

March 2, 1995

MEMORANDUM TO: W. L. Axelson, Director
Division of Radiation Safety and Safeguards

FROM: John A. Grobe, Chief
Nuclear Materials Inspection Section 2

SUBJECT: MEETINGS WITH CLEVELAND, OHIO ENVIRONMENTAL PROTECTION
AGENCY AND NORTHEAST OHIO REGIONAL SEWER DISTRICT OFFICIALS
REGARDING ADVANCED MEDICAL SYSTEMS, INC.

On February 21, 1995, I met with Bob Staib, Director, Cleveland Department of Health, Environment Division, to discuss the status of Advanced Medical Systems, Inc. (AMS) activities and NRC oversight of the licensee. Director Staib appeared satisfied with the NRC actions regarding this licensee. The substance of my discussions will be documented in a letter to the Director in response to his letter dated February 16, 1995.

On February 22, 1995, I visited the site to discuss status of activities with the Radiation Safety Officer and tour the facility. There have been no substantive changes in the facility status. I witnessed the procedures used by the licensee for measuring water levels and identified no concerns.

On February 22, 1995, I attended a meeting at the Ohio Environmental Protection Agency (OEPA) offices in Twinsburg, Ohio, with OEPA, Northeast Ohio Regional Sewer District (NEORSRD) and AMS. The list of attendees is attached. The meeting was chaired by OEPA and was intended to identify if there was any common ground between NEORSRD and AMS to build consensus for a solution to AMS' discharge problems that would include acceptance of waste waters by the NEORSRD. The NEORSRD stated that they would not accept any risk on resulting from discharge of cobalt-60 to the sewers.

AMS committed to:

- Process all waste waters through sub-micron filtration and demineralization until there was no insoluble cobalt-60 and less than 25 pCi/l soluble cobalt-60;
- Discharge less than 10,000 gallons per day;
- Provide monitoring to the satisfaction of NEORSRD of waste water outflow from AMS, waste water inflow to Easterly, sludge outflow from Easterly, and ash outflow from the Southerly incinerator; and
- Take possession of any material identified as containing cobalt-60.

On behalf of the NRC, I indicated that Robert Bernero would consider issuing a letter indicating that should AMS discharge within those limits, the NRC would not exercise regulatory authority over any cobalt-60 in the resultant ash.

NEORSD did not believe that there was a functional way to intercept ash that was determined to be contaminated and expressed that they would only accept such a plan if AMS were to indemnify NEORSD from any costs associated with dealing with any ash contaminated with cobalt-60. AMS was unwilling to make such a commitment, since other licensee's are authorized to discharge cobalt-60 and AMS was not willing to incur expenses due to their discharges. AMS expressed willingness to pay their share should any cobalt-60 be discovered; however, NEORSD could not identify a method to segment financial liability due to the NEORSD's inability to identify other contributors to the waste stream.

The meeting ended with NEORSD remaining unwilling to accept waste waters from AMS.

If you have any questions please contact me.

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

Attachment: Attendees List

cc w/att: Cynthia Pederson, RIII
Gary Shear, RIII
Cathy Haney, NMSS
Mike Stein, OGC
Steve Crockett, OGC
Marian Zobler, OGC

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NAME	Grobe:dp			
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2/22/95 / OEPA - NEDO

John Kwalek
SARA FAGNILL
Tom Kerhart
Larry English
Richard Conolly
Henry Billingsley
CAROL BERGEN

DAVID CESAR
Dwight a muller
Michael Weber
JACK GROBE
WAYNE Slawinski
BILL SKOWRONSKI

OEPA	216-963-1257
NEORSO	216-881-6600
NEORSO	216 881-6600
"	"
NEORSO	216-641-6000
Arters Hadden	216-676-2572
ITEM	301-762-0502
AMS	216-466 4671
Strooks + Muller	216 771 0011
NRC	708-829-9825
NRC - Region III	708-829-9806
NRC	708-829-9820
OHIO EPA	(216) 963-1130

March 2, 1995

Advanced Medical Systems, Inc.
ATTN: David Cesar
Treasurer
121 North Eagle Street
Geneva, OH 44041

Dear Mr. Cesar:

This refers to the special safety inspection conducted by Dr. John House and Messrs. Wayne Slawinski and Keith Andre of this office on December 12-13, 1994 and January 18, 1995, to review certain aspects of your NRC licensed activities authorized by NRC Byproduct Material License No. 34-19089-01. This also refers to the January 18, 1995 meeting with you and your representatives and myself and Mr. James Caldwell of the NRC Region III office, regarding current water problems at your facility.

The inspection was prompted by your London Road facility's water control problems and was conducted to: (1) observe ongoing facility water intrusion problems and ground/surface water control activities; (2) perform radiochemical analyses and limited filtration studies of wastewater samples; and (3) observe licensee contractor efforts in conducting a radiological assessment of the Waste Holdup Tank (WHUT) room in the basement of your facility.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of observations, water sampling and analyses, and interviews with personnel.

No violations were identified during the course of this inspection. However, concerns with ground and surface water control and its potential effect on the integrity of your building's foundation were noted. The lack of timely and effective long-term solutions to the water problems was also identified as a concern.

We have continued to monitor your facility water problems since these problems arose in December 1994, including daily communications with you or your staff upon escalation of these problems on January 16, 1995. To confirm your specific commitments to address these ongoing concerns, we issued a Confirmatory Action Letter (CAL No. RIII-94-008) on December 15, 1994. Due to changes in the status of your facility and its escalating water problems, the CAL was revised on February 1, 1995.

As you know, we are currently evaluating your January 27, 1995 Action Plan for dealing with these water problems and the remediation of the contaminated sewer discharge system. This evaluation includes your consultant's proposal for wastewater processing, forwarded by letter dated February 2, 1995. You

9503080072

AWW

will be informed by separate correspondence regarding the results of our review. Consequently, no response to these matters is required at this time.

We will continue to monitor your facility's water problems and evaluate the effectiveness of your remedial actions via periodic inspections at your London Road facility.

