Advanced Medical Systems, Inc.

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5) 466-4671 FAX (216) 466-0186

DC

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030-16055

March 22, 1995

Mr. John A. Grobe, Chief
Nuclear Materials Inspection
Section II
U.S. Nuclear Regulatory Commission
Region III
801 Warrenville Road
Lisle, Illinois 60532-4351

RE: Application to Amend License No. 34-19089-01

Dear Mr. Grobe:

Advanced Medical Systems, Inc. (AMS) requests amendment of License No. 34-19089-01 to permit the following actions in addition to those items contained in Amendment No. 32 (March 17, 1995):

1. Evaporation of water stored in the warehouse of the London Road facility;

2. Installation of a sampling device in the new lateral connection between the AMS facility and the NEORSD's London Road Interceptor; and

3. Re-connection of the AMS foundation underdrain system to a new manhole and lateral.

4. Discharge of ground, waste and surface water that contains less than 200 pCi per liter of soluble 60-Co as defined in Information Notice 94-07, "Solubility Criteria for Liquid Effluent Release to Sanitary Sewerage Under the Revised 10 CFR Part 20".

Supplement 1 contains a brief listing of the water treatment and sewer remediation activities authorized under Amendment No. 32, as well as evaporation, installation of the sampler, and final recovery of the foundation drainage system. Supplement 2 contains a brief description of the proposed evaporation process along with equipment specifications, performance information and copies of permit applications. Supplement 3 contains a description of the composite sampler and flow meter that will be installed in the new lateral connection. Supplement 4 contains a description of when and under what conditions the underdrain system will be reconnected to the new lateral.

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AMS understands that the license amendment fee is $680.00. The fee is enclosed. If you have any questions, please contact me at 216/466-4671. Your urgent attention to this matter is appreciated.

Sincerely,

DAVID CESAR
Treasurer

DC/cs
Enclosures

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

SUPPLEMENT 1
WATER TREATMENT AND SEWER REMEDIATION ACTIVITIES

Activity	Status as of March 20, 1995
Purchase and calibrate an in-house gamma spectroscopy system for quick screening of water and soil samples.	Completed (March 14, 1995).
Generate and implement a Standard Operating Procedure for sample analysis.	Instructions sent by Fed-X to the AMS Radiation Safety Officer on March 16, 1995
Establish contract with DTS for treatment of accumulated water.	Completed (March 20, 1995).
Establish services agreement with Project Manager	Completed (March 20, 1995).
Obtain specifications and issue purchase orders for collapsible storage containers, water evaporator, and ancillary equipment.	Bids and specs in hand; containers purchased and two delivered on March 10, 1995; awaiting permit and purchase authorization for evaporator.
Obtain License Amendment to permit water treatment and sewer remediation to proceed.	Completed (March 17, 1995).
Obtain City of Cleveland air permit to install and operate equipment to evaporate water.	Application to install and operate submitted on March 21, 1995.
Obtain License Amendment to permit evaporation of stored water, installation of composite sampler and connection of remediated foundation drainage system to the London Road Interceptor.	Application submitted on March 21, 1995.
Install collapsible storage containers.	Containers delivered and staged on March 13, 1995. Will not be installed until needed.
Mobilize project manager and water treatment contractor to the AMS site, and notify analytical laboratory of pending sample receipt schedule.	Completed (March 17, 1995).
Provide training in radiological protection to all on-site personnel pursuant to AMS license requirements.	
Provide personnel dosimetry for all on-site personnel pursuant to AMS license requirements.	
Treat water that exists in above-ground storage tanks.	
Obtain confirmatory sampling results from treated water.	
Pump water that meets the release criteria to collapsible storage containers in the AMS warehouse.	

Activity	Status as of March 20, 1995
Simultaneously process water that currently exists in the manhole, the lateral, the sump and the basement. Treated water is pumped to a sampling tank.	
Obtain confirmatory sampling results from treated water.	
Pump water that meets the release criteria to collapsible storage containers in the AMS warehouse.	
Prepare a sampling plan for collection and analysis of soil samples in the vicinity of the old lateral connection.	
Mobilize excavation contractor, issue personnel dosimetry, and provide general employee training.	
Perform gross decontamination of the residual sludge in the basement	
When the areas are de-watered, excavate soils in the vicinity of the four-inch line and the footer drains, disconnect the footer drains from the sump, grout in the four-inch line, and grout in the lateral connection to the interceptor.	Permit application submitted.
Obtain and analyze soil and water samples during excavation activities. (Soils containing > 8pCi/g of cobalt will be packaged and stored on-site.	
Evaluate the contamination status of the footer drains, decontaminate or remove as necessary, and reconnect to the sump.	
Process any remaining water beneath the AMS facility by pumping from the sump into an above-ground storage tank.	
Obtain confirmatory sampling results from treated water.	
Pump water that meets the release criteria to collapsible storage containers in the AMS warehouse.	
Obtain permits and remove underground fuel oil storage tank	Permit application submitted.
Install a new lateral connection to the NEORSD interceptor.	Permit application submitted.
Purchase and install a composite sampler and flow monitor into the new lateral connection.	Purchase Order issued on March 21, 1995.

Activity	Status as of March 20, 1995
When sampling results indicate that no cobalt above the release criteria is present, demobilize the treatment contractor.	
When sampling results for 3,000 continuous gallons of water pumped from the foundation drainage system demonstrate that no cobalt above the release criteria is present, connect the footer drainage system, the sanitary drainage system and the roof drain system to the new lateral connection.	
Back-fill all excavated areas with AMS soil (containing <8 pCi/g of cobalt) or clean fill.	
De-mobilize the excavation contractor	
Collect biological samples from NEORSD's interceptor and evaluate decontamination methods	
De-mobilize the on-site project manager.	
Install/test water evaporation system.	
Begin slow evaporation of water in the collapsible storage containers.	
Complete basement decontamination	
Decontaminate NEORSD's interceptor (**)	
Collect and analyze core samples in the vicinity of the old lateral connection pursuant to the sampling plan.	
Complete a remediation report.	
Forward a copy of the remediation report to the USNRC.	

SUPPLEMENT 2
WATER EVAPORATION PROCEDURE

Water held in the collapsible storage tanks in the AMS warehouse will be evaporated at a nominal rate of 35 gallons per hour using a Power Plant Services Model E-300 "Hot Tube" Natural Gas Powered Evaporator. The evaporator will be installed in the AMS warehouse at a specific location to be determined by the installer. At this time, it is anticipated that it will be installed in the immediate vicinity of the collapsible storage tanks. The following are general specifications for the system:

Dimensions: 96" by 54" by 50" tank height or 70" top of blower enclosure.

Heat Exchanger: Schedule 40 pipe burner tube, stainless steel (316).

Burner: Power burner, rating to 950,000BTU

Electrical Requirements: 240-460V 3-phase

Construction: Tank is 3/16" stainless steel (316); insulation is 2" dense, high temperature batting; lid is counter-weighted safety lid stainless steel on all wetted parts.

Cleanout: Four inch NPT, external thread.

Stack: Ten inch O.D.

Tank Capacity: 300 gallons (approx.)

Blower: Stainless steel Radial Blade Wheel Blower, 500 SCFM, 1.5 HP.

Level Control: Float activated ball valve.

Sensors: Low fluid level, high fluid level, stack temperature monitor, flame safety monitor, fluid temperature monitor.

Control Panel: Industrial panel with disconnect, on/off, safety circuit for automatic shutdown.

Guards: Safety cages around all moving parts.

Fluid Transfer Pump: Air operated, 80 PSI at 11 GPM

Access: Counter weighted, air-cooled, full width lid.

Additional specifications, along with an operational description and a flow chart, are enclosed herein.

Solids removed from the evaporator pursuant to manufacturer's instructions will be screened for radiological constituents.[1] 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.

City of Cleveland Permits to Install/Operate the system were filed on March 21, 1995. Enclosed herein are copies of the permits, including the output from the COMPLY code, used to demonstrate compliance with applicable portions of 40 CFR 61.

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[1] If the solids contain detectable ^{60}Co, they will be retained at AMS. If the concentrations are not detectable, the solids will be disposed of pursuant to the manufacturer's instructions.

LAKEVIEW

WASTE-WATER EVAPORATOR

LAKEVIEW ENGINEERED PRODUCTS from

POWER PLANT SERVICE, INC.

