. Moreover, at a public meeting it was stated that there is a single container at the facility which contains approximately 17,000 curies of Cobalt. Where is that container located? What would be the effect of an explosive release of the contents of this container?</p> <p>What would be the effect of a rupture of the basement walls, causing a release of contaminated water and/or sludge into the environment?</p> <p>Reference is made in the second paragraph to a "fire safety program for routine and emergency operations". Where is this fire safety program located in the proposed emergency plan?</p>

Reference is made to agreements with local fire departments, plural. Which fire departments have entered into agreements with AMS?

As contemplated by section 4.3 of Regulatory Guide 3.67, the licensee is to identify specifically what those organizations will actually do in a crisis. Both AMS and the consultant appear to contemplate that the fire departments responding to an emergency will have dry fire control chemicals. As these chemicals are not available to the Cleveland Fire Department in substantial amounts, the overall fire control program contemplated by AMS appears to require some updating.

The consultant also indicates that the form of radioactive material stored at AMS renders it incapable of combustion on its own. While Cobalt-60 may not itself catch fire, it is known that contaminated Tyvek protective garments, gloves and boots are stored at the site, each of which is combustible. Because these materials are combustible, and ash therefrom can carry radioactive materials with it, the assumption about Cobalt non-combustion may be understating the risk of dispersion of contaminant by combustion.

Similarly, filter media and the HEPA filters may present a significant source of dispersible radioactive material in credible accident scenarios.

AMS' consultant concedes that "Severe natural disasters could conceivably compromise the protective nature of the building and its radioactive materials storage areas." However, the consultant does not assess the effect of a flood on the facility. Historically, this facility has flooded several times during the period it had sewer service, and has even received NRC Notices of Violation for not reporting radioactive discharges during such flood events. Moreover, the facility presently harbors many thousands of gallons of water in flexible bladders in the facility. Accordingly, flood scenarios should be evaluated for potential releases off-site.

Cleveland, Ohio, is also in a designated earthquake zone.

Similarly, "tornadic storms" are not systematically evaluated, although Northeast Ohio is known to be subject to tornados.

The consultant appears to justify the absence of evaluations of

flood, earthquake or tornado events partially on the basis that "the majority of the Cobalt-60 inventory at the site is in primary containment (steel containers or cells) that is resistant to ready release." According to the study by Scientific Ecology Group, and according to presentations made by the NRC, loose Cobalt may be found in full curie amounts through many areas of the building. Accordingly, this justification does not appear well founded.

The consultant also states that the physical form of the Cobalt-60 material is "not conducive to movement". This is contrary to the contents of the 1988 NSS report on the contents of the waste holdup tank room, which described the Cobalt-60 wastes therein to be an easily-disturbed talc-like material.

No discussion is made in the consultant's report or elsewhere in the plan as to what notification will be provided to off-site emergency responders in the event telephone service is lost. Similarly, there is no indication that the loss of telephone service itself would trigger some notification to emergency responders.

As indicated previously, the discussion of vandalism activity, while quite extreme, does not anticipate other reasonable accident scenarios at the site.

For example, since both the CEI substation and the gas meter are on the same side as the building as the railroad tracks, rail accidents involving releases of, e.g., gasoline, toluene, or chlorine, could well be combined with a loss of both emergency power and communication to off-site responders. Accordingly, large-scale emergency situations could evolve and, during off-hours, not be reported for potentially hours. (Note that it was at a minimum many hours before discovery was made that a pick-up truck had been set on fire in the parking lot at AMS; this burnt-out truck apparently was only noticed when the Radiation Safety Officer reported for work on a Monday morning.) This is of particular concern, given the apparent capabilities of the alarm system. Specifically inspectors had found dead birds on the second floor of the facility that had apparently flown through the broken windows at the facility. When these birds flew in, apparently no alarm had been triggered. It is not known how large an object thus may go through the window before an alarm is actually triggered.

Similarly, fires involving the used (and therefore Cobalt

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		contaminated) filter media and the natural gas fed to the evaporator unit to be installed should be considered.
Page 3	3-6	<p>The CAP88-PC computer code is not generally used for emergency planning. Was any modeling conducted using standard release programs?</p> <p>Meteorological data for this facility would be more appropriately obtained from Burke Lake Front Airport.</p> <p>The one meter release height for emissions from this facility appears low, given the layout of the building, including the broken windows on the first and second floor. Moreover, it is reasonable to assume that in the event of a detonation of an entire tanker truck full of gasoline, that significant structural damage would occur to the facility. No discussion of actual physical damage to the facility (such as creating wholesale openings to areas in which loose Cobalt may be found) is found in the discussion of the "vandalism scenario."</p>
3-7		<p>The first sentence of page 3-7 appears to assume that the basement contains only 15 curies of Cobalt-60. This is contrary to the findings of the 1988 NSS report, and contrary to the presentations by the NRC as to their estimate of the loose contamination that maybe found in the basement.</p> <p>The assumption that only the contents of the basement room would be released in the event of the explosion of an entire tank of gasoline does not appear well-founded.</p> <p>Inasmuch as an explosion could physically open up the contaminated areas directly to the environment, the 5×10^{-3} release fraction does not appear warranted in application here. A 1.00 release fraction would be a more appropriate number. The "entire released fraction of 0.08 curies" is too low.</p> <p>The Consultant's Report does not address the potential for soil contamination above unrestricted release levels.</p>
3-8		<p>The consultant's report does not in any way examine contamination pathways involving runoff of contaminated water in fighting fires, nor accumulation of contamination at wastewater treatment plants.</p>

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3-11		Although the estimated curie number involved in an accident scenario is lower than the number of loose curies of Cobalt-60 known to be in the facility, and the stack height and other working assumptions are liberal, the lifetime fatal cancer risk is nonetheless 9.51×10^{-4} , or very close to 1×10^{-3} . This is an order of magnitude greater than acceptable risk under, e.g., EPA standards.
3-13		As indicated above, the stack height assumption in this model is quite liberal. Modeling should be conducted on the basis of releases following the catastrophic failure of the HEPA filter system on the second floor.
4-1	4.2.1	<p>Inasmuch as the Radiation Safety Officer lives quite a distance from the facility, to contemplate that he will be "responsible for all off-site notification and reporting" is unrealistic, particularly in off-hour situations.</p> <p>Reference is made to "emergency personnel on call". Who are these individuals? Where is contact information on these "on call" personnel located?</p> <p>Reference is made to an Emergency Manager. It is said that this is "a role filled by the RSO." Who fills this role when the RSO is sick, injured or on vacation?</p> <p>The statement is made that the Emergency Manager "will have direct control over emergency operations." It should be expressly recognized that this control is relinquished to the emergency responders upon their arrival on the scene.</p> <p>The third paragraph of Section 4.2.1 contemplates that the RSO will assess radioactive material spills and take appropriate action. What spill response training has the RSO had? What tools are available to the RSO to respond to a spill? What measures have been taken to provide the RSO with the appropriate tools and training to respond to a spill?</p> <p>What provisions are made for timely response to an off-hours spill?</p> <p>What is the basis for the statement "in general, the RSO will be capable of handling these situations entirely with no further on-site or off-site support"? What training and tools does the RSO have available to respond to a spill involving splashing of contaminated</p>