In accordance with 10 CFR 2.790 of the Commission's regulations, a copy of this letter and the enclosed report will be placed in the NRC Public Document Room.

We will gladly discuss any questions you have concerning this inspection.

Sincerely,

Original Signed by John A. Grobe

John A. Grobe, Chief
Nuclear Materials Inspection Section 2

License No. 34-19089-01

Docket No. 030-16055

Enclosure: Inspection Report
No. 030-16055/95001(DRSS)

See Attached Distribution

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DATE	02/24/95		03/2/95		03/2/95				

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bcc:

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Bruce Berson (BAB1)
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Bill Brach (EWB)
Jim Caldwell (JLC1)
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Steve Crockett (SFC)

Joe DeCicco (JXD1)
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Wayne Slawinski (WJS2)
Micheal Stein (MHS)
Mike Weber (MFW1)
Marian Zobler (MLZ)

UNITED STATES NUCLEAR REGULATORY COMMISSION
REGION III

Report No. 030-16055/95001(DRSS)

License No. 34-19089-01

Priority I

Category B

Docket No. 030-16055

Licensee: Advanced Medical Systems, Inc. (AMS)
1020 London Road
Cleveland, Ohio 44110

Site Inspection Conducted: December 12-13, 1994 and January 18, 1995

Inspectors: Wayne Slawinski
Wayne Slawinski, Senior
Radiation Specialist, Nuclear
Materials Inspection Section 1

2-10-95
Date

John House
John House, Ph.D., Senior
Radiation Specialist, Radiological
Programs Branch

2/10/95
Date

for Keith Andre
Keith Andre, Physical Science
Technician, Fuel Cycle and
Decommissioning Branch

3/2/95
Date

Approved By: John A. Grobe
John A. Grobe, Chief
Nuclear Materials Inspection
Section 2

3/2/95
Date

Inspection Summary

Inspection on December 12-13, 1994 and January 18, 1995

(Report No. 030-16055/95001(DRSS))

Areas Inspected: Special, announced inspection to: (1) observe recent London Road facility water flooding problems and licensee ground and rain water runoff control activities; (2) conduct radiological analyses and limited filtration studies of rain and flood water samples; and (3) observe licensee contractor efforts in conducting a radiological assessment of the facility's Waste Holdup Tank (WHUT) room.

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Results: No violation of regulatory requirements was identified. Cobalt-60 was found, as expected, in water samples collected from the flooded basement and in water sampled from the plugged sewer manhole located just outside the facility on licensee property. The lack of an effective long term solution to the ground water hydrostatic pressure problem and collection, processing and disposal of contaminated basement, manhole and potentially contaminated ground waters was identified as a concern.

DETAILS

1. Persons Contacted

Licensee Representatives

David Cesar, Treasurer
Steven Haddock, Isotope Technician
Robert Meschter, Radiation Safety Officer
Christopher Reed, Technician
Vincent Rocco, Technician

Licensee Contractor Representatives

Henry Billingsley, Attorney, Arter & Hadden
John Denega, Civil Engineer, Neff & Associates
Maurits Hartog, Senior Technician, Scientific Ecology Group, Inc.
Kevin Wright, Field Engineer, Scientific Ecology Group, Inc.

2. Purpose and Scope of Inspection

This was a limited scope special safety inspection conducted primarily to observe London Road facility water problems, independently sample and analyze the water, and evaluate ground/flood water control activities recently undertaken by the licensee. The NRC Region III mobile laboratory was present at the London Road site on December 12-13, 1994, and used to analyze water samples and to conduct water filtration/solubility studies. The inspectors also observed licensee contractor efforts in conducting a radiological assessment of the WHUT room located in the basement of the facility.

3. Water Sampling, Analyses and Filtration Studies

(a) Background Information

During the period August 17 through October 14, 1994, the NRC conducted a special inspection to examine the radiological conditions of wastewater exiting the AMS London Road facility through its sanitary piping and into the City of Cleveland sewers in the vicinity of the sewer outfall from the facility. Inspection findings are documented in Inspection Report No. 030-16055/94003(DRSS), transmitted to the licensee on December 6, 1994. During that inspection, the NRC identified one apparent violation concerning the discharge of insoluble cobalt-60 into the sanitary sewer system.

Since that inspection, the Northeast Ohio Regional Sewer District isolated the London Road Facility from the sewage treatment system. The isolation impacted on the ability of the facility's

foundation drainage system to function as designed. Subsequent to the isolation, rains saturated the soils about the facility and coupled with surface water contributors, caused a buildup of water and consequently hydrostatic pressure on the building foundation structure. In addition, the combination of rains and isolation of the facility from the sewage system led to ground and storm water intrusion into the facility basement, creating a contaminated wastewater problem within the facility.

On December 15, 1994, a Confirmatory Action Letter (CAL No. RIII-94-008) was issued to AMS, confirming the licensee's commitment to implement appropriate steps to reduce the hydrostatic pressure on the building foundation to ensure its structural integrity remains intact, and that appropriate plans were developed to address the radioactively contaminated water that was being removed from the facility sewer manhole and that located in the basement of the facility. The CAL also discussed the development of plans to remediate the radioactively contaminated manhole and sewer line exiting the facility to the London Road interceptor. The licensee responded to the CAL and outlined its plans for remedial action in a letter dated December 28, 1994.

The groundwater buildup and flooding problems worsened on January 16, 1995, after heavy rainfall in the Cleveland area. The rainfall caused additional water intrusion into the facility basement and necessitated a revision to the December 15, 1994 CAL. The revised CAL (No. RIII-94-008 (Revision I)) was issued February 1, 1995. Since the flooding problems escalated, the NRC has been in daily communication with the licensee and is closely monitoring the water problems. As a result of these escalating concerns, the licensee developed an action plan to address:

- (1) long term solutions to the foundation drainage system problem;
- (2) control of sub-surface contamination; (3) collection, processing and disposal of contaminated wastewaters; and
- (4) remediation of the contaminated sanitary and storm water piping, manhole and sewer lateral. The licensee's plans and proposals for remedial action are currently being reviewed by the NRC.