RESPONSIBLE WASTE MANAGEMENT AND REDUCTION

OPTIONS: E-Series Evaporators

Stainless Steel Construction For the "Hot-Bottom"® both the tank and heat exchanger are constructed of SS. For the "Hot Tube"® both the tank and the burner tube are constructed of SS. For the "Hot Shot" tank is constructed of SS.

Grade 304 Offers excellent resistance to a wide range of corrosives and atmospheric exposures.

Grade 316 Best corrosion resistance of the standard stainless steels. Resists pitting and most chemicals used in paper, textile and photographic industries. High temperature strength

NB: Standard to all models is stainless steel of all wetted part of the top and lid, including the blower and blower housing.

Dual Stack Ducting Stack within a stack for "Hot Tube"® models that exhaust water vapor through the inner stack and the burner exhaust through the outer stack. This prevents water vapor from condensing and prevents the unlikely occurance of stack fires. Used as burner exhaust stack and water vapor stack, venting to outside atmosphere. 10" O.D. Available in stainless steel. Offered @ $___ x ___ft.

Exhaust Stack Single walled stack used to exhaust water vapor to the atmosphere from "Hot Bottom"® or "Hot Shot" models. May be used as burner exhaust on the "Hot Tube"® model. Offered in either carbon steel or stainless steel @ $___ x ___ft.

Special Application PLC Controls Remote operating controls or remote reading. Request special requirements or specific types

Holding Tank Custom built to your size requirements. Available in carbon steel or stainless steel. Fiberglass or cement tank linings available

Skimmer/Sludge Pump and controls 2" inlet Air operated diaphragm pump plumbed into clean-out and oil skimmer, all piping and ball valves for easy operation, transfer and removal of skimmed oils and evaporator residue. Ready to pipe to your final waste tank.

Modulating Steam Valve Installed in your steam line to control volume of steam entering steam chamber. This controls the heat input, the boiling and the rate of evaporation within the unit. Linked and controlled by a steam pressure monitor to maintain a preset, steady temperature in the steam chamber. It will also be connected to a foaming sensor. In this application the steam valve will modulate the heat input to control foaming.

Modulating Gas Valve Installed in the gas line to control the volume of fuel entering the burner. This controls the heat input, the boiling and the rate of evaporation within the unit. Linked to and controlled by a temperature monitor. It can also be connected to a foaming sensor. In this application the gas valve will modulate the heat input to control foaming.

Vapor Recovery Condenser Sized specifically the evaporation rate of your unit. Condenser will recover the water vapor coming off the evaporator. This clean water can then be used within your facility. Requires cooling medium and increases your operational costs. Closely assess your real needs for this option.

Replacement fan assembly One of the few wear parts on the unit. Fan assembly is designed for easy replacement. Standard impeller on this fan assembly has a 5 year warranty.

Anti-Foam Dispenser A waste stream may be subject to severe foaming problems. Addition of an anti-foam agent may be indicated. The dispenser will automatically add the anti-foam agent to the waste solution in the evaporator. It operates in conjuction with a foam sensor that detects the presense of foam in the space above the normal operating fluid level in the eavaporator tank.

F.M. (Factory Mutual) Rating Burner controls and gas train set up to comply with requirements

I.R.I. (Industrial Risk Insurers) Rating Burner controls and gas train set up to comply with requirements

Over-spray System, Foam Control Electric operated centrifugal pump that pumps hot waste from the evaporator and sprays it over the surface of the liquid waste. This helps to break up surface tension and allow the water to evaporate through any surface film. It also exposes more surface area to the air being pulled across the surface of the fluid assisting in the evaporative rate. Foam sensor operates in the area above the normal operating fluid level and detects foaming conditions as they occur in the tank. This sensor then activates ovespray system to break down the foam. All components, pump, strainers, nozzles, piping and controls included.

Remote Tank Sensing System The feed tank that supplies the evaporator also works as a settling tank and an oil separator tank. Pumping sludge or oil to the evaporator will not only reduce its efficiencies but also will end up requiring more operator time and maintenance to remove them from the evaporator. (1) The feed tank can be set up with sensors to determine oil and sludge layers and permit pumping only aqueous wastes to the evaporator. (2) The feed tank can be set up with level controls to determine presence of fluid.

Transfer Pump & Controls (Standard on E-300 & above) An option only on the E-100 and E-150. An air operated diaphragm pump set up to automatically transfer fluid to the evaporator. This process controlled by level controls and appropriate valves

Tank Fluid Temp. Monitor/Controler Monitors and reports on temperature of fluid in evaporator tank. This sensor is tied into control circuitry to control and monitor the temperature of the fluid in the evaporator tank. It is specifically recommended if low temperature evaporation is desired. It also functions to shut down the unit if elevated temperature condition exits due to concentration of fluid other than water.

Misc. Diaphragms for pumps - Buna-N standard, options include Viton, Teflon. Specific nature of the waste stream will determine the appropriate specification.

Installation Installation may be accomplished by the buyer, a qualified service company or by the factory.

LAKE VIEW
WASTE-WATER EVAPORATOR

LAKEVIEW ENGINEERED PRODUCTS from
POWER PLANT SERVICE, INC.
RESPONSIBLE WASTE MANAGEMENT AND REDUCTION

REDUCE WATER-BASED WASTE UP TO 98%

REDUCE DISPOSAL COSTS

LIMIT LIABILITY

ECONOMICAL OPERATION

ELIMINATE SEWER DISCHARGE

EASY CLEAN OUT

SOLID STATE PLC CONTROLS

MANUFACTURER SUPPORT

"HOT TUBE"
"HOT BOTTOM"
"HOT SHOT"

E-SERIES EVAPORATOR OPERATION

Method of Operation: 1) A heavy duty, NEMA 12 rated control panel with an industrial safety disconnect functions as the control center for the entire evaporation process. All burner controls, fill controls, level controls, temperature controls and safety devices are installed and factory tested for an assurance of safe and efficient operation

2) Water based waste is pumped into the evaporator tank until the operational level has been reached. If operating in an automatic mode the unit will fill itself through its mounted fill pump, automatically controlled by fluid level controls. If operated in a batch mode filling may be accomplished by another method. In automatic operation, fluid level is consistently maintained by high and low level controls which operate the machine mounted transfer pump.

3) The water based waste is heated to boiling via A) [Hot Tube] a burner tube heat exchanger that is elevated above the bottom of the tank. This allows solids and sludges to fall past the heat exchanger to the bottom of the tank. A power burner which is unaffected by ambient building pressure is used to provide the heat. The exhaust gases from combustion are exhausted through a stack to the atmosphere. B) [Hot Bottom] an A.S.M.E. code heat exchanger that forms the bottom of the evaporator. Steam is provided from a remote boiler. The waster based waste can be heated to a temperature lower than boiling and maintained at a preset temperature if low temperature evaporation is desired.

4) As the water vapor rises off the surface of the water based waste the water vapor is drawn out of the evaporator via a powerful blower that exhausts the water vapor via a stack to the atmosphere. In the Hot Tube model, the water vapor exiting the evaporator and exhaust gases exiting the heat exchanger can be combined to one stack outside of the unit.

5) During the evaporation process free oils will float to the surface, emulsified oils that will break out of solution with the addition of heat should also float to the surface where they can be skimmed off into a tank or barrel. Sludges, solids and precipitates will fall to the bottom of the tank where they can be removed through the large diameter clean-out. Both final waste streams, those that settle out and those that float can be more easily eliminated through a skimmer/sludge pumping system facilitating clean-out and disposal of oils and sludges