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		<p>water on personnel, such as were a hose on the pretreatment equipment to fail? Such a situation would force a choice between decontamination of personnel or spill control. How would such a situation be addressed?</p> <p>Section 4.2.1 also contemplates that contacting off-site emergency responders in the event of a major emergency would be delayed until the RSO chose to alert them. There should be direct contract between the alarm monitoring organization and the emergency responders. The terms and response thresholds should be worked out as soon as possible.</p>
4.2	4.2.2.1	<p>Several items are asterisked in this paragraph. What is the meaning of the asterisks?</p> <p>What training does the RSO have in the separate areas of first aid, medical transport, evacuation planning, fire fighting or rescue operations?</p> <p>The statement is made that "Staff for medical assistance, fire fighting and rescue operations will be off-site personnel." With whom does AMS have agreements for such staffing? If, by staffing, AMS is referring to the emergency responders themselves (e.g., firefighters, EMS, etc.), this outlook should be substantially modified.</p> <p>"Area personnel" are expected to aid in the evacuation. Where is the phrase "area personnel" defined? Where in the proposed emergency plan are evacuation plans located?</p>
4-2	4.2.2.2	<p>What is meant by the phrase "supporting staff"?</p> <p>Reference is made to "personnel and facility decontamination." Does this include decontamination of off-site emergency responders?</p> <p>Reference is made to the Radiological Contingency Plan. Does this mean the Onsite Radiological Contingency Plan? If not, where is this Radiological Contingency Plan located?</p>
4-2	4.2.2.3	<p>What is meant by the phrase "facility employees"? Are these personnel the same as the "supporting staff" of section 4.2.2.2 or the "area personnel" of section 4.2.2.1?</p>

Page	Section	Comments
4-2	4.3	<p>The statement is made that AMS has arrangement with local police and fire departments, with local hospitals, and ambulance services, plural. These agreements are said to be included with the plan as Appendix B. No such appendix was found.</p> <p>Should such agreements be entered, care should be taken to ensure that they include an explicit agreement on the part of each emergency responder to participate in full scale exercises, a schedule of such planned exercises, and such specific requirements as permission for a health physicist (if one is available) to actually ride in an ambulance with a victim.</p>
4-2	4.4	<p>The discussion of Coordination with Participating Government Agencies is insufficient. No first responders are listed, nor is there an indication where such contact information may be found. Contact information for the NRC may also properly belong here.</p>
5-1	5.1	<p>It is not clear who makes up the radiological contingency response organization. A flow chart cross-referenced to the text would help toward understanding the proposed radiological contingency response organization.</p> <p>As indicated above, reference is made to an Emergency Manager without a clear definition of who this person may be other than the Radiation Safety Officer. If their roles are co-extensive, one of the phrases should be eliminated.</p> <p>As indicated above, accidents and alerts should be able to be passed along to actual emergency responders without human intervention, insofar as emergencies may arise during off-hours, or during regular hours the personnel on site may be injured or out of communication and thus unable to personally alert the responders.</p> <p>AMS should consider an agreement with an outside contractor for back-up support in the event of a radiological release to the facility or off-site (e.g., Clean Harbors).</p>
	5.1.1	<p>"Initial" incident reporting implies that there is some follow-up reporting contemplated. At what stage is the initial incident report prepared? At what time is a follow-up report prepared?</p>

Page	Section	Comments
		No reporting requirements are set forth. Where may these requirements be found? To whom are reports sent? To what end are the reports prepared?
		For each of the subheadings under the initial incident reporting heading, action steps need to be listed.
		The description of Ventilation System Incidents apparently operates on the assumption that a failure of the ventilation system "does not constitute a radiological emergency." This appears to be too optimistic. In the event, for example, of a blow-out of the HEPA filters or a fire in the ventilation system, or a combination of the two, such an emergency could indeed constitute a radiological emergency. Moreover, given the remoteness of the RSO's residence, an off-hours accident of this nature could indeed become substantial in nature. Accordingly, some automated back-up system should be in place for the reporting of incidents involving the ventilation system.
		The description of reporting for Ventilation Systems Incidents also indicates that the RSO will perform the initial assessment of the incident. Again, insofar as the RSO is remote from the site, some more rapid response should be developed.
		In the discussion of Major Fire or Severe Natural Phenomenon, there does not appear adequate off- hours notification to off-site responders. ADT or any other alarm monitoring organization should have direct contact with the Fire Department or other appropriate responders.
		Potentially three different people could be contacts according to the sentence, "During off hours, the Emergency Manager/RSO (or his alternate) will be contacted at home."
		Reference to the company contact numbers does not indicate formally who the Emergency Manager is, or how an alternate is chosen. Some contact hierarchy should be set forth, preferably in flow chart form.
		Alternatively, a cellular telephone or an emergency pager should be made available to whomever is acting Radiation Safety Officer. In this way, a single emergency number could be used.

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		<p>A statement is made that "The RSO will contact other key personnel, summoning them to the site as required." What is meant by "other key personnel"? What is their level of training to respond to a major fire or severe natural phenomenon?</p> <p>In the event that both electrical power and telephone communications are cut off, what back up systems exist?</p>
5-2	5.1.2	<p>What is meant to be included in "Incidents Other Than Major Fires and Severe Natural Phenomenon"?</p> <p>The first paragraph of this Section indicates that the RSO will be the individual to assess the situation and determine what sort of response is applicable. What emergency response training does he have to make such assessments? How is it determined that assessments can wait until the RSO arrives on-site from his residence?</p> <p>The statement is made that "The action to be taken under each emergency class are outlined in Section 3.2 and detailed in the attached procedures." As discussed above, Section 3.2 is vague and incomplete as far as action steps to be taken under those emergency classes outlined therein, and, leaves out any discussion whatsoever of a situation in which the 10 CFR Part 20 release limits are exceeded.</p> <p>The reference to Section 3.2 highlights the need for more logical pagination; Section 3.2 actually begins on page 3-1.</p> <p>Reference is made to a "Director of Regulatory Affairs." Is this an AMS employee? If so, contact information should be provided for him or her.</p> <p>The discussion of telephone contacts made by the Radiation Safety Officer in the event of an emergency is said to be detailed in Section 8.3. This is not the case, inasmuch as no reference is made to the "Director of Regulatory Affairs," or the Cleveland Fire Department.</p> <p>The statement is then made that "These parties will be instructed to place a return call and repeat the information provided by the RSO to authenticate the call." This is very problematic, inasmuch as it ties up the telephone lines at each of the named emergency responders and those of AMS.</p>

Further, inasmuch as the title of this subparagraph is "Incidents Other Than Major Fires and Severe Natural Phenomenon," other responders should be listed for telephone contact here and in Section 8.3.