(b) Water Analyses

The inspectors collected several wastewater samples on December 12-13, 1994, and conducted radiochemical analyses on-site at the licensee's facility using the Gamma Spectroscopy system aboard the Region III mobile laboratory. Additional samples were collected on January 18, 1995 and analyzed in the Region III laboratory in Lisle, Illinois. Water samples were collected by the inspectors from the following areas in and around the licensee's London Road facility:

- One sample taken from each of the three tanks used to collect rainwater runoff from the facility roof. One sample was collected from each tank prior to its discharge to the facility grounds.
- One sample taken from the loading dock as it was being discharged to the facility grounds.
- Four samples collected from the basement of the facility.
- One sample taken from each of the three bulk tanks used to store water pumped from the sewer manway (sewer collection tanks).
- Three samples collected from the sewer manway.
- One sample taken from a newly constructed sump pit located on the south end of the facility.

As shown in Tables I and II (Attached), cobalt-60 concentrations ranging from 250-600 pCi/l were identified in two of the three sewer collection tanks and in two of the three sewer manway samples. No cobalt-60 above minimum detectable activities were identified in one of the collection tanks and one of the manway samples. Although the absence of cobalt in one of the sewer manway and one of the sewer collection tanks appears anomalous, it is not unexpected and attributed to the sporadic and unpredictable manner in which cobalt-60 apparently sloughs-off the sewer manway and lateral piping surfaces. Similar unpredictable results have been previously identified, as documented in Inspection Report No. 030-16055/94003(DRSS). Since the contents of the sewer collection tanks were not mixed prior to inspector sampling to ensure sample representativeness, additional samples from sewer collection tank # 1 are necessary to conclude that the water is not contaminated with cobalt-60.

Cobalt-60 was found in varying concentrations in all four basement flood water samples. Samples collected from the back basement showed significantly more activity than those from the front area, as expected, due to varying basement floor and wall surface contamination. Although the flood waters in the front and back basement areas communicate, they are relatively stagnant and no significant mixing of the waters has occurred.

Remaining samples exhibited no detectable activity above counting system minimum detectable activities. Radiochemical sample analysis results are reported in Tables I and II.

Filtration studies were conducted on the two samples (A and B) collected on December 12-13, 1994 from the sewer manway, in an attempt to estimate the particle size and the solubility characteristics of the cobalt

contaminant. An unfiltered 500 milliliter aliquot of each of the two samples was analyzed for cobalt-60 content and compared to 500 milliliter aliquots passed through a 0.45 micron filter. The analyses disclosed the filtrate activities to be consistent with the activity of the unfiltered material, indicating that the cobalt-60 had passed through the filter. No activity was detected on either filter. Upon returning to the region III office, a second filtration experiment was conducted on the same samples using 0.22 micron filters. Specifically, filtrates which had passed through the 0.45 micron filter were further filtered through 0.22 micron filters. As reported in Table III (Attached), the results were the same in that all cobalt also passed through the 0.22 micron filter. As the filtration study was limited to only two samples which may not have been representative of the sewer manway's contents, no definitive conclusion can be drawn regarding the solubility of the cobalt-60 in the sewer. Additional samples taken over a period of time would be required to resolve the solubility question of the cobalt-60 contaminant in the sewer manway.

4. Waste Holdup Tank (WHUT) Room Radiological Assessment

Between mid-November through mid-December 1994, a licensee contractor performed an on-site radiological assessment of the facility's WHUT room. The assessment was conducted to evaluate the current radiological conditions in the room, calculate its cobalt-60 source term and to determine the radiological impact of facility operations on the building's foundation and sub-surfaces. The results of the assessment are required for the development of an adequate Decommissioning Funding Plan (DFP). Pursuant to 10 CFR 30.35 (c)(2), the licensee was required to submit a DFP and financial assurance mechanism with its license renewal application by December 1, 1994. The licensee's (DFP) submittal was delayed pending completion of the WHUT room assessment.

The inspectors evaluated the radiological controls employed during the contractor's WHUT room analysis work and the project oversight provided by the licensee. No problems were noted. Pre-job surveys and briefings were conducted and job specific RWP's developed. Stripable paint was applied to floor surfaces to fix contamination and reduce airborne radioactivity. Worker breathing zone air samples and direct radiation surveys were conducted throughout the assessment work. A video camera was introduced through WHUT room wall penetrations to aid in remote visualization of the room's interior. Direct radiation measurements were made across the room's interior with retractable pole mounted survey equipment, inserted through wall penetrations. Sediment and water samples were also collected from within the room.

The licensee's contractor is currently evaluating the data collected during its assessment and compiling a report. The assessment findings and the licensee's DFP will be submitted to the NRC upon its completion.

5. Exit Meeting

The inspectors met with the licensee's Radiation Safety Officer on December 13, 1994 and summarized the purpose and scope of the inspection. On January 18, 1995, Messrs. John Grobe and Jim Caldwell of the Region III staff met with David Cesar and other licensee representatives to discuss water management and control concerns and the licensee's plans to address them. The water sample and filtration study results were not discussed during either meeting because the results were not yet available.

Attachments: (1) Tables I & II "Water Sample Analysis Results"
(2) Table III "Filtration Experiment Results"

WATER SAMPLE ANALYSIS RESULTS

TABLE I

SAMPLES COLLECTED DECEMBER 12-13, 1994

Sample Location	Co ⁶⁰ Concentration $\pm 2\sigma$ (pCi/l)
Loading Dock	< 39
Rain Collection Tank # 1	< 25
Rain Collection Tank # 2	< 23
Rain Collection Tank # 3	< 24
Back Basement	9.6 E + 5
Front Basement	6.3 E + 3
Sewer Manhole Collection Tank # 1	< 50
Sewer Manhole Sample # A	3.8 E + 2
Sewer Manhole Sample # B	2.5 E + 2

Note: The reported 2σ uncertainty refers only to counting statistics.