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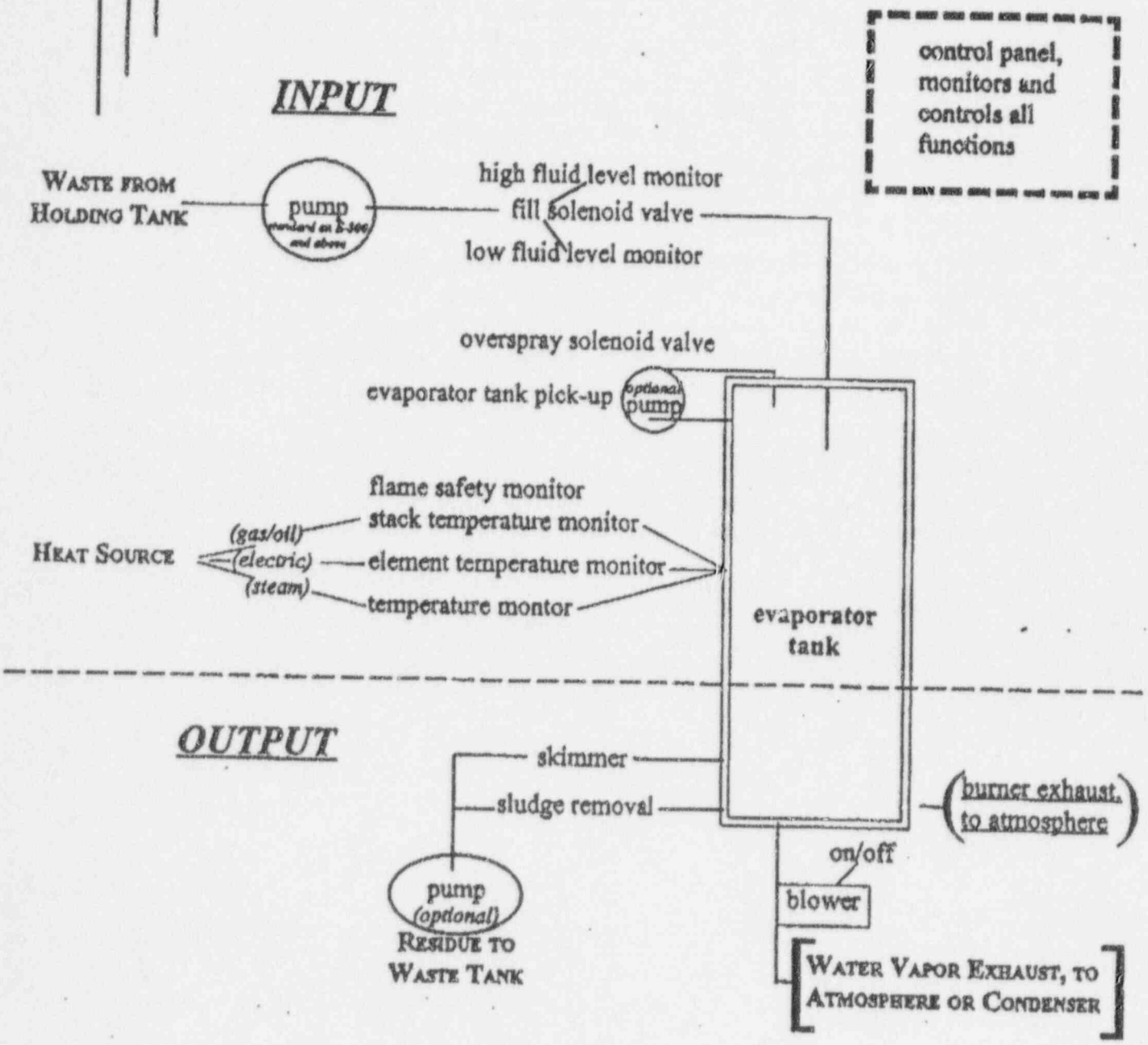
POWER PLANT SERVICE, INC.
2300 West Jefferson Boulevard
Fort Wayne Indiana
46802-4824

EVAPORATOR FLOW CHART



SUPPLEMENT 3
DESCRIPTION OF THE COMPOSITE SAMPLING AND FLOW METER SYSTEM

An ISCO Model 3710 Portable Wastewater Sampler and an ISCO Model 3240 Variable Gate Flow Meter will be installed in the new lateral connection from the AMS facility to the NEORSD's London Road Interceptor. This equipment will provide a flow-proportional sample of all water leaving the AMS facility. By operating in a flow-proportional mode, the equipment will provide samples that are representative of the water that AMS has actually discharged.

The sampler will be programmed to provide one water sample each week. This sample will be analyzed for ^{60}Co concentration by the methodology of gamma spectroscopy. The solubility of any detectable ^{60}Co will also be determined. The flow meter/sampler will also permit quantification of the water volume discharged.

The Model 3240 was selected to ensure accurate measurement of flow over a wide variety of flow rates. It will be mounted directly into the new lateral connection between the AMS facility and the Interceptor. When coupled with the Model 3710 sampler, the flow meter will give AMS the ability to maintain detailed records of radionuclide discharges, if any, as they occur. The following are the technical specifications of the Model 3710:

Dimensions: Height, 28 3/4 in.; Diameter, 19 1/4 in.

Liquid presence detection: A non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head height.

Controller watertightness: Self certified NEMA 4x and 6 ratings (submersible, watertight, dust--tight and corrosion resistant).

Sampling Modes: Uniform time, non-uniform time, flow (Flow mode is controlled by eternal flow meter pulses.)

Sample Frequency: Selectable in hours and minutes between consecutive samples in one minute increments up to 99 hours 50 minutes, or from 1 to 9,999 flow pulses in single pulse intervals. Non-uniform time may be entered in minute intervals up to 999 minutes or clock time.

Flow Meter Signal Requirements: Five to 15 volt DC pulse or isolated contact closure of at least 25 milliseconds duration.

Rinse Cycles: Suction line automatically rinsed with source liquid before sample collection, 0 to 3 rinses.

Sample Retries: Sampling cycle automatically repeated if sample not obtained on initial attempt, 0 to 3 retries.

Program Lock: Provides password protection for input displays.

Tubing Life Indicator: Provides a warning to change pump tubing.

Intake purge: Adjustable air purge before and after each sample.

Number of composite Samples to Shutoff: Up to 999 samples (Fail-safe float shutoff).

Sample Volume: 10 to 9990 ml in one ml increments. (Automatically limited by programmed bottle size and number of composite samples.)

Sample Volume Repeatability: ± 10 ml typical.

Real Time Clock Accuracy: One minute per month, typical.

Suction Tubing (Intake): Three ft to 99 ft length of 1/4" ID vinyl.

Suction Lift: Twenty-six feet, maximum.

Pumping Rate (at 3 ft head): 3,000 ml per minute.

Line Transport Velocity (at 3 ft head): 5.1 ft per second.

Operational Temperature Range: 32° to 120° F

The Model 3240 measures fluctuating flows in small pipes, permitting automatic collection of representative samples even from low flows. The following are its specifications, using a 6" variable gate metering insert:

Height (with Power Source): 18 in.

Width: 12.5 in.

Weight (without Power Source): 19.5 lb.

Enclosure (self certified): NEMA 4x; moisture and corrosion resistant, not damaged by submersion.

Units of Measurement" Flow rate (gallons per second, gallons per minute, gallons per hour, million gallons per day, cubic feet per second, cubic feet per hour, cubic feet per day, cubic meters per second, cubic meters per hour, cubic meters per day, liters per second, acre feet per day) and total flow (gallons, million gallons, cubic feet, cubic meters, liters, acre feet).

Data Storage: 14592 flow rate readings divided in up to three memory partitions, with a resolution of 0.01 gallons per minute.

Maximum Flow Rate: 180 GPM with a 0.5% minimum downstream slope, and 300 GPM with a 2% minimum downstream slope.

Typical Flow Rate Measurement Accuracy: Below 5 GPM ± 0.35 GPM, max; 5 to 10 GPM ± 0.5 GPM, max; 10 to 300 GPM ± 5% of reading, max.

Automatic Drift Correction: After a five minute warmup period, zero level is corrected to ± 0.002 feet at intervals between 5 and 60 minutes.

Long Term Level Calibration Change: Typically 0.5% of reading per year.

Model 3710 Sampler

Unmatched composite sampling performance

The rugged 3710 Sampler is ideal for general purpose or toxic pollutant composite sampling. It collects composite samples based on time or flow intervals in a single container. The 3710 base holds a 2 1/2 gallon glass or polyethylene bottle, or a 4 gallon polyethylene bottle. Up to 24 sampling stop and resume times can be preset for unattended, automatic sampling.

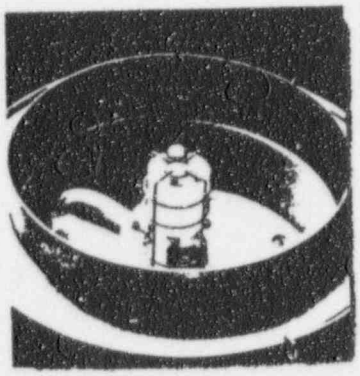
Corrosion Resistant Construction

All 3710 components are constructed from durable, corrosion resistant materials to ensure dependable operation in the harshest environments.