The heading, "Major Fires and Severe Natural Phenomenon," is not co-extensive with the classes of incidents described in Section 3.3. Section 3.3 falls short of describing all foreseeable incidents for which the emergency plan should make provision.

The statement is made that "the Emergency Manager/RSO will receive reports of these types of incidents from plant personnel or the off-site security company." What measures are in place for incident communication in the event of a failure of both electrical power and telephone service?

As indicated above, the off-site security company should have in place procedures to directly contact emergency responders in the event of fire, burglary, etc.

It is stated that the RSO will assure that the facility is being evacuated. Nowhere in the emergency plan was a detailed evacuation plan set forth. Primary and secondary evacuation paths should be made clear, as well as primary and secondary collection points outside.

Criteria for declaration of a neighborhood evacuation should be prepared and an evacuation plan for the neighborhood should be detailed.

The statement is made that "He [RSO] will instruct his personnel to assess the emergency via environmental monitoring." What equipment is available for said "environmental monitoring"? What personnel are trained in its use? Where is such equipment located? Is this equipment able to be used by emergency responders?

The last sentence of Section 5.1.2 contemplates that the steps of receiving reports from plant personnel, and instruction to personnel to begin "environmental monitoring" will precede activation of the "emergency response team," and precede contacting offsite responders. The order of activities here should be reversed. If the order on the page was not intended to reflect the action chronology, the chronology itself should be set forth.

Page	Section	Comments
5-2	5.2	<p>Section 5.2 describes a number of activities that could fall into the category of "environmental monitoring." If that is the intention, that should be stated expressly.</p> <p>While the several steps outlined in Section 5.2 provide important information, it nonetheless appears that these activities precede contacting the emergency responders. As indicated above, this order is inappropriate.</p> <p>The categorization contemplated by Section 5.2 appears to restrict incidents to "contained spill, ventilation system failure, fire or natural phenomenon." As discussed above, the potential for several other accident types exists.</p> <p>Not all foreseeable spills would be "contained spills," such as, for example, could result from failures of the storage bladders on site. Measures to respond to uncontained spills should be developed.</p> <p>The statement is made that "For all but the most severe incident, the RSO will estimate the amount of radioactivity that has been released through inspection of process records and discussion with the operating personnel." It does not seem appropriate that process records be reviewed in an emergency situation. What is the definition of a "most severe incident"?</p> <p>Among the assessment actions, the first activity that should take place is air and dose monitoring. However, it is relegated to the third paragraph in Section 5.2.</p> <p>What is the procedure for collecting airborne particulates and filter paper? Is this activity appropriate for, e.g., a fire?</p> <p>Who is conducting the sample collection? If it is the RSO, how is this task correlate with the many other tasks for which he is made responsible?</p>
5-3	5.2	<p>The top paragraph of page 5-3 refers to personnel film badges, self-reading dosimeters and portable survey instruments. It should be made clear to all first responders that film badges are for post-accident exposure assessment, and should not be referred to during the emergency response itself for an indication of exposure; film badges need to be developed to be meaningful.</p>

Page	Section	Comments
5-3	5.3	<p>Inasmuch as the accident scenarios described in Chapter 3 are inadequate to the potential hazards posed by this facility, the corrective actions contemplated under Section 5.3 are similarly inadequate.</p> <p>The statement is made that "fires will not be of sufficient severity to cause breach of containment." What is the engineering basis for this assertion?</p> <p>The assertion is also made that "corrective action for ventilation failure is to have personnel restore proper air flow." It does not appear in the emergency plan how AMS is to respond to other than a power failure to the ventilation system. What steps should be taken in the event of a blowout of the HEPA filters, a fire in the ventilation system, or a combination of the two?</p> <p>The statement is made that "In the event of an all engulfing fire or tornado or earthquake, there are essentially no corrective actions that can be taken." This is incorrect insofar as warning and/or evacuation of all down-wind residents, contacting the Red Cross or other disaster response organization, or like activities could take place. These procedures should be developed and articulated.</p> <p>One corrective action described is the RSO surveying the affected building to locate any contamination. Inasmuch as contamination may have spread offsite, this directive should be expanded to cover the neighborhood surrounding the facility.</p> <p>In the event that there is widespread damage to the area by a tornado or earthquake, how does the RSO get to the area to provide the survey functions that are described? What backup to the RSO's presence has been arranged?</p> <p>Inasmuch as offsite contamination may be widespread, and thus beyond the decontamination capacity of the individual RSO, a decontamination subcontractor should be made an integral part of the large-scale emergency response plan for the AMS facility.</p>
5-3	5.4	<p>As to Protective Actions, a windsock or flag should be put on top of the building to indicate the direction of wind. A flag in front of the building is not sufficient, as it may not be seen from other than in front of the building.</p>

Page	Section	Comments
	5.4.1	<p>An evacuation plan for the neighborhood should be prepared.</p> <p>The evacuation plan described for the facility itself does not indicate where a secondary assembly point is, where the sign-in sheet is located, whose responsibility it is to pick-up the sign-in sheet, or what steps are taken in the event that all personnel on the sign-in sheet are not present.</p>
5-3	5.4.2	<p>The location(s) of the respiratory devices and protective clothing that are said to be located at "various areas throughout the facility" should be set forth on the facility drawings.</p> <p>The nature of the respiratory devices (dust masks, SCBA, etc.) should be set forth, along with the number of each such piece of equipment. Protective clothing for emergencies should be in extra-large sizes, so that any emergency responder may utilize it.</p> <p>The statement is made that "Personnel are trained in the use of the equipment as part of their initial radiation protection training." What personnel have received this training? From whom?</p> <p>The statement is made that "Appropriate respiratory devices will be worn for corrective action during fires." Are there any unusual factors in determining what are "appropriate respiratory devices"?</p>
5-4	5.4.3	<p>In what way are radioactive materials "secured" to prevent further spread? What equipment is on hand for spill control? What is the level of training of the RSO and other personnel for responding to radioactive spills?</p> <p>What is meant by the term "full scale recovery operations"?</p> <p>What is the source of the loose surface contamination limits stated in Section 5.4.3? How are these to be determined in a fire situation? By whom? What actions are taken in the event loose surface contamination exceeds these levels?</p>
5-4	5.5	<p>Who makes up the "members of the emergency response team"?</p> <p>Why are EPA guidelines rather than NRC guidelines presented for exposure limits? 75 REMS appears to be too high an exposure limit for a non-radiation worker.</p>