The analytical results displaying the less than symbol, "<", indicate that no measurable activity was identified above the minimum detectable level derived for that sample.

WATER SAMPLE ANALYSIS RESULTS

TABLE II

SAMPLES COLLECTED JANUARY 18, 1995

Sample Location	Co ⁶⁰ Concentration $\pm 2\sigma$ (pCi/l)
Back Basement	1.7 E + 5
Front Basement	5.9 E + 3
Sewer Manhole Collection Tank # 2	3.0 E + 2
Sewer Manhole Collection Tank # 3	6.0 E + 2
Sewer Manhole Sample # C	< 18
Newly Constructed Sump Pit	< 18

Note: The reported 2σ uncertainty refers only to counting statistics.

The analytical results displaying the less than symbol, "<", indicate that no measurable activity was identified above the minimum detectable level derived for that sample.

FILTRATION EXPERIMENT RESULTS

TABLE III

Manhole Sample # A

Filter Type	Co ⁶⁰ Activity - Filter (pCi) $\pm 2\sigma$	Co ⁶⁰ Concentration - Filtrate (pCi/l) $\pm 2\sigma$
0.45 Micron	< 28	3.5 E + 2
0.22 Micron	< 6	3.2 E + 2

Manhole Sample # B

Filter Type	Co ⁶⁰ Activity - Filter (pCi) $\pm 2\sigma$	Co ⁶⁰ Concentration - Filtrate (pCi/l) $\pm 2\sigma$
0.45 Micron	< 14	2.2 E + 2
0.22 Micron	< 5	2.2 E + 2

Note: The reported 2σ uncertainty refers only to counting statistics.

The analytical results displaying the less than symbol, "<", indicate that no measurable activity was identified above the minimum detectable level derived for that sample.

March 2, 1995

Jim C. ~~Conley~~
Cindy P. —
Bony S. — (lost)

NOTE FOR: T. C. Johnson, Section Leader
Materials Decommissioning Section
Low-Level Waste and Decommissioning
Projects Branch/DWM/NMSS

FROM: M. (Sam) Nalluswami, Project Manager [Original signed
Materials Decommissioning Section by:]
Low-Level Waste and Decommissioning
Projects Branch/DWM/NMSS

SUBJECT: NORTHEAST OHIO REGIONAL SEWER DISTRICT - SUMMARY
OF MEETING ON FEBRUARY 27, 1995, ON EASTERLY PLANT
ISSUES

A summary of the discussions during the meeting on February 27, 1995, between the Northeast Ohio Regional Sewer District representatives and the NRC staff, is enclosed. If you have any questions on the summary, please let me know.

Docket No. 030-18276
Enclosure: As stated

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MAR 09 1995

NORTHEAST OHIO REGIONAL SEWER DISTRICT (NORSRD)

SUMMARY OF MEETING ON FEBRUARY 27, 1995, ON EASTERLY PLANT ISSUES

A meeting was held on February 27, 1995, at 1 PM at NRC headquarters in Rockville, Maryland, between the representatives of the Northeast Ohio Regional Sewer District (NORSRD) and the NRC staff. NRC Region III staff participated via telephone as well as representatives from the Ohio Department of Health and the Cuyahoga County Board of Health. A list of attendees is attached.

After the introduction of the attendees, J. Greeves summarized the purpose of the meeting to discuss controls on potentially contaminated subsurface soils and backfill materials at the Easterly Plant site in Cleveland, Ohio. The discussions focussed on the efficacy of applying radiological controls, to protect workers and the public, from Cobalt-60 contamination that is likely to be present in subsurface soils and backfill materials at the Easterly Plant. Previous sampling at the site indicated surface and subsurface contamination of the soils and backfill materials with Cobalt-60 up to 1600 pCi/gm. Surface contamination has since been remediated. (NORSRD's Southerly Plant is currently listed on NRC's SDMP for Cobalt-60 contamination.) NRC staff proposed an exchange of letters to seek NORSRD's commitments to implement appropriate control measures (restricting public access and worker protection) in lieu of additional characterization of the subsurface, remediation and possibly issuing a license for possession of the radioactive material.

E. Odeal (Executive Director, NORSRD) said that he is puzzled by the NRC's position asking for further NORSRD actions, even though NORSRD performed the initial investigation that discovered the Cobalt-60 contamination. He said he is concerned and appalled that even after three NRC inspections, inspectors did not find contamination, and now NORSRD is being asked to perform further actions.

During the course of the meeting, NORSRD expressed several concerns about NRC's apparent inattention to NORSRD's previous requests for regulatory actions. E. Odeal indicated that there is a double standard being applied even though the NORSRD spent over \$2 million to fix the problem. According to him, NRC is closely regulating NORSRD (non-licensee) and is taking a more lax and "nevermind" approach towards licensees (i.e., Advanced Medical Systems). He said that he has a problem being regulated by the NRC, which has done such a poor job regulating its other licensees.

NORSRD's representatives were particularly concerned about delays regarding two §2.206 petitions, which have been under review by the NRC for the last two years. E. Odeal asked what is the status of their §2.206 petitions. He was disturbed that no decision has been reached in two years. R. Fonner indicated that it is being reviewed at levels above the NRC staff. E. Odeal asked why the §2.206 petition requesting remediation of the AMS lateral was being treated with the petition requesting the AMS be responsible for the remediation of the Southerly Plant. He indicated that he considered these petitions to be separable, and thought that NRC would be able to act quickly on the remediation of the AMS lateral. NORSRD representatives urged separation of the contaminated sewer lateral issue from consideration of the larger issue associated with licensee liability for offsite contamination. The NORSRD has

also been pursuing litigation to seek reimbursement from the alleged source of the Cobalt-60 contamination.

T. Lenhart asked if NRC staff has any additional information relating to the allegation of illegal disposal of materials from AMS. G. Shear indicated there was no additional information. G. Shear also indicated that Region III had reopened the allegation following the discovery of contamination at the Easterly Plant, but subsequently closed it out on November 18, 1994, when no additional information to support the allegation was discovered.