Rugged Peristaltic Pump

The proven Isco peristaltic pump provides dependable and efficient sample delivery. A single piece of medical grade silicone rubber tubing is used to eliminate sample cross contamination and ensure sample integrity. There are no internal tubing connection points. This makes cleaning and tubing replacement fast and easy. The pump is constructed from high strength, corrosion resistant Noryl® for maximum pumping efficiency and long tubing life. The Isco pump meets EPA requirements for representative sample flow velocity.

®General Electric



Built-in Float Mechanism

A built-in float mechanism provides a fail-safe shut-off to eliminate overfilling the sample container.

Accurate Sample Delivery

The exclusive LD90 Liquid Presence Detector and patented Isco pump revolution counting system deliver accurate, repeatable, sample volumes time after time. It automatically compensates for changes in head heights. The non-contacting LD90 is not affected by conductivity, viscosity, temperature, or effluent composition. The LD90 provides a preconditioning rinse of the suction line to eliminate sample cross contamination.

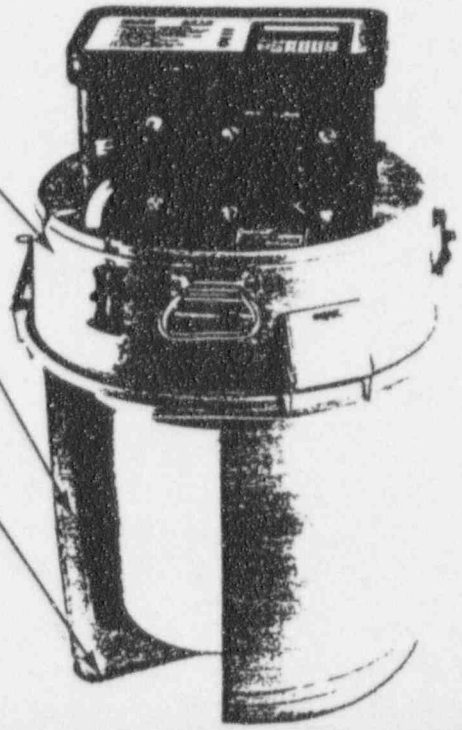
Fully Insulated Base

Isco 3710 Samplers are fully insulated with rigid foam providing a thermal resistance factor of R-14. The 3710 base holds a 2 1/2 gallon glass or polyethylene bottle, or a 4 gallon glass or polyethylene bottle. Up to 20 pounds of ice can be placed in the base to ensure sample integrity.

Rugged, corrosion resistant exterior and stainless steel hardware for use in harsh environments.

Base is fully insulated with rigid foam providing a thermal resistance factor of R-14. This gives you the most effective sample cooling available.

The rugged reinforced base with skid pad withstands rough use and abuse.



Model 3710 Technical Specifications

Dimensions: 18 3/4 in. (48.9 cm)

Dry weight: 32 lbs. (14.5 kg)

Sampler base capacity: One, 2½ gallon or 4 gallon polyethylene, or 2½ gallon glass bottle.

Liquid presence detection: Non-wetted, non-conductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head height.

Controller watertightness: Self certified NEMA 4x and 6 ratings (submersible, watertight, dust-tight, and corrosion resistant.)

Programming modes: Basic, extended.

Sampling modes: Uniform time, non-uniform time, flow. (Flow mode is controlled by external flow meter pulses.)

Sample frequency: Selectable in hours and minutes between consecutive samples in 1 minute increments up to 99 hours 59 minutes, or from 1 to 9,999 flow pulses per sample. Non-uniform time intervals may be entered in minute intervals up to 999 minutes or clock time.

Rinse cycles: Suction line automatically rinsed with source liquid before sample collection, 0 to 3 rinses.

Sample retries: Sampling cycle automatically repeated if sample not obtained on initial attempt, 0 to 3 retries.

Program lock: Provides password protection for input displays.

Program storage: Stores up to 3 programs.

Sampling stop/resume: Up to 24 real time/date sample stop/resume commands.

Master/slave: Allows the automatic start of second (slave) sampler.

Tubing life indicator: Provides a warning to change pump tubing.

Intake purge: Adjustable air purge before and after each sample.

Interface port: 8 pin connector; data output at 2400 baud in ASCII RS-232 format with handshake. Allows transfer of Program Setting Report (PSR) and Sample Results Report (SRR) to Field Printer or personal computer.

Sample volume: 10 to [illegible] increments. (Automatically adjusted for programmed bottle size and number of composite samples.)

Sample volume repeatability: ±10 ml, typical.

Real time clock accuracy: 1 minute per month, typical.

Suction tubing (intake): 8 ft. to 69 ft. length of 1/4" ID vinyl, 3/8" ID vinyl, or 3/8" ID Teflon lined tubing.

Suction lift: 26 ft. (7.9 m), maximum.

Pumping rate (at 3 ft. head):
1/4" ID suction tubing: 3000 ml per minute.
3/8" ID suction tubing: 3500 ml per minute.

Line transport velocity (at 3 ft. head):
1/4" ID suction tubing: 5.1 ft. per second.
3/8" ID suction tubing: 2.5 ft. per second.

Operational temperature range: 32° to 120°F (0° to 50°C.)

Icing capacity: 20 lbs. of ice with a 4 gallon polyethylene bottle.

Base insulation: Standard thermal resistance factor of R-14.

Sampler power requirements: 12 volts DC. (Supplied by battery or AC power converter.)

Sampler standby current: 10 milliamps, maximum.

External Isco nickel cadmium battery capacity: 3 standard sampling programs. (50 samples at a rate of one 200 ml sample per half hour, using 10 ft. of 3/8" vinyl suction line at a 5 ft. head.)

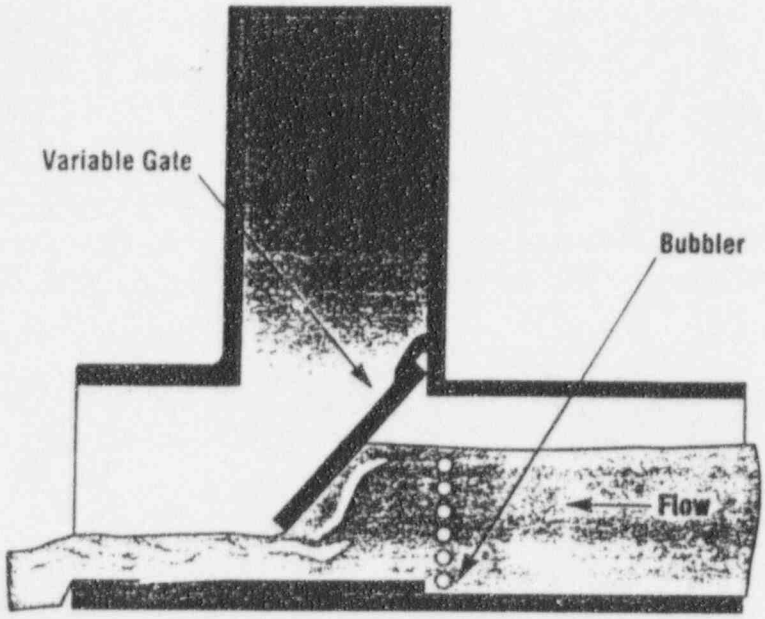
Controller internal lithium battery life (maintains internal logic and user selected settings): 5 years minimum.

New Technology for Maximum Accuracy

The Variable Gate Metering Insert is the heart of the Isco 3240. The insert has a pivoting gate under which the liquid flows. The gate creates an upstream level that is measured with a bubbler system. Together, the gate position and upstream level determine the flow rate through the metering insert.

To give you maximum accuracy, the flow meter automatically adjusts the gate in response to changing flow rates. This allows the 3240 to accurately measure a much wider range of flows than a weir or flume.

To maintain accuracy, the 3240 periodically purges its bubble line, and flushes silt and solids that may build up behind the gate.