Page	Section	Comments
5-4	5.5.1	<p>The statement is made that "Preliminary decontamination of non-life threatening injured personnel will occur prior to transport." How is preliminary decontamination conducted? By whom? Where?</p> <p>How is decontamination water collected?</p>
	5.5.2	<p>The statement is made the "Emergency Manager/RSO is the only individual who can authorize workers to receive emergency radiation doses." What if the emergency manager/RSO is injured or otherwise unavailable?</p> <p>Are offsite responders included in the term "workers"? In the event that the emergency manager/RSO is not available, does AMS contemplate that no emergency response activity shall be conducted? If not, some fall-back plan should be set forth.</p> <p>The statement is made that "During the emergency, trained workers will carry survey meters to determine dose rates in the areas in which they are working." Which trained workers are available during off hours? What is the nature of their training? How many such trained workers are available? At what point are these trained workers called on to the site? By whom?</p> <p>There is a discrepancy between the exposure levels in Section 5.5.2 and Section 5.5. Explain.</p>
5-5	5.5.3	<p>It is stated that all emergency response personnel, including firefighters, will wear self-reading dosimeters. By whom will they be provided? Who will distribute them? Who zeros them in? How many are there? Where may they be found in the event AMS personnel are not available?</p> <p>Storage of an adequate number of dosimeters at the fire department itself may simplify distribution questions.</p> <p>The statement is made that "team members will also carry radiation survey meters and pocket dosimeters." What team is referred to here?</p>
5-5	5.5.4	<p>Are the "workers" to whom the discussion of initial decontamination refers inclusive of emergency responders?</p> <p>Who performs the initial decontamination? What training have they</p>

Page	Section	Comments
		received?
		Reference is made to the "contracted hospital". To what hospital does this refer? No Letter of Agreement from any hospital was included in the plan.
		What is meant by the statement "appropriate decontamination procedures and decontaminates will be used."
		What equipment is available and what procedures are in place to contain and control the spread of waste developed in the decontamination process?
5-5	5.6	What first aid training does AMS personnel have?
		Emergency Medical Services should be included in the medical transportation section.
		What commercial ambulance service has agreed to provide the transportation services described?
5-5	5.7	The introductory sentence of this section refers to hospitals plural, but only University Hospitals is named.
		A back-up hospital remote from University Hospitals should also be contacted. In this way, should a tornado or other disaster affect the East side, a West side hospital would likely still be available.
		What is the maximum number of contaminated injury victims that the hospital can accommodate?
5-5	5.8	Reference is made again to fighting fires with dry chemicals. Since the Cleveland Fire Department does not have ready access to large quantities of such chemicals, either AMS should supply them or install runoff containment systems for the contaminated water that will be in fact used to fight the fire.
		What equipment and procedures are available for detecting and monitoring the contamination level in such runoff?
6-1	6.0	This section overall is vague on what actual equipment is available, and does not indicate how many of those pieces of equipment named are available.

Page	Section	Comments
6.1		<p>The fire pump house is described as being the control point in the event of an emergency. In the event such pump house is in a contamination plume, a back-up control point should be established with at least minimal back-up supplies.</p> <p>Who has keys to the pump house supplies? What back-up procedures are there for insuring that emergency responders do have access to the equipment inside?</p> <p>It should be clarified that the pump house is actually northwest rather than simply west of the facility.</p>
	6.2	Provision should be made for a loss of telephone and electrical service to the facility.
	6.3	Reference is made to "assessment teams". Who makes up these assessment teams? In what areas of emergency response are they trained?
	6.4	<p>Please see comments to page 4-3.</p> <p>Again, reference is made to facilities plural "with which AMS has arrangements." Letters of Agreement were not included with this proposed emergency plan.</p> <p>The bottom paragraph on page 6-1 should be amended to indicate that the pump house is northwest of the facility.</p>
6-2		<p>Is the fire pump house serviced by the alarm company to detect, e.g., vandals?</p> <p>Are there back-up devices for when, for example, the frisker and survey meter are being calibrated?</p> <p>The frisker, survey meter, flashlight and respirator are referred to in the singular. Is there only one of each of these items in the fire pump house? If not, how many are located in the pump house?</p> <p>As to the respirator, what kind is it?</p> <p>How is the air sampler powered?</p> <p>How many 100' extension cords are available? Are there only two</p>

pocket dosimeters available?

What kind and how many pieces of protective clothing are available? Are the coveralls referred to made of Tyvek or other impervious fabric? Are the sizes of in particular the coveralls extra large so that all emergency responders may fit into them? Are there both latex and outer protective gloves?

What is meant by 20" masking tape? Duct tape would likely be more useful.

The contamination wipes, soap and spray bottle should be supplemented with brushes and a containment pool, such as a small child's inflatable pool. What kind of soap is to be used for decontamination?

How much rope and what kind is available?

What signs and placards are referred to?

Where is the nearest working pay phone? Are directions thereto included with the emergency phone numbers and quarters? How often is the operability of the pay phone checked?

The building keys should be separately secured. Do the building keys referred to include all those required to unlock the normally locked doors referred to on page 2-5?

Additional supplies that should be included for emergency response include shovels, garbage bags, a large plastic roll, the Kraft paper referred to elsewhere in this emergency plan, a cellular phone, sampling bottles, sand bags and booms to block spillage.

Batteries should be checked on a monthly basis.

6-2

6.5

The items listed in 6.5 are, in many cases, listed in the plural, but listed in the singular in the list of supplies in the pump house. The necessary items should be included in the pump house.

The schedule of equipment checks and calibration should be expressly set forth. Adequate measures should be in place to be able to speak more confidently than "equipment should, therefore, be operational at the time use."

Page	Section	Comments
7-1	7.1	Reference to the pages of the proposed emergency plan itself indicates that it is not annually updated. The ultimate responsibility for forwarding the plan and procedures to emergency responders lies with AMS rather than its RSO. This should be expressly recognized.
7-1	7.2	<p>The discussion of training is generally vague, particularly with respect to who actually provides the training and how they are qualified to provide such training. A retraining schedule should also be set forth.</p> <p>The statement "since their only responsibility during an emergency is initial reporting of an abnormal occurrence, no further training is required," is contrary to much of the previous contents of the proposed emergency plan. First aid, decontamination, emergency assessment, spill control, and general emergency response training are all contemplated within the scope of personnel activities under the Proposed Emergency Plan. Such training should be provided.</p> <p>A statement is made that "Staff with limited emergency responsibilities receive basic radiation protection training as well as limited emergency response training." Who are the "staff with limited emergency responsibilities"? Who, then, are staff with broader emergency responsibilities?</p> <p>What constitutes "basic radiation protection training"? What is involved with "limited emergency response training"?</p> <p>What training or certification does the RSO have to provide training in emergency response?</p>
7-3	7.3	<p>What is the scheduling for the in-house drills contemplated by AMS? Is there provision for both on shift and off shift drills? What is the nature of the drills (paper? communication checks? bench?)?</p> <p>In what way and by whom are these in-house drills evaluated, reported, and audited?</p> <p>The statement is made that "AMS will conduct full-scale exercises with onsite and offsite personnel. These exercises will be conducted periodically. The interval will be determined through communication with all affected personnel and agencies participating in the exercise." The NEORSD is not aware of a</p>