NORSD representatives asked whether NRC had looked at licensees operating prior to 1976 to see if the licensees might have released material into the sewer system. T. C. Johnson indicated that he would respond to this question.

The NORSD indicated that they would consider the NRC request to further document the implementation of the radiological controls that are now being applied to possible contamination at the Easterly Plant. T. C. Johnson indicated that in the NRC response, a statement would be made that no license for the Easterly Plant contamination would be required. John Greeves repeatedly emphasized and suggested that NORSD's consultant and the NRC staff should work together to finalize the letter including the needed time to decay at the Easterly Plant. Although the NORSD agreed with the NRC's proposal for applying the controls at the Easterly Plant appeared reasonable and consistent with planned actions, they may delay submitting the requested commitments pending NRC action on the other matters.

ACTION ITEMS

<u>ACTION</u>	<u>RESPONSIBILITY</u>	<u>DATE</u>
1. Contact OGC on §2.206 petition regarding release of Cobalt-60	NMSS/Petition Manager-JDeCicco	3-15-95
2. Contact OGC on §2.206 petition regarding sewer lateral	NMSS/Petition Manager-JDeCicco	3-10-95
3. Were there licensees operating prior to 1976 who may have released Cobalt-60 into the sewers?	T. C. Johnson/DWM	4-15-95
4. Send a copy of the 10-11-94 NRC inspection report to ODOH.	(ODOH already received a copy)	

Attachment: List of Attendees

NORTHEAST OHIO REGIONAL SEWER DISTRICT
SIGN UP SHEET

Page 172

LLW AND DECOMMISSIONING PROJECTS BRANCH/DWM/NMSS
U.S. NUCLEAR REGULATORY COMMISSION

DATE: 2-27-95 (1 PM)

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CARL J. PAPERIELLO	NRC/NMSS	(301) 415-7358
Tim Johnson	NRC/DWM	(301) 415-7244
John Green	NRC/DWM	(301) 415-6708
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Sam NALLUSIVIM	NRC/DWM MAIL STOP 77F27, WASHINGTON, DC 20555	(301) 415-6694
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LLW AND DECOMMISSIONING PROJECTS BRANCH/DWM/NMSS
U.S. NUCLEAR REGULATORY COMMISSION

DATE: 2-27-95 (1 PM)

NAME	OFFICIAL ADDRESS	TEL.NO.:
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Richard Connelly	NEORSD 4747 E 49th Cuyahoga Ave	(216) 641-6000
BARRY KOH	B. KOH + ASSOC 10211A S. Dolfeld Rd. OWING MILLS, MD 21204	(410) 356-6612
Erwin J. Odroc	3826 Euclid Ave, (Cleveland, Ohio 44115)	(216) 881-6600
TODD BRADY	CUYAHOGA CITY BOARD OF HEALTH (BY PHONE)	()
HARVEY BRUESCHER	OHIO DEPT OF HEALTH (BY PHONE)	()
G. SHEAR	NRC / REG III "	()
M. WEBER	NRC / REG III "	()
M. KUORTH	NRC / REG III "	()
J. DeCicco	NRC / NMSS / NMSS	(301) 415-7833

DWIGHT A MILLER 1604 Delumetig Blvd Cleveland Ohio 44113

216-771-0011



Integrated Environmental Management, Inc.

9040 Executive Park Drive, Suite 205
P.O. Box 50785
Knoxville, TN 37950-0785
Phone: (615) 531-0140
FAX: (615) 531-9130

1680 East Gude Drive, Suite 305
Rockville, MD 20850
Phone: (301) 762-0502
FAX: (301) 762-0638

March 3, 1995

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

Re: Supplement 2 to Application to Amend License No. 34-19089-01

Dear Mr. Grobe:

Mr. David Cesar recently sent you an application to amend the referenced license to permit water treatment and sewer remediation activities to proceed at the Advanced Medical Systems, Inc. (AMS) facility on London Road. This letter is Supplement 2 to that application. The following is a description of the procedures that will be implemented during the water treatment process:

Attachment 1: Diversified Technologies Services, Inc. (DTS) of Knoxville, Tennessee, has been contracted to provide water treatment services. A listing of similar projects and experience by DTS was submitted to you previously for your review.¹ DTS will implement a system of multi-stage filtration and pressure vessels for application of ion exchange/activated carbon process media. If required, the same type of cobalt-selective ion exchanger applied at nuclear power plants for cleanup of cobalt-bearing liquid waste will be utilized. The water processing protocols that will be followed by DTS were submitted to you previously.² Attachment 1 contains additional procedural steps to address spill control and staging of the equipment.

Attachment 2: Processed water will be stored, initially, in above-ground storage tanks. Samples will be collected from the tanks by the procedures submitted to you previously.³ (Sufficient sample to permit "splits" in volume with the USNRC will be collected.) The samples will be sent for confirmatory analysis to Quanterra, Inc., a commercial analytical laboratory in St. Louis, Missouri. There the ⁶⁰Co

¹ Letter from C. D. Berger to J. A. Grobe, February 2, 1995, Attachment 1.

² Letter from C. D. Berger to J. A. Grobe, February 2, 1995, Attachment 2.

³ Letter from C. D. Berger to J. A. Grobe, February 2, 1995, Attachment 3.

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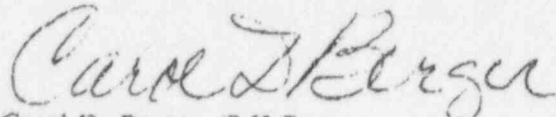
ATS

concentration will be determined by the methodology of gamma spectroscopy by the procedures submitted previously.⁴ A minimum detection limit of 20 to 30 pCi per liter has been specified. The solubility of ⁶⁰Co in samples containing "detectable" activity, up to a maximum of 200 pCi per liter, will be demonstrated by the methodology of the American Public Health Association's Method 7110, "Gross Alpha and Gross Beta Radioactivity (Total, Suspended, and Dissolved)" from Standard Methods for the Examination of Water and Wastewater. Once the analytical results have been received and validated, treated water in the above-ground storage tanks that meets the release criteria described in your letter to David Cesar dated February 1, 1995 will be pumped to collapsible storage containers located in the AMS warehouse. Attachment 2 contains a drawing of the storage containers.