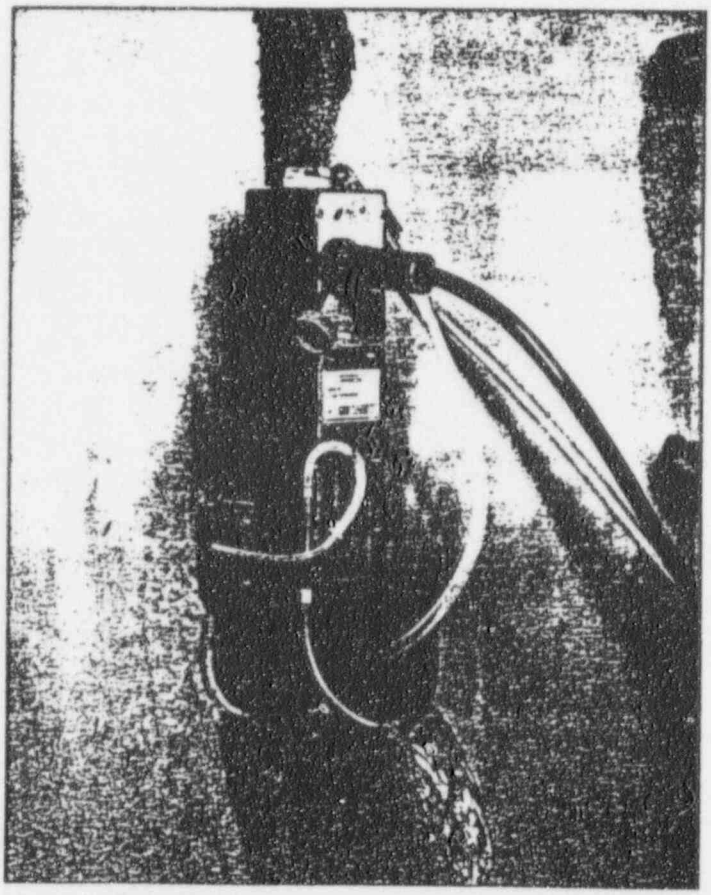


Principle of operation — Gate position and upstream level determine the flow rate through the metering insert.

Easy Installation

Metering inserts are available for 4, 6 and 8 inch pipes. Installation is quick and easy. No weir or flume is needed, and no calibration is required.

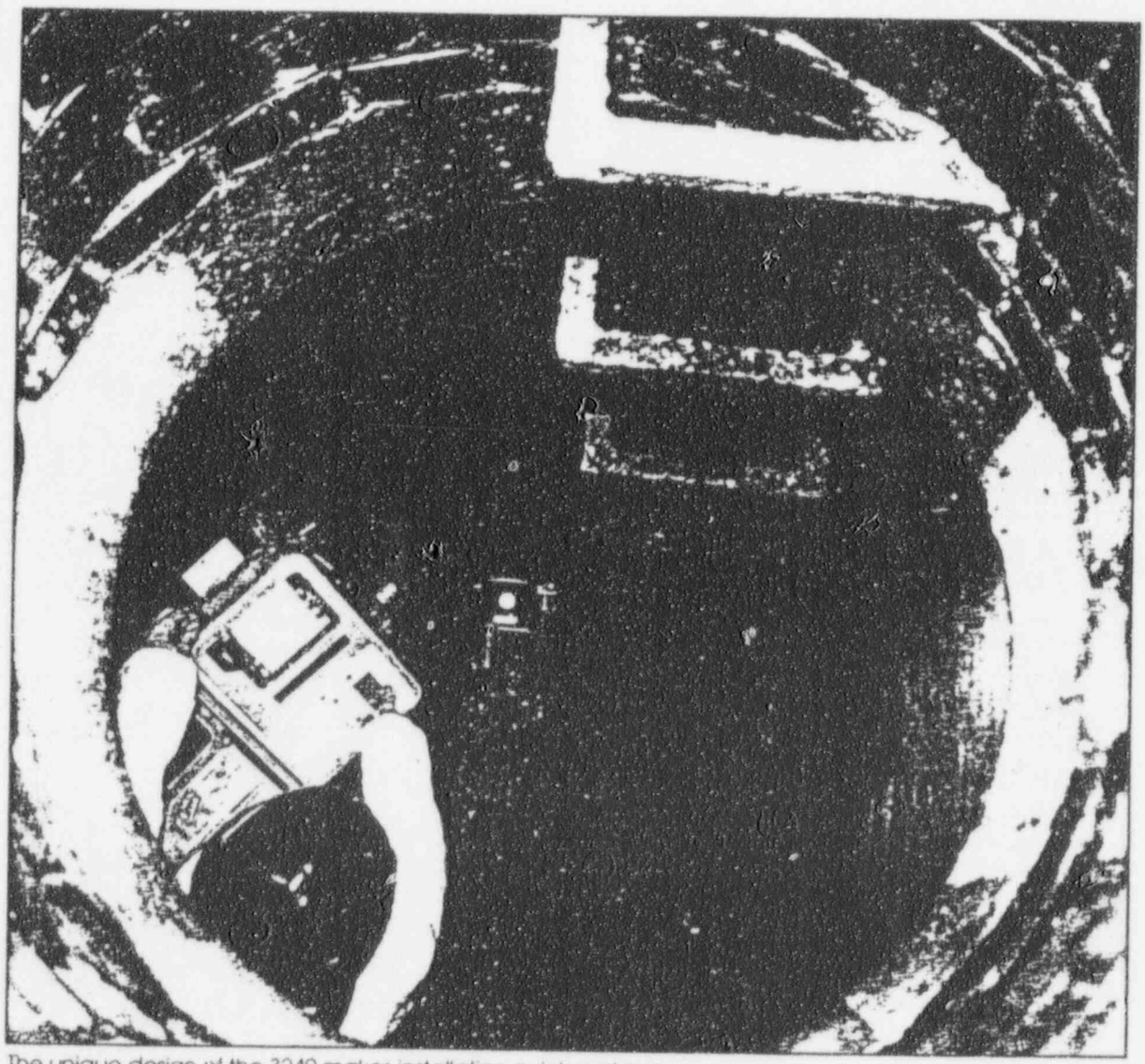
The metering insert is typically installed in the upstream pipe of a manhole. A stainless steel expansion ring grips the inside of the pipe and holds the metering insert in place. A rubber bladder seals the pipe and routes the flow through the insert.



Variable Gate Metering Inserts are available for measuring flows in 4, 6 and 8 inch pipes. (4" insert shown above.)

Regulations requiring measurement of wastewater discharges from industrial and commercial facilities are becoming increasingly strict. These discharges often fluctuate between very low and very high flow rates. However, weirs and flumes are not designed to measure both extremely low and extremely high flows.

The patent pending Isco 3240 Variable Gate Flow Meter is the only instrument designed to accurately measure fluctuating flows in small pipes. The 3240 also allows you to automatically collect representative samples, even from very low flows.



The unique design of the 3240 makes installation quick and easy.

SUPPLEMENT 4
FINAL REPAIR OF FACILITY DRAINAGE

Pursuant to Amendment No. 32 (March 17, 1995) of License No. 34-19089-01, when the areas in the vicinity of the discharge line from the AMS facility are dewatered, the soils in the vicinity of the four-inch line and the footer drains will be excavated. The footer drains will be disconnected from the sump and the four-inch line will be remediated.

Soil and water samples will be collected and analyzed throughout the process. Any water generated will be treated pursuant to the procedures authorized under Amendment No. 32, and pumped into collapsible storage tanks located in the AMS warehouse. At the same time, a new lateral connection to the NEORSD's London Road Interceptor will be installed.

The contamination status of the footer drainage system will then be evaluated by the on-site Project Manager and the AMS Radiation Safety Officer. As necessary, the system will be decontaminated. Water that accumulates in the drainage system during remediation will be pumped out of the corner sump, treated to ensure that the 60-Co concentration meets the release criteria contained in the February 1, 1995 letter from J. Grobe to D. Cesar (e.g., less than 200 pCi/1 of soluble 60-Co, consistent with Information Notice 94-07, "Solubility Criteria for Liquid Effluent Release to Sanitary Sewerage Under the Revised 10 CFR Part 20"0, and then pumped to the collapsible storage tanks. Treatment will continue until the 60-Co concentrations are consistently less than the release criteria.

Water from the drainage system will continue to be pumped out of the sump, stored in above-ground storage tanks and sampled.[2] (Sufficient sample to permit "splits" with the USNRC, if requested, will be collected.) Water that meets the release criteria will be pumped to the collapsible storage tanks.[3]

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[2] For process control purposes, samples will be analyzed with AMS gamma spectrometry system, using NIST-traceable source (water equivalent density) of 60-Co for system calibration. For confirmatory analysis, the samples shall be sent for analysis to Quanterra, Inc., a commercial analytical laboratory, in St. Louis, Missouri. There the 60-Co concentration will be determined by the methodology of gamma spectroscopy. A minimum detection limit of 20 to 30 pCi per liter has been specified. The solubility of 60-Co 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.

[3] Water that does not meet the release criteria will be pumped into the above-ground storage tanks and directly to the evaporator system for treatment.