Page	Section	Comments
		<p>scheduled exercise? When is it scheduled? What efforts have been made to arrange such a full-scale exercise? Inasmuch as AMS has never before had a full-scale exercise, what resources are being committed to coordinating such an exercise?</p> <p>What is the schedule for overall emergency preparedness?</p> <p>The statement is made that "A full scale biannual exercise will be conducted with AMS emergency response personnel and off-site emergency response personnel." What offsite emergency response personnel does AMS expect to include in this exercise? When, exactly, is this exercise to take place? What efforts have been made to schedule the various emergency responders participation?</p> <p>What comments are being solicited from the responders?</p> <p>What is the nature of the quarterly communication checks with offsite response organizations?</p>
7-2	7.4	<p>This section appears to restrict critique of each drill and exercise conducted to AMS personnel. Critique should be solicited from all emergency responders participating in any exercise.</p> <p>By whom is the annual audit of emergency response program conducted? What standards are used in this audit process?</p> <p>Has this "annual audit" been conducted previously? Where may its results be found?</p>
7-2	7.6	<p>Quarterly checks of equipment in the pump house is not sufficient for such items as batteries, particularly in winter months.</p> <p>Response to missing equipment should be beyond mere repair or replacement. Any equipment found missing should be thoroughly investigated.</p>
7-2	7.7	<p>Any revisions and/or updates to the Proposed Emergency Plan should be transmitted to all emergency response agencies.</p>
8-1	8.1	<p>This section contemplates saving records only until such time as the present NRC license is terminated. Any such emergency records should be kept for any possible future owner/licensee of the facility. This will enable any such subsequent owner or licensee to be familiar with prior incidents.</p>

Page	Section	Comments
8-1	8.2	<p>Records involving training and retraining, critiques of drills and exercises, maintenance records for emergency equipment, and all review and updates for the plans and procedures should be kept on hand until decommissioning of the facility. To dispose of these after five years would lose important information.</p> <p>Reference is made in section 8.2 to "annual retraining". Who conducts such retraining?</p>
	8.3	<p>Are any forms available for the reports referred to in this section?</p> <p>All emergency responders should be provided with any updates of the emergency plan. Acknowledgment of the receipt should not be more involved than signing a return-receipt-requested slip from the U.S. Postal Service.</p>
	8-2	<p>As indicated above, this Section omits contacts to the actual emergency response organizations. This section also contemplates that initial offsite reporting may be delayed up to one hour. This is too long for emergency response.</p> <p>Reporting is referenced only in terms of offsite doses. Physical forms of releases and concentrations should also be provided.</p> <p>Who is included in the "support staff referred to"?</p>
9-1	9.0	<p>What decontamination capabilities exist for restoring the facility?</p> <p>What steps will be taken if resumption of normal operations is impossible?</p>
	9.1	<p>The first paragraph of this section deals with only minor spills. What steps are taken in the event of a major spill? What steps, for example, would be taken in the event of a failure of the HEPA system creating a release to the roof during a rain event?</p> <p>Reentry should not be restricted to only saving human lives. Reentry may be justified for assessment of the scope of the emergency, containment or remediation thereof.</p> <p>EPA standards are again referred to for exposure limits. Do there exist any NRC limits in this area?</p>

Page	Section	Comments
		Mention is made of "appropriate respiratory equipment". What is meant by this phrase? Where is such equipment available? How many of the various pieces of equipment are available?
		Does the phrase "reentry personnel" include offsite responders? If so, who will provide them with portable radiation detection equipment?
		What provisions are in place for remediation of contaminated off-site property?
		Reference is made to "other supervisors" other than the RSO. Who are these individuals? In what areas of emergency response have they been trained?
		Who makes up the "reentry teams" referred to? In what areas of hazard assessment are they trained?
9-1	9.2	Health and safety should be the first order of priority for restoration activities; maintenance and regulatory compliance should be secondary to health and safety.
		Reference is made to the "supervisor of each of these sections" as if there were separate individuals for each of the areas of regulatory compliance, maintenance, and health and safety. Is this the case? If so, please identify the relevant supervisors.
9-2		The Radiation Safety Officer should insure that enclosures, shielding, the ventilation systems and their associated alarms are not only functional but that they are functioning.
		What compromises the "RSO's staff"?
		The statement, "based on information provided to the Emergency Manager/RSO by these individuals, the Emergency Manager/RSO will declare that the plant has been safely restored," should be modified. Depending on the nature of the emergency, this determination of whether or not the plant has been safely restored should be made by a health physicist, a professional engineer, or both.
	9.3	The procedures described in section 9.2 are inadequate to insure that plant restoration should be allowed.

Page	Section	Comments
		Actions that can prevent the recurrence of a particular type of accident should take place prior to resumption of operations at the facility.
		Conformance to the "specifications described in Chapter 2" are insufficient to insure that operations could be conducted safely. See discussion of chapter 2 above.

Appendix A

Cover Sheet	Why is there a second "Emergency Pre-Plan Operating Procedures"? What is to be done with the first set?
Contents Page	The pagination on the Contents Page (which is itself un-numbered) is incorrect
Contact Page	<p>The emergency contact personnel sheet should be augmented by a beeper, pager or cell phone to be circulated among the radiation safety officer and any responsible delegate.</p> <p>Travel times from the RSO's and delegates' homes should be included, so that the emergency responders can have some idea of how long they may have to wait for AMS personnel to get onsite during off-hours.</p> <p>Are the secondary contacts listed the "designated alternates", "staff", "RSO staff"?</p> <p>What level of training do these individuals have? What level of authority do they have?</p> <p>What is the nature of transfer of authority from the Radiation Safety Officer to these individuals?</p> <p>In particular, in the event that the Radiation Safety Officer cannot be reached by emergency responders, do these people have the authority to make decisions in his stead?</p> <p>The heading "Emergency Civil Response Agencies" does not properly apply to the University Hospital of Cleveland or to ADT Security Services. These telephone numbers should be included, however.</p>

Page	Section	Comments
		For ADT, the AMS account number and any applicable approval codes should be in place for contacts directly from emergency responders to ADT for information purposes.
		This list should also include numbers for the telephone, natural gas and electricity utilities, as well as Conrail.
		Contact information for the Local Emergency Planning Committee, the Cuyahoga County Department of Health, the City of Cleveland Department of Health -- Division of Air Pollution Control, and the Northeast Ohio Regional Sewer District should also be included.
		The AMS emergency contacts should confirm that there is no answering machine at these numbers, so that the phones will ring until someone physically answers.