Attachment 3: Water held in the collapsible storage tanks will be evaporated at a nominal rate of 300-700 gallons per 24-hour day using an industrial-grade evaporator. Attachment 3 contains a description of one of the units currently under consideration. The evaporator will be installed in the AMS warehouse. Solids removed from the evaporator pursuant to manufacturer's instructions will be screened.⁵ A standard operating procedure for monitoring and surveillance of the evaporator will be prepared, reviewed by the AMS Isotope Committee, and implemented shortly after installation is complete. Any permitting required by the City of Cleveland or pursuant to 40 CFR 61 will be secured once the system is purchased and design/performance criteria are received.

Please contact me at (301) 762-0502 if you have any questions or if I can provide you with additional technical information. Thank you in advance for your assistance and your prompt review of the AMS application. I am looking forward to timely and successful completion of this project.

Sincerely,



Carol D. Berger, C.H.P.

cc: D. Cesar, AMS
D. Miller, Esq., Stavole & Miller
A. Duff, NRRPT, AWK Consulting Engineers
File 94009

⁴ Letter from C. D. Berger to J. A. Cimbe, February 2, 1995, Attachments 4 and 5.

⁵ If the solids contain ⁶⁰Co in concentrations that exceed 8 pCi/gram, they will be retained at AMS. If the concentrations are less than 8 pCi/g, the solids will be disposed of pursuant to the manufacturer's instructions.

ATTACHMENT 1 - WATER PROCESSING PROTOCOLS

D.T.S. SITE SPECIFIC OPERATING PROCEDURES**DT-10-95****SPILL PROCEDURES****REVISION 2****2/28/95****1.0 PURPOSE**

This procedure provides guidance for prevention as well as clean-up of spills and contamination in the DTS liquid waste processing area.

2.0 REFERENCES

2.1 MFX-01, General Operating Procedure.

2.2 Radiation Work Permit.

3.0 CHECKLISTS

3.1 DTS Valve Check-off List.

4.0 PREREQUISITES

4.1 DTS process system will be installed in a diked/curbed area. *(Shown on attached drawing)*

4.1.1 The dike must be able to contain 1.5 times the volume of the tank or a diversion route must exist for excess water to divert back to the contaminated waste holding area without operator intervention, e.g. gravity drain from the dike back to the basement.

4.1.2 The dike must be constructed of water resistant material compatible with the work environment.

4.2 All discharge process hoses, which may be subject to pressurization, will be fabricated of high pressure (WP 325 psi) wire reinforced hosing and hydro tested to 225 psi in accordance with B31.1 piping standards.

4.3 Prior to system start up, verify that all cam-lok connections are properly connected and that the ears are secured via an electrical tie wrap or other suitable securing device.

4.4 Prior to start-up, a system leak test shall be conducted at 100 psi for 15 minutes. Acceptance criteria is 100% inspection of the hose, fittings and plumbing with zero water leakage.

4.5 Entry into any areas for assessing or cleaning a spill shall not be done until a preliminary radiological survey has been performed.

- 4.6 Clean-up activities must occur on the appropriate RWP written for clean-up and decontamination.
- 4.7 NOTIFY Radiation Protection prior to sampling and/or breaching the system.
- 4.8 System operating pressure is limited to 100 psi (less 66% of design pressure and less than 45% hydro test pressure). The total discharge head of any system pump, including the cumulative head for pumps in series, may not exceed 100 psi.

5.0 PRECAUTIONS

- 5.1 Prior to disconnecting any hose(s), blow down hose(s) and piping with air and VERIFY zero pressure on system.
- 5.2 Prior to disconnecting any hose(s), position a catch container under the connections to capture any inadvertent leakage.
- 5.3 After disconnecting hose(s), drain excess water from hose(s), plug hose ends and cap pipe ends.
- 5.4 Spilled material must be treated as radioactive until identified as otherwise.
- 5.5 Do not climb onto/into any equipment or tanks without notifying Radiation Protection.
- 5.6 Prior to the start of activities each day review the confirmatory survey that Radiation Protection has performed.
- 5.7 If process hose(s) are in a walkway, identify hose with caution tape, post trip hazard and construct bridge to prevent damage to hose(s) if in an area transversed by heavy equipment.
- 5.8 A visual inspection of the DT6 process system should be conducted every hour when in service. This requirement is not necessary if in situ processing is occurring inside the tank itself with no water transferred outside the tank.
- 5.9 If pressurized discharge hoses are routed outside the facility, they must have double containment, e.g. sleeving, to aid in leak detection and control.

6.0 LIMITATIONS AND ACTIONS

- 6.1 NOTIFY I.E.M. Supervisor, Diversified Technologies Supervisor, and Radiation Protection Technician IMMEDIATELY in the event of a leak or spill which may, or has, resulted in a potential release to the environment.
- 6.2 Secure system processing until evaluation of the problem is completed and appropriate corrective actions are taken.