After 3,000 gallons of water with 60-Co concentrations less than the release criteria have been pumped continuously from the drainage system, the footer drains, the sanitary drains, and the roof drains will be connected to the newly-installed lateral connection to the London Road Interceptor.

At this point, all waste water that contains less than 200 pCi/l of soluble 60-Co as defined in Information Notice 94-77 will be discharged. Weekly composite samples of discharges into the Interceptor will be analyzed by gamma spectroscopy in order to document compliance with 10 CFR 20.2003.

ADVANCED MEDICAL SYSTEMS, INC. 121 NORTH EAGLE ST. GENEVA, O 41 STUB NO.

OUR REF. NO.	YOUR INV. NO.	INV. DATE	INVOICE AMOU	AMOUNT PAID	DISCOUNT TAKEN	NET CHECK AMOU
LICENSE AMEND. 33		3/22/95	680.00	680.00	0.00	680.00
34-19053-01						

CONTROL NO.	CHECK DATE
28191	3/22/95

ADVANCED MEDICAL SYSTEMS, INC.
121 NORTH EAGLE ST.
GENEVA, OHIO 44041

CHECK NO. 028191

BANK ONE, CLEVELAND, NA
Cleveland, Ohio

6-1543
410

CHECK AMOUNT
***680.00

PAY
TO THE ORDER OF U.S. NUCLEAR REGULATORY COMMISSION

TWO SIGNATURES REQUIRED IF AMOUNT IS OVER $5,000.00

⑈028191⑈ ⑆041015436⑆ 80107?672⑈

DO NOT DISTRIBUTE

3/23 CDR

- Key - Team Effort
- NMSS/OGC/RIII
- Distribution to NEOSD Cleve, Cuyahoga County, Other DOH
- Bureaus Boards of Clinic
- Ed the Task Force
- LEPC/SERC (Indiana)

March 3, 1995

ADVANCED MEDICAL SYSTEMS, INC.

STATUS OF WORK ITEMS

Inspection Issues

Status of Temporary Restraining Order regarding sewer discharges

* TRO issued in federal court 12/14 which retains plug, but allows the discharge of all (non-contaminated) waters.
* Four 3000 gallon tanks have been filled from pumping the manhole. A fifth empty 3000 gallon tank and an empty 2500 gallon tank is onsite.
* Manhole water level is being monitored twice and basement water is being monitored once every day. The distance from the manhole bottom to the basement floor slab is 23 inches. Examples of the level on certain days over the last several months are listed below:

Date	Manhole	Basement
12/12	53 inches (high in December)	2 inches
--Pumped to Tanks--		
1/13	0 inches (empty after pumping)	2 inches
1/16	67 inches (3 1/2 inches of rain)	18 inches
1/17	70 inches	19 inches
1/19	84 inches	19 inches
1/23	94 inches (high in January)	19 inches
1/25	87 inches	20 1/2 inches
--Pumped to Tanks--		
1/27	83 inches	21 inches
1/31	80 inches	22 inches
--Pumped to Tanks (to 64")--		
2/1	71 inches	22 1/4 inches
2/8	68 3/4 inches	23 inches
2/15	61 inches	24 inches
2/22	59 1/2 inches	24 3/4 inches
2/24	62 inches	25 inches
--Minor precipitation and melt--		
2/26	61 inches	25 1/8 inches
2/27	68 inches	25 1/4 inches
2/28	74 3/4 inches	25 1/2 inches
3/1	77 1/2 inches	25 3/4 inches
--Pumped to Tanks (to 74")--		
3/2	76 inches	26 inches
--Pumped to Tanks (to 74")--		
3/3	75 inches	26 inches
--Pumped to Tanks (to 67")--		

--Current differential between ground and basement water is 26 inches.--

3/1/10

The licensee has developed a plan that to address: (1) the structural integrity of the building; (2) the control of ground water; (3) the clean up of existing contaminated waters; and (4) the isolation of contaminated piping. The licensee appears to have secured the services of an industrial hazardous waste processor to incinerate the processed waste water. An Order is drafted requiring water processing.

WHUT room analysis complete has been forwarded to us this week. We have not yet received it.

Front plug milling - Alaron and its subcontractor, a Chicago based engineering firm who is familiar with nuclear work, have been awarded the contract to mill out front plug (two month time line after they start work). Rig fabrication to began 2/24 and milling will begin approximately 4/1.

Shipment of GE 500 cask with approximately 12,000 Ci of contaminated non-leak tested sources is on hold - cask is bolted and stored in overpack in isotope warehouse. Alaron proposal is $75,000 to ship cask (normal form). SEG and Vectra are also making proposals for repackaging and shipment. This is a lower priority for AMS than the front plug milling and water operations. The motivation for lower priority is strictly financial. J. L. Shepard remains interested in the material.

NRC structural assessment of AMS ongoing. First site visit 10/12. No significant issues identified. Second site visit late January - no new cracks were visible through the water. Visual observations and analysis will need to be re-performed following the water removal to assure that the water did not cause problems. Final visit necessary and will be scheduled when water subsides.

10 CFR 2.206 Requests

* March 1993 - AMS to Pay for Remediation - Stein (OGC) has lead and is drafting Commission options paper -- no significant movement.
* August 1994 - Sewer Discharge Radiation Monitor - DeCicco drafting response - We are supporting -- no significant movement.

Emergency Planning

Mayor of Cleveland Ad Hoc Task Force on Emergency Planning regarding AMS progressing. Grobe met with Task Force in December and with task force leader in January and February. Slawinski attended Task Force meeting in February. Subcommittee including AMS, State, County and City continues to meet on a regular basis. City and State comfortable with AMS cooperation and progress on issues. AMS performed inventory of dispersible material for emergency planning purposes (does not include WHUT room, hot cell or source garden per agreement between the parties on the Task Force). State did dose projections for various scenarios - no offsite hazard. Licensee cleared warehouse of radiological hazards and is restructuring fire alarm zones and panels to be consistent with contaminated areas.

County has petitioned the State to allow them to become an active regulatory body in emergency planning. Grobe to meet with State Emergency Response Committee on March 27 (next full meeting) to discuss AMS.

SEG will be submitting a proposal to develop an emergency exercise scenario. Expect the drill could be accomplished during the third calendar quarter in conjunction with wrap up of Cleveland Ad Hoc Task Force. Schedule is being controlled by City of Cleveland Fire Department. There will likely be several smaller drills before the exercise.

Licensing Issues

Renewal received (dated 1/30/95). Region III team established for review. NMSS review of decommissioning plan and financial instrument ($1.8M) complete. Financial instrument good, cost estimate low. Emergency plan review in headquarters ongoing. Expect deficiency letter to be issued by mid-March for license renewal and decommissioning plan. Emergency plan deficiency letter will be later in March.

Hearing on renewal requested by NEORSD. OGC attorneys assigned (Zobler and Bordenick). Hearing requests also in from Cleveland, Cuyahoga County and Earth Day Coalition. NEORSD and Cleveland will likely have standing. NRC internal interfaces established and familiarization briefing conducted 1/12. Region III supporting NMSS.

NEORSD Legal Issues

NEORDS/AMS Lawsuit - Federal lawsuit filed. NRC/Region III involvement not expected at this time. No currently scheduled court action on lawsuit.

Federal temporary restraining order issued allowing the plug to remain in the AMS sewer, but moot on whether AMS may discharge clean water to the sewers.

AMS Facility Status

Hot cell radiological conditions:

- Hot cell general area - 8 to 15 R/hr
- Front plug general area - 10 R/hr
- Several isolated hot areas ranging up to 35 R/hr (396 R/hr on contact with chuck)
- Contamination into the millions of dpm per 100 cm2

Inventory Reduction Program

Current Inventory

- ≈70,000 Curies in sealed and bulk sources
- ≈15,000 Curies in GE-500 cask awaiting shipment to J. L. Shepard
- ≈200 Curies in WHUT room
- ≈50 Curies in solid low level waste
- ≈10 Curies in facility contamination (cell, ventilation room, etc)

Shipments in 1993

- 18,000 Curies Co-60 transferred to J. L. Shepard
- 6,500 Curies Cs-137 transferred to J. L. Shepard
- 3,000 Curies Co-60 transferred to Neutron Products, Inc.