Fire/Explosion/Medical Emergency Procedures

1	1.0	Actual activities, as well as "administrative actions," should be set forth for responses to emergencies. Revisions should also be made, as discussed above, for tornados, earthquakes, floods, spills, and sabotage.
1	3.0	<p>The "designated alternative" should be named and his training should be set forth.</p> <p>Procedures should be reviewed with all emergency responders rather than merely the Fire Department and Cleveland City Police.</p> <p>An update and revision schedule should be set forth.</p> <p>What is meant by "affected personnel"?</p> <p>What training does the Radiation Safety Officer have that would enable him in turn to train others?</p> <p>Subparagraph 3 of Section 3.0 should make it clear that its restrictions on making public announcements applies only to AMS personnel. Such restrictions cannot be made on emergency responders.</p> <p>Subparagraph 3 and 4 of Section 3 refer to the "Director of Regulatory Affairs." Who is this person? As no such Director of</p>

Page	Section	Comments
		Regulatory Affairs is named in the plan, who conducts the review and update of emergency names and telephone numbers on a quarterly basis as contemplated by subparagraph 4 of Section 3.0?
		What steps have been taken to insure that delegation of duty to "designated alternates" only takes place when the said designated alternate has sufficient training to accept such responsibilities?
1	4.0	The RSO's emergency responsibility should be expanded to included information assistance to all emergency responders, rather than merely firefighters.
		First aid, rescue, and spill containment responsibilities should also be explicitly set forth. In addition, training and retraining responsibilities should be set forth.
2	5.1	The entire first paragraph of Section 5.1 should be removed as obvious.
		The locations of portable fire extinguishers and the 1½-inch hoses should be set forth on the facility drawings.
		What run-off control and containment devices are in place in the event the 1½-inch fire hoses must be used?
		What action steps are in place for failure to control a fire at the incipient stage?
		What steps are to be taken in the event that the on-site fire pull is inaccessible and telephone service has been caught off? That is, where is the nearest fire box in the neighborhood?
2	6.0	No emergency contact personnel are listed on the page numbered "1."
2	7.1	No action step follows the statement "In the event of an emergency, the following action should be taken by the person reporting such emergencies." In addition, no provision appears to be made for emergencies occurring in off-hours.
	7.3	The paragraph about fighting fires with dry chemicals is repeated once again here. As indicated above, it does not appear that AMS has sufficient dry chemicals available. Similarly, such chemicals are

Page	Section	Comments
		not available to the Cleveland Fire Department. Accordingly, either readily supply arrangements should be made on the part of AMS or containment systems for water run off and monitoring should be put in place.
3	7.3	<p>Subparagraph 2 of Section 7.3 states that dampers for the HEPA equipment room are manual. In the event that this equipment room was inaccessible due to fire or other obstruction, no action could be taken to spare the environment from a potential release. Some automatic back-up system should be put in place that will default to a closed system (or a closed loop into the facility's controlled areas).</p> <p>Subparagraph 3 of Section 7.3 is unacceptable. The Fire Department should always be called first in the event of a fire alarm.</p> <p>Subparagraph 4 refers to evacuation of the building. Back-up areas should be assigned.</p> <p>Where is the nearest pay phone in the event that telephone service at the facility is inaccessible or out of order?</p> <p>As indicated above, the alarm service should be directly wired to alert the Fire Department directly in the event of a fire.</p>
3	7.4	<p>The statement "In the event of a fire or explosion, this signal is automatically transmitted to the ADT central office and the proper response civil service group (Cleveland Fire and Police Department) is immediately notified" describes the preferred response mode. Contacts with other emergency responders should be included, however.</p> <p>A statement is also made that "ADT calls key AMS emergency response personnel." Other than the Radiation Safety Officer, who are the "key AMS emergency response personnel"?</p>
4	7.4	<p>Subparagraph 2a is unrealistic in that it contemplates the Fire Department waiting for the Radiation Safety Officer to arrive before doing anything.</p> <p>Contact information for the Cleveland City Fire Department Radiation Officer should be provided.</p>

Page	Section	Comments
		Subparagraph 2d states that at the time of an emergency the responder should "Verify the existence and location of radioactive materials." This should be done now, in complete detail, prior to any emergency arising.
		In sub-paragraph 2g, reference is made to pocket dosimeters. How many such dosimeters are available? By whom will they be issued? Who will present instructions in their use? Who will zero them out prior to use? How much time is anticipated to be consumed by such zeroing out and instruction?
		What is the basis for the statement "the maximum dose allowable to save equipment is 25 REM."
		In regard to sub-paragraph 2h, what training does the RSO or his alternate have that would enable him to determine whether a fire will cause release of high airborne activity to the environment?
		What steps are taken to curtail releases from the HEPA equipment room in the event that the room itself is inaccessible?
		Subparagraph 2i refers to a joint determination by AMS personnel and professional firemen as to how fires may be suppressed. Insofar as large scale dry chemical facilities are not available to the Cleveland Fire Department, and that water will be used to fight any major fire at the facility, what steps will be taken by AMS to contain run off?
5	2j	In what manner will firefighting personnel be monitored for contamination upon exiting the facility? By whom?
		Referring to Subparagraph 2k, in what way will conducting exit contamination surveys confirm that the facility itself has been restored to a safe condition?
		What steps will be taken in the event that the facility is not restored to a safe condition? That is, what equipment and procedures exist for remediating and/or sealing up the facility and/or evacuating the neighborhood?
5	9	This section is headed "Minor Injuries," yet Subparagraph 3 thereof contemplates victims being unable to be moved. What is meant by "minor" in this context?

Subparagraph 2a refers to a frisker used to assess the contamination level of an accident victim. Where is the frisker located? How does it function? In the event that an accident victim is in a restricted area, is a frisker capable of distinguishing contamination on the person from the high level of background radiation that attends a restricted area?

Subparagraph 3b refers to rolling out a Kraft paper path to accident victims. Where may such Kraft paper be found?

6

Sub-paragraph 3e refers to a "emergency response team." Who makes up this team?

Subparagraph 3g refers again to using exit contamination surveys to determine whether the facility itself is safe. What steps will be taken in the event that the facility is indeed not safe?

Subparagraph 4 refers to spreading plastic sheets in areas to be occupied by accident victims. Where are such plastic sheets found?

Subparagraph 5 refers to "back-up AMS response personnel." Who are these people?

At the time an ambulance is called for any accident, the ambulance service or EMS should be informed that they will be responding to a potential radiation problem so that they may secure proper equipment (protective clothing, etc.) in a timely fashion.

7

11.1

It should be explicitly recognized that the outside emergency responders are in command of an accident scene upon their arrival.

11.2

All relevant emergency responders should be contacted before any effort is made to contact non-responders such as the Director of Regulatory Affairs.

11.3

Who are included in "supervisory personnel"?

In which parking lot are personnel assembled?

11.5

The equipment alarm maintenance discussion refers only to fire detection and security alarms. What steps are taken to inspect and insure the operation of gamma alarms?