7.0 PROCEDURE

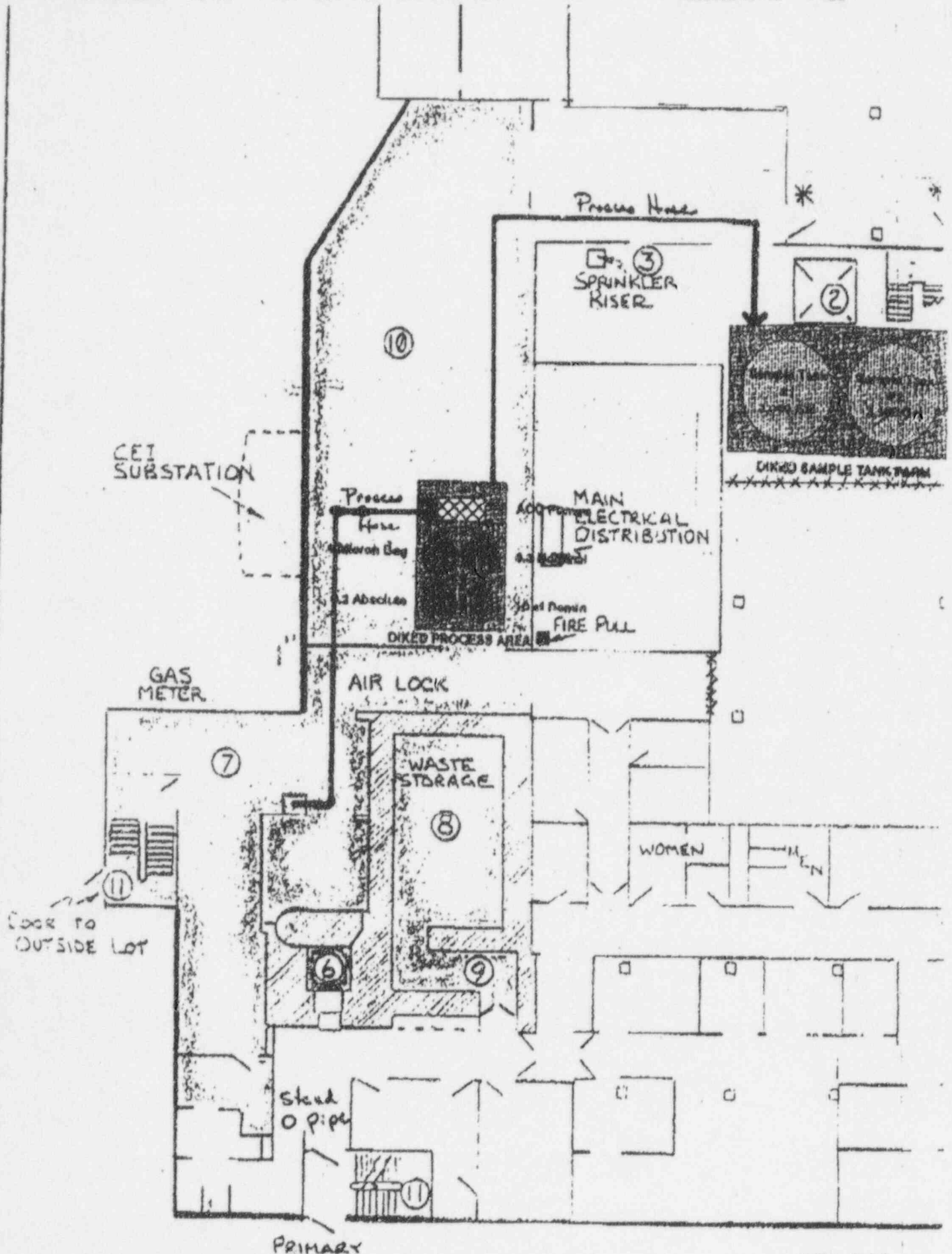
- 7.1 NOTIFY I.E.M. Supervisor, Diversified Technologies Supervisor, and Radiation Protection Technician IMMEDIATELY in the event of a leak or spill which may, or has, resulted in a potential release to the environment.
- 7.2 DETERMINE what is spilled and how it was spilled.
- 7.3 CONSULT with Radiation Protection, prior to entering the area for surveys and assessment.
- 7.4 COMPLETE a pre-job plan for clean up and/or decontamination.
- 7.5 CLEAN-UP and/or decontaminate per pre-job plan.
- 7.6 DETERMINE cause of spill and correct prior to continuing with processing liquid radioactive waste stream.
- 7.7 DISPOSE of contaminate material per Radwaste and Radiation Protection Supervision.

8.0 LOGS

- 8.1 In the daily log, document dates, time, occurrences, actions taken and other pertinent information related to any spill, leak or spread of contamination which occurs in excess of the normal course of process operations.

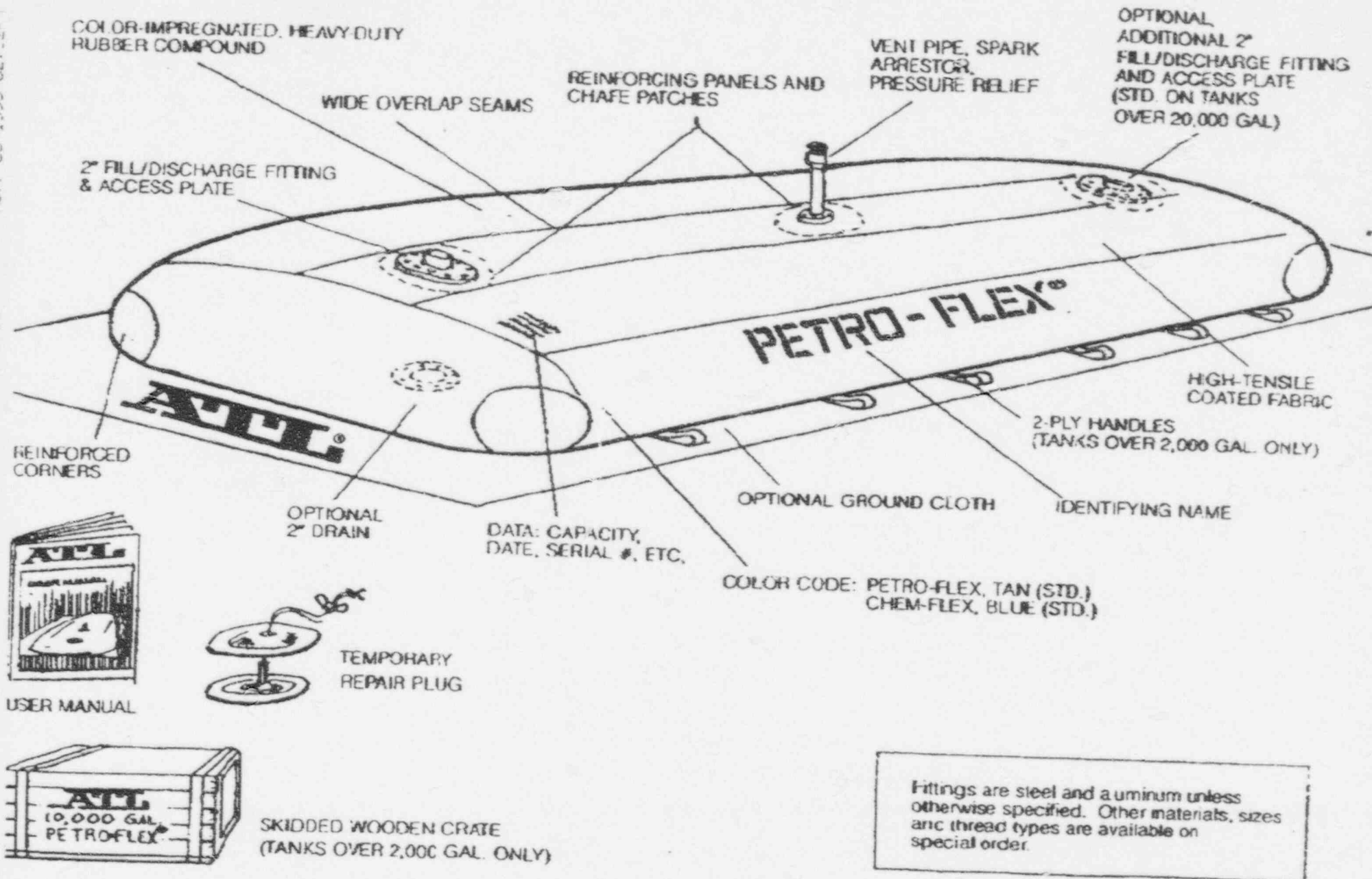
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END OF PROCEDURE