Shipments in 1994

- None

Shipments in 1995

None. (12,000 Curies Co-60 pending shipment)

Radwaste Volume Reduction

AMS is soliciting a proposal from SEG to perform radwaste volume reduction

Staffing at London Road Facility:

Bob Meschter - RSO since August 1994
Steve Haddock - Experienced isotope handler
Chris Reed - Experienced radiation control technician (Perry)

- Inspect Analytical Lab
- 2nd Order
- NOV from last Inspection of old waste practices - Final Concurrence
- Potential violation of 1994 waste practices - Analysis of Samples
- Meeting Report / Transcript
- LEPC Letter - Draft
- IG Memo - Final Concurrence
- Cleveland Letter - Final Concurrence
- 1st Order - Final Draft
- Project Management / Strategy *
- NEORSD Letter - Draft
- Hazards Assessment
- Files ; Phones / Contacts *
- Slawinski Lead
- Import / Export Licence

APPEARANCES (Continued):

MS. CYNTHIA JONES,
Operations Branch, Division of Industrial, Medical Nuclear Safety;
MR. MICHAEL KURTH,
Decommissioning Section;
MR. KEVIN NULL,
Materials Licensing;
MR. ROBERT SHEWMAKER,
Senior Civil Structural Engineer, Division of Waste Management;
MR. WAYNE SLAWINSKI,
Nuclear Regulatory Commission, Health Physicist;
MR. MICHAEL WEBER,
NRC Region III Inspector.

ALSO PRESENT:

MR. BRUCE BERSON, Attorney,
Appeared on behalf of NRC.

B/112

MR. AXELSON: This is a public meeting with Advanced Medical Systems. I have some opening remarks.

Ladies and gentlemen, my name is William L. Axelson. I'm the Director of the Division of Radiation Safety and Safeguards for the NRC Region III Office, having responsibility for both, the licensing and inspection of your operation. Thank you for coming to Chicago today to meet with us regarding your licensed activities at 1020 London Road, Cleveland, Ohio.

At this time, I thought I'd go around and request the NRC and AMS staff to introduce themselves to one another.

Carol, do you want to start at your end?

MS. BERGER: Yes. I'm Carol Berger, with Integrated Environmental Management. I'm consultant to Advanced Medical Systems.

DR. STEIN: Seymour Stein, Advanced Medical Systems.

MR. BILLINGSLEY: Henry Billingsley, from Arter & Hadden.

MR. MILLER: I'm Dwight Miller, from Stavole & Miller.

MR. GROBE: Jack Grobe, with the Nuclear Regulatory Commission, Region III, responsible for the AMS Project.

MR. CALDWELL: Jim Caldwell, Deputy Director, Division of Radiation Safety and Safeguards.

MR. SLAWINSKI: Wayne Slawinski, Nuclear Regulatory Commission, Health Physicist.

MR. SHEWMAKER: Robert Shewmaker, Senior Civil Structural Engineer, Division of Waste Management, NRC Headquarters, Washington D.C.

MS. JONES: Cynthia Jones, in the Operations Branch, in the Division of Industrial, Medical Nuclear Safety, NRC.

MR. COMBS: Fred Combs, Chief of the Operations Branch, Industrial and Medical Nuclear Safety, NRC.

MR. KURTH: Mike Kurth, NRC Region III, Decommissioning Section.

MR. AXELSON: Any more NRC people here?

MR. CHERY: Don Chery, Senior Hydrologist, Division of Waste Management, headquarters in

Washington, D.C.

MR. BERSON: Bruce Berson, Regional Counsel.

MS. DAUGINAS: Angela Dauginas, Public Affairs.

MR. WEBER: Mike Weber, NRC Region III Inspector.

MR. NULL: Kevin Null, NRC Region III Materials Licensing.

MR. AXELSON: Okay. Dr. Stein, before we get started with the agenda for our meeting, I would like to discuss some procedural matters. In accordance with the NRC policy on allowing the public to have access to meetings we have with our licensees, we have opened this meeting to public observation.

I would like to emphasize that this is a meeting with you in the public, and not with the public. The public is not permitted to speak during or participate in our meeting with you and your staff.

As is our common practice, after a brief recess following our meeting with you, I will make the NRC Staff available to the public to respond to their questions. At your discretion, you and your staff are welcome to also speak with the public at that time. It's pretty much up to you.

There are members of the public here, and I have some media, if you would like to just introduce yourself.

MS. MC QUEEN: I'm Anjetta McQueen, Cleveland, The Plain Dealer.

MS. MC CORKLE: I'm Martha McCorkle. I'm an attorney with the City of Cleveland.

MR. LENHART: Tom Lenhart, Assistant General Counsel, with the Northeast Ohio Regional Sewer District.

MR. CONNELLY: Rich Connelly, Northeast Ohio Regional Sewer District.

MR. AXELSON: Okay. Due to the public and other governmental agency interest in your facility operation and to ensure that information discussed at this meeting is correctly understood, we have chosen to have this meeting transcribed. The transcript of this meeting will be available in approximately two weeks and will be placed in the Public Document Room at that time. Copies will also be provided to the standard distribution for documents regarding your facility.

At this time, Dr. Stein, do you have any questions at this time?

DR. STEIN: No.

MR. AXELSON: We've prepared a brief agenda -- put that on the overhead here -- which includes a discussion. Get the agenda up.

I cant read that. I can't.

MR. KURTH: Good?

MR. GROBE: Fine.

MR. AXELSON: Basically, we will be discussing the findings of the two inspections which we sent to you on November 7 and December 6, 1994.

And, also, we'd like to discuss your plans for addressing the current water issues at the London Road facility.

We have two goals for this meeting: 1, to obtain additional factual information and any other information you wish to present regarding the findings of our inspections to facilitate our final decision regarding those apparent violations; and 2, to review with you your plans for resolving the current water issues at the facility.

Following my introductory remarks, I'll ask Mr. Jack Grobe to conduct the remaining part of this meeting. Due to the amount and complexity of the work regarding your license, I have assigned Jack Grobe full time to manage the NRC oversight of the AMS Project. And is this agenda generally acceptable to you?

DR. STEIN: Sure.

MR. AXELSON: Anything else you want to talk about?

Okay. During those two inspections of your licensed activities, we reviewed the past practices of handling and monitoring liquid effluents from the London Road facility and evaluated the current radiological conditions in the sewer manway on your property, in the lateral from the manway to the city interceptor that is located beneath London Road and in the London Road interceptor. Three apparent violations were identified, which Mr. Jack Grobe will discuss.

Our regulations in 10 CFR, Part 20, changed effective January 1994, as I think you're all

aware, resulting in the effluents from AMS or any other facility no longer being permissible of any facility which was dumping or discharging insoluble radioactive materials.

Our evaluation of the significance of the apparent violation regarding improper disposal of licensed material in liquid effluents to the sewers indicates that there was negligible impact on the public health and safety. But nevertheless, we see it as an apparent violation, and some form of remediation we feel is necessary. That's what we'd like to discuss, also, today.

At this point in the agenda, Dr. Stein, we have set aside time for any opening remarks you care to make at this time.

MR. MILLER: I don't think so.

MR. AXELSON: At this point, I guess I'll turn it over to Mr. Jack Grobe to go over the general inspection findings.

MR. GROBE: Thank you.

As Mr. Axelson indicated, the meeting really is separated into two parts. The first part

deals with some inspection findings that were transmitted to you in late 1994. In the cover letter of each of those inspection reports, we indicated that we would meet with you prior to making our final decision regarding the apparent violations.

We would like to present the factual matter, summarize the factual matter -- it was described in great detail in the inspection reports -- and obtain from you any additional information or corrections to the factual information that you wish to make and any other comments regarding the apparent violations you wish to make.

The first inspection, which was documented on November 7, concerned releases that were made from the Advanced Medical Systems facility on London Road prior to January of 1994. Wayne Slawinski is the lead inspector on that inspection, and he will summarize the findings of that inspection.

MR. SLAWINSKI: I conducted a special inspection during the period August through November, 1993. That consisted primarily of interviews of former Picker Corporation and Advanced Medical Systems employees

that were knowledgeable of the London Road facility operations as they relate to processing and disposal of liquid rad waste.

The purpose of the inspection was to obtain information to better understand and evaluate the past liquid rad waste control and disposal practices that were actually implemented at the London Road facility since those activities began in the early 1960's.

I interviewed nine individuals that were formally involved in or knowledgeable of liquid rad waste processing activities at the facility. Each interviewee was questioned regarding his knowledge of liquid rad waste processing procedures and the actual disposal practices that were followed.

The interviews disclosed two apparent violations of Regulatory requirements. The first apparent violation involved the filtering of liquid radioactive wastes.