Page	Section	Comments
7	12.0	As noted previously, the incidents of broken windows, theft from vehicles at the facility, fence breaches, and acts of arson on the AMS site indicate that security procedures should be reviewed.
8	12.1	<p>Inasmuch as it does not appear that reports were made following each broken window at the facility, how large a breach must be suffered before alarms are triggered or police are contacted?</p> <p>Why have the broken windows not been repaired?</p> <p>As indicated above, in the event of alarms, the relevant emergency responder should be contacted directly by the alarm monitoring service.</p> <p>Subparagraph 8 of Section 12.1 is unrealistic, since all radioactive materials on site have yet to be inventoried.</p> <p>Subparagraph 11 of Section 12.1 should be modified to include contact to the local emergency responders in the event of the loss or theft of radioactive materials from the facility.</p> <p>Sections 13, 14, 15, and 16 do not appear to be the result of communication with the relevant hospital. These paragraphs generally do not reflect the availability of state-of-the-art facilities. They do, however, appear to attempt to make it the responsibility of the offsite hospitals to obtain specialized radiological equipment. This responsibility, if it is undertaken by the hospitals, should be expressly set forth in their Letter of Agreement.</p> <p>In addition, it contemplates a variety of recording equipment that does not appear to be available in the emergency response kit (for example the portable battery operated tape recorder, camera, and/or movie camera referred to on page 14).</p>
9	13.0	<p>Are there any NRC rules for ambulance/rescue squads?</p> <p>Is the Department of Energy reference from 1978 the most current?</p>
Attachment 1		See above for comments on the Emergency Response Kit kept in the pump house.
Appendix B		See above for comments on the Facility drawings.

Page	Section	Comments
Appendix C		<p>The Local Emergency Planning Committee, the State Emergency Response Commission, the Emergency Medical Service, the Northeast Ohio Regional Sewer District, the Ohio EPA Emergency Response Personnel, and the Federal EPA should each be added to the distribution list of emergency agencies receiving a copy of the contingency plan.</p> <p>In addition, insofar as page 14 of the plan contemplates contacting Perry Nuclear Plant, Perry Nuclear Plant should also receive a copy.</p> <p>A contact person should be included for the University Hospitals of Cleveland.</p> <p>Telephone numbers should be provided for each of the contacts.</p>

EXHIBIT "C"

ORIGINAL

1

1
2 U.S. NUCLEAR REGULATORY COMMISSION

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4 ADVANCED MEDICAL SYSTEMS
5 OF CLEVELAND, OHIO
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11 March 7, 1995

12 12:15 p.m.
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1 cobalt that would end up in their ash, even if you assume
2 that every single atom of that material made its way all
3 the way down to the Easterly plant, turned itself into
4 sludge, stayed with the sludge, moved its way all the way
5 down to the Southerly plant.

6 Both of these plants handle millions and
7 hundreds of millions of gallons of sewage per day. So,
8 again, even the NRC Region Three, in our meeting that we
9 had on the 22nd, agreed that they do not anticipate any
10 kind of measurable cobalt-60 in the ash down there. They
11 were questioning the sewage treatment plant's position on
12 absolutely no cobalt.

13 And therein is where we are. We have a
14 situation that, prior to the temporary restraining order,
15 was of no hazard to anybody anywhere, other than an issue
16 of perhaps a regulatory discharge which we were still
17 discussing as to whether that was valid or not.

18 Since then, the structural integrity of the
19 building has been compromised. The health and safety of
20 the surrounding population has been put into certainly
21 greater risk than they were at prior to that time.

22 And very great expenditures of money have been
23 made and continue to be made. And until we can get some
24 relief from the Northeast Ohio Regional Sewer District on
25 being able to discharge this regular groundwater into

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1 MR. BILLINGSLEY: I will try. What we are
2 doing, quite simply, is requesting the Nuclear Regulatory
3 Commission to assist us in addressing a crisis situation
4 that exists at the AMS facility at 1020 London Road.

5 And we are asking the NRC to assist us by
6 issuing us an order to pump, treat, and discharge the
7 water that is inside the basement of the facility as we
8 sit here today and the water that is entrapped around the
9 foundation with no place to go by reason of the unilateral
10 placement into the sewer system drain of a plug by the
11 Northeast Ohio Regional Sewer District.

12 The problem we have in the facility right now is
13 serious. But more important, the problem we are going to
14 have shortly has the potential to be a catastrophe. There
15 is already, by the best estimates we can make, 24,000
16 gallons of water inside the basement of the facility as we
17 sit. And it is raining in Cleveland today.

18 Spring thaw has started in Cleveland. The
19 seasonal rains will be coming in Cleveland in short order.
20 When that happens, there is the possibility for the
21 introduction of very large quantities of water into the
22 facility and around the foundation on a very sudden basis.

23 Mr. Miller made reference in his comments to a
24 single storm that we had in January that dumped three
25 inches of water, basically over the course of a weekend.

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1 That is spring weather in Cleveland, folks. And
2 it is possible for three inches to be delivered in a very
3 short period of time. It is possible for more than that.

4 The real problem is, if there is a sudden influx
5 of water against that foundation, and the foundation of
6 that building heaves, or the foundation walls collapse in
7 part or in whole, or if the floor of that building heaves,
8 there will be open communication between the highly
9 contaminated groundwater in the basement of the facility
10 right now and the exterior of the facility.

11 Now, there is no question that the discharges
12 that we propose to do now, if we were to discharge water
13 containing soluble cobalt-60 at 200 picocuries or less,
14 there is absolutely no question under our reading of the
15 regulations that that would be an authorized discharge
16 under current NRC regulations. It is orders of magnitude
17 less than the release limits as we understand them.

18 Now, we have already received information -- in
19 fact, we received written confirmation, through the
20 assistance of Jack Grove in Region Three in Chicago, that
21 discharges of this water containing soluble cobalt-60 at
22 200 picocuries or less would not be a violation or would
23 satisfy NRC regulations.

24 Mr. Grove has also been helpful in allowing the
25 sewer district to understand that, were these discharges

EXHIBIT "D"

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF OHIO
3 EASTERN DIVISION

4 NORTHEAST OHIO REGIONAL
5 SEWER DISTRICT,
6 Plaintiff,

Case No. 1:94CV2555
Cleveland, Ohio
Tuesday, December 13, 1994
2:45 p.m.

7 vs.

8 ADVANCED MEDICAL SYSTEMS, INC.,
9 et al.,

10 Defendants.

11 TRANSCRIPT OF PROCEEDINGS
12 BEFORE THE HONORABLE GEORGE W. WHITE,
13 UNITED STATES DISTRICT JUDGE

14 APPEARANCES:

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31 Proceedings recorded by mechanical stenography, transcript
32 produced by computer-aided transcription.

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1 during the time it's been coming off the roof that it has no
2 contamination. There is no detectable cobalt 60 in that
3 contamination -- in that water, Your Honor. It is clean.

4 The NRC is aware of our testing. The NRC has tested
5 the water themselves. Consequently, when Judge Friedman
6 made the decision to dismiss the case, we, after
7 consultation with the NRC, released the water from the
8 tanks.

9 Second, Your Honor, the other problem is the effect of
10 the temporary restraining order was that the sewer district
11 put a compression plug, cork, in the lateral that connects
12 our building to their interceptor sewer. The effect of
13 that, Your Honor, was to make it impossible for the
14 foundation footer drains of the building to drain ground
15 water through the foundation footer drain system into the
16 lateral. As a result, Your Honor, water has backed up
17 behind the plug in the lateral sewer and is rising.

18 The effect of that, Your Honor, is that we now have
19 water in the foundation of the building, and that water is
20 entering the basement. The problem there, Your Honor, is
21 there is a waste hold-up tank, it is a specially-isolated
22 radioactive waste holding area in the basement of the
23 facility, that may be compromised if further water comes
24 into the basement.