ATTACHMENT 2 - DESCRIPTION OF STORAGE CONTAINERS

PETRO EX, CHEM-FLEX Tanks



USER MANUAL



TEMPORARY
REPAIR PLUG



SKIDDED WOODEN CRATE
(TANKS OVER 2,000 GAL. ONLY)

Fittings are steel and aluminum unless otherwise specified. Other materials, sizes and thread types are available on special order.

ATTACHMENT 3 - DESCRIPTION OF REPRESENTATIVE EVAPORATOR



The Capacity You Want The Features You Need

LAKEVIEW

The safest, most economical way to reduce your water-based waste and lessen your impact upon the environment.

INDUSTRIAL WASTE-WATER EVAPORATOR E-300 - Natural Gas/Propane - "Hot Tube"

Evaporative Rate 30 to 37 gph (H₂O)

Standard Specifications:

"Hot Tube"

E-Series HT

Heat Exchanger:

Burner:

Electrical req.:

Construction:

Schedule 40 pipe burner tube, mild steel, polymer coating.

Power burner, rating to 950,000 BTU

240-460V 3 phase (other phase and voltage available)

Tank: 3/16" mild steel, heavy duty polymer coating

Insulation: 2" dense, high temperature basting

Lid: Counter-weighted safety lid stainless steel on all wetted parts.

Coating: High molecular density polymer

4" NPT, external thread

Cleanout:

Suck:

Tank Capacity:

Blower:

Motor:

Level Control:

Sensors:

10" O.D.

300 gal. approx.

Stainless steel Radia Blade Wheel Blower - 500 SCFM - 5 year warranty

1 1/2 HP

Floater activated ball valve

Low fluid level, high fluid level, static temperature monitor,

flame safety monitor, fluid temperature monitor

Control panel:

Guards:

Fluid Transfer Pump:

Access:

Industrial panel with disconnect, on/off, safety circuit for automatic shut down

Safety cages around all moving parts

Air Operated, 80 PSI, @ 11 GPM

Counter weighted, air-cooled, full width lid

Options:

Foam control/spray pump - 230/460V Electric

Stainless Steel Construction - tank, heat exchanger

Skimmer/Sludge pump

Other options available

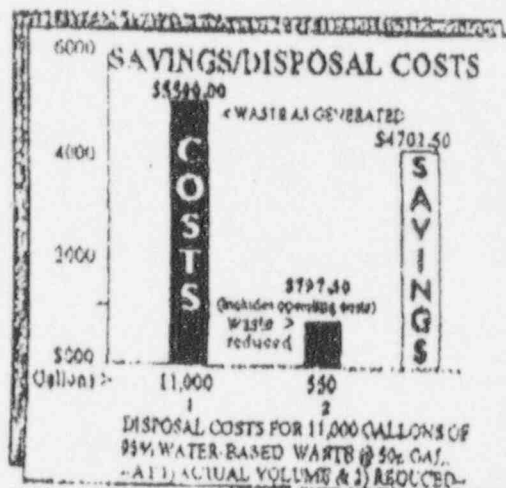
specification are subject to change

OPERATION:

- OPERATING COSTS - 3¢ TO 9¢ PER GALLON EVAPORATED. A FRACTION OF DISPOSAL COSTS (dependent on electric cost per KWH)
- EASY TO OPERATE--DESIGNED FOR BATCH OR AUTOMATIC OPERATION
- EASILY INSTALLED--MOVE IT IN, PLUMB IT AND POWER IT. (check with local codes)
- EASILY MAINTAINED--SLOPED, FLAT BOTTOM FOR FAST, EASY CLEAN-OUT.
- FEW YEAR-PARTS TO BREAK DOWN.
- MANUFACTURER SUPPORT--TO KEEP YOU RUNNING.

NOT TO BE USED WITH FLUIDS THAT HAVE A BOILING POINT LOWER THAN WATER OR WITH FLAMMABLE MATERIAL.

DIMENSIONS	
model	E-300 (gas)
L - w/burner	96"
W	64"
H	50" tank height 70" top of blower enclosure



Lakeview Engineered Products

219-432-6716

Manufactured by:

fax: 219-436-3340

POWER PLANT SERVICE, INC. 2500 W. JEFFERSON BLVD. FORT WORTH, TEXAS 76104