25 The NRC is there right now assisting us in trying to do

1 If, Judge, if you issue the TRO, it basically keeps
2 things at status quo. These folks have done some things --
3 and we have told them they have done some things -- to cause
4 their own problems at this point.

5 There is no evidence that I have seen that the
6 structural integrity of that building is compromised. In
7 fact, there are plans on file with the NRC that indicate
8 that building can withstand fire, flood, situations that are
9 much worse than what he's talking about right now.

10 MR. BILLINGSLEY: Well, Your Honor --

11 MS. FAGNILLI: The TRO is a status quo. It stops
12 them from dumping water across the street, which they should
13 not be doing, and it gives an opportunity for true testing
14 of that water so we have some comfort level that, in fact,
15 it is clean. And if it is, we can talk; but in the meantime
16 they should be stopped from doing what they are doing.

17 We could go on all afternoon.

18 MR. MILLER: Let me take a shot at this one.

19 MR. BILLINGSLEY: Fine. But, you know, if the
20 sewer district is prepared to give us a hold harmless that
21 we won't have any problem, that's fine, but their attitude
22 has been, this is your problem.

23 THE COURT: What do you mean hold harmless?

24 MR. BILLINGSLEY: Your Honor, I have an engineer
25 who has looked at the situation, looked at this ground

1 water, considered the weather, and said, this room is going
2 to flood if you don't do something about it.

3 The NRC has told us we have got to do something, "we"
4 the NRC and "we" Advanced Medical Systems has to do
5 something about solving this problem, and the problem is the
6 footer drains.

7 We are perfectly willing to insure that however that
8 discharge gets handled that it is appropriate under what the
9 NRC requires, and we are looking at that right now, but
10 there is no reason for this Court to enter a temporary
11 restraining order. There isn't any showing justifying one.

12 And the downside risk here is that if the Court goes
13 ahead and does this, the situation there is a potential for
14 making the situation far, far worse.

15 The NRC has the authority, Your Honor, to make us do
16 anything. We are their licensee. To the extent that there
17 is some sort of harm or risk or something that has to be
18 addressed, they don't have to ask us, they tell us.

19 Now, with all due respect, the sewer district is not in
20 a position where they should be making directions to how we
21 handle this, the NRC should. The NRC is in the process of
22 doing that right now.

23 MR. MILLER: I should point out, Your Honor, we
24 were in the midst of a preliminary injunction hearing when
25 His Honor decided to dismiss the case, and we put on a fair

EXHIBIT "E"

EXHIBIT "F"

Advanced Medical Systems, Inc.

121 North Eagle Street • Geneva, Ohio 44041
(216) 466-4671 FAX (216) 466-0186

August 14, 1995

Mr. James Caldwell, Deputy Director
U. S. Nuclear Regulatory Commission
Division of Safety and Safeguards
801 Warrenville Road
Lisle, Illinois 60523-4351

Dear Mr. Caldwell:

A meeting has been scheduled for Tuesday, August 29, 1995, at 11:00 a.m. at our facility at 1020 London Road, Cleveland, Ohio (see enclosed directions to the London Road facility), to discuss and resolve our request to discharge approximately 100,000 gallons of treated water under an affiliate's Permit No. 95-01. Individuals requested to attend this meeting are:

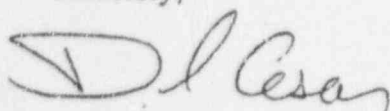
Mr. Charles Bowman, City Manager, Geneva, Ohio
Mr. Michael Parker, City of Geneva Wastewater Department
Mr. Michael Murphy, USEPA
Mr. Ern Gones, Ohio EPA
Ms. Carol Berger, Integrated Environmental Management, Inc.
Mr. Robert Meschter, Radiation Safety Officer, Advanced Medical Systems, Inc.
Mr. Allen Duff, Integrated Environmental Management, Inc.
Dwight A. Miller, Esq., Stavole & Miller
Mr. James Caldwell, USNRC, Deputy Director

Please contact my secretary, Carole, to confirm your attendance. If you cannot be available in person, please make arrangements to send an alternate or be available by telephone at this time.

Information pertaining to this issue is being sent to you under separate cover.

If you have any questions, please do not hesitate to contact Mr. Robert Meschter, Advanced Medical Systems, Inc.'s Radiation Safety Officer; or me.

Sincerely,



DAVID CESAR
Treasurer

DC/cs
Enclosure

AUG 21 1995

E174

DIRECTIONS TO:

**ADVANCED MEDICAL SYSTEMS, INC.
1020 LONDON ROAD
CLEVELAND, OHIO 44110**

Phone: 216/692-3270

FROM THE EAST:

I-90 West/Route 2 to Exit 182A (East 185th Street)
LEFT on East 185th Street to St. Clair Avenue
RIGHT on St. Clair Avenue to London Road
LEFT on London Road to 1020
Ring buzzer at door closest to railroad tracks for admittance.

FROM THE WEST:

I-90 East/Route 2 to Exit 180B (East 152nd Street)
RIGHT on East 152nd Street
LEFT on Holmes Avenue (second street after railroad tracks)
At intersection with St. Clair Avenue, Holmes Avenue stops
and London Road begins
Follow London Road to 1020
Ring buzzer at door closest to railroad tracks for admittance.





UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

August 16, 1995

MEMORANDUM TO: Janice E. Moore, Deputy Assistant General Counsel
Office of General Counsel

FROM: John R. Madera, Chief *JRM*
Materials Licensing Section, Region III

SUBJECT: ESTIMATED DATES OF ISSUANCE OF ADVANCED MEDICAL SYSTEM'S
LICENSE OF RENEWAL

This memorandum is in response to a request from Mr. Bernie Boerdnick of your staff. Mr. Boerdnick requested that we provide you with "best" and "worst" case estimated dates of issuance of the license renewal for Advanced Medical Systems located in Cleveland, Ohio. Currently, we are reviewing the licensee's response to our deficiency letter addressing their application for renewal. We anticipate that another deficiency letter will be required, which will probably be issued in September. The licensee will be given 30 days to respond.

The major issue that could hold up issuance of the license is the licensee's cost estimate for decommissioning the facility. In light of recent events that have occurred at the site, as well as the recent opening of the disposal site in Barnwell, South Carolina, we are requesting the licensee perform another site characterization. We feel very strongly that their initial estimate of approximately 1.8 million dollars is not realistic. The license cannot be issued until the financial assurance for decommissioning is approved.

Based on the above, we believe, the earliest date of issuance would be in 3-4 months. Worst case would be 6 months to a year.

If you have any questions, please feel free to contact Kevin Null of my staff at (708) 829-9854.

License No.: 34-19089-01
Docket No.: 030-16055

ELTS

August 16, 1995

MEMORANDUM TO: Janice E. Moore, Deputy Assistant General Counsel
Office of General Counsel

FROM: John R. Madera, Chief
Materials Licensing Section, Region III

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License No.: 34-19089-01
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