Advanced Medical Systems has a procedures manual, specifically ISP-1, which is referenced in their NRC License, that requires that

waste water that's pumped from their waste hold-up tanks into a 55-gallon batch tank be passed through a cloth filter to remove any non-suspendible solids. Several of those interviewed stated that waste water that was pumped from the waste hold-up tanks into the batch tank was not filtered in any way.

The second apparent violation involves testing, quantifying and recording all waste water releases that potentially contained radioactive material, including potentially contaminated flood water and water resulting from facility and equipment decontamination activities.

The requirement to test and quantify such releases is specified in 10 CFR 20, specifically in the 20.201, which specified the requirements previous to the revision of Part 20 in January of '94.

Several of the interviewees recalled instances in which water that flooded the basement of the facility, which typically is a contaminated area, drained back into the sewer system, without testing it for its radioactive content.

Interviewees also recalled instances

when contaminated equipment that was within the facility was hosed off with water, and the wash water was allowed to drain into the sewer system, and not tested for its radioactivity.

In summary, as a result of these two apparent violations, the quantity of cobalt 60 that was discharged into the sewer system from the London Road facility over a near 30-year period, beginning in about 1960, is not precisely known.

MR. GROBE: Thank you, Wayne.

Dr. Stein, at this point, I would turn it over to your staff, to you and your staff. If you have any additional facts or information beyond what's documented in our inspection report or any other information you'd like to share with us, we'd appreciate it.

MR. MILLER: Yes. Let me just address both of those apparent violations, if I may, please. With respect to the filtering, it seems to me that I remember in a report that some of the individuals said there was, and some said there was not filtering. I believe, if I remember your report, Wayne, you had

conflicting testimony in that respect.

MR. SLAWINSKI: There were nine people total that I interviewed. Of those nine, five -- four of those nine did not recall one way or the other whether filtering was done or whether it was not done. They just could not recall.

There were five individuals, however, that recalled -- four of those five recalled that there was no filtering. One of those five recalled, on an occasional basis, there being some filtering done in the middle part of the 1980's.

MR. MILLER. Okay. With respect to the flood water, I believe, this all predated 1979. Didn't it?

MR. SLAWINSKI: No, it didn't. There were some individuals that were employed there during the 1980's that had recalled some.

MR. MILLER: But I believe the majority of that was pre-'79.

MR. SLAWINSKI: I'd have to look at my notes. I can't recall.

MR. GROBE: That would be documented in detail in the inspection report; is that correct?

MR. SLAWINSKI: Correct.

MR. MILLER: Okay.

MR. GROBE: Did you find any information in the inspection report inaccurate, to the best of your knowledge?

MR. MILLER: No. I mean, as it were, frankly, it's a fair amount of recollection of unnamed people. So, I mean, we can't really relate to what these people said. The time periods are not real clear.

MR. GROBE: Is there anything else you could add regarding Mr. Slawinski's inspection?

MR. MILLER: No.

MR. GROBE: At this point, I'd like to move to the second inspection. It was documented in a -- with a letter to you dated December 6, 1994. This inspection concerned radiological evaluation of the piping in manholes that transmit sewage from the AMS facility on London Road into the city interceptor, which eventually feeds into the Northeast Ohio Regional Sewer District facilities.

Mr. Michael Kurth was the lead inspector on that inspection, and he'll briefly summarize his

findings during the summer of 1994.

MR. KURTH: During the months of August through October 1994, a special inspection was performed at the AMS facility. This was in regarding the water effluents being discharged from the AMS facility.

In conducting the inspection, a number of water samples were taken from the AMS lateral, which is this dotted line going into the city interceptor, which the manhole would be in this area right here.

In performing the analysis of those water samples, one of the water samples taken in August was identified as having traces of cobalt 60 in that sample. This is being considered an apparent violation of 10 CFR 20.2003, which requires that the disposal of radioactive materials is allowable, but it requires that that material needs to be readily soluble or readily dispersible biological material.

Also, in conducting the special inspection, surveys were conducted down in the AMS manhole, down within the sewer interceptor manhole, where the effluent of the AMS discharges into the City

sewer.

In conducting those surveys, positive indications of elevated exposure readings, above normal background readings were identified in the AMS lateral, in the AMS manhole, itself, and also on the surface of the City sewer directly below the outfall of the AMS lateral, in this area here.

Also, in conducting that inspection, water samples and wipes were taken in the manhole upsteam and downstream, in these two areas from the AMS facility; and, also, surveys were conducted. And in conducting those surveys, elevated readings were not identified; and, also, cobalt activity was not identified in either the water samples or in any of the wipes taken from those areas.

Also, in relating the health and safety impact of finding cobalt in the water, samples -- shortly after this inspection was performed, samples were taken from the southerly treatment plants and, also, the easterly treatment plant. Water samples were taken of sewage refuse, sludge, and ash and such were taken.

And in performing the analysis of over 80 samples, we did not identify cobalt 60 within those samples. So, to relate that in health and safety, regarding the cobalt found in the water being discharged from the AMS facility, it's considered to be a minimal health and safety risk.

MR. GROBE: Thank you, Mike. The cobalt in the effluents we believe is the result of contamination that has sloughed off piping and manholes, walls, in the process of sewage and other effluent exiting your property.

The samples that Mike referred to that were taken throughout the Northeast Ohio Region Sewer District facilities and system were taken at the time that these effluents continued.

Notwithstanding the apparent low safety significance, effluents of non-soluble or non-readily disbursable biological material containing licensed materials is not permitted, and we would expect timely action to remove the contamination that was contributing to those effluents.

At this point, I'd like to turn it over

to Advanced Medical Systems for any additional factual information or other comments you wish to make.

MR. MILLER: Yes, I have just a couple. First of all, as you know, we don't agree that these were discharged as set forth in the Code of Federal Regulations.

Secondly, we don't agree that these are non-soluble, and I don't think there's been any real evidence produced by the Commission, itself, to show that these are non-soluble. We think that they are biological material.

MR. GROBE: Do you have some test results that would show that all of the effluents during that time period were biological material?

MR. MILLER: No. We're in the process of gathering them. We're going to submit them to the Oak Ridge Laboratory. Carol would be more attuned to that than I.

Carol, will you tell them what we're trying to do?

MS. BERGER: Yes. The cobalt is likely taken up, as you already suggested, by the bugs and things that

live in sewers, the bacteria that are there. So, we made arrangements with Oak Ridge National Laboratory to do some speciation studies to determine whether, in fact, the material is sulfate producing bacteria, what will tend to change it to -- from an oxide to a disulfide. We'll take a look at the chemical form.

The second thing is to look to see if this material is sitting there free form or if it is, in fact, incorporated in biological material. So, we've got some microbiological test studies lined up at IT Corporation's Laboratory in Oak Ridge, Tennessee. They'll both be done at the same time, once we collect the samples.

We were going to do that in the lateral; but since then, things have escalated, and the lateral is no longer accessible in the form that it was in before. So, now it's full of water. So, the approach, I guess, we'd like to take to end this question quickly is to go to the material outside of the compression plug into the interceptor.

MR. GROBE: Okay. I understand how you can collect material at that point and evaluate it for its

chemical content and, also, the biological aspects of the material. But how can you relate that to the discharges that would have occurred in the mid 1994 time frame?

MS. BERGER: I guess we're back to saying the same things as you did. It's that we maintain they weren't discharged. It's just movement of material that was already fixed there. It had already been discharged by AMS prior to that time. They'd lost any further control over it.

MR. GROBE: Let's avoid the word "discharge," then. How can you relate that to the cobalt that might have been carried by the water that was emanating from the outfall from the AMS lateral into the interceptor?

MS. BERGER: Well, we can't for those particular samples, because we don't have any splits of them.

MR. GROBE: Okay. When did you anticipate completing this analysis?

MS. BERGER: We need -- I guess the Sewer District needs to collect the samples for us.

MR. MILLER: They agreed to do so. Once you get

the samples, how long will it take.

MS. BERGER: Well, the biological portion, it depends on the bacteria that's being cultured. Don't ask me the details. I don't know exactly what the procedure is. But that's -- we should know within a few weeks how long it will take.

But the speciations, the chemical form, can be done almost immediately, give or take a little scheduling on the part of Warrenel.

MR. GROBE: You have been in contact with the Sewer District. When they do anticipate collecting the samples?

MR. MILLER: They made the offer about a week and-a-half ago. And, frankly, we've been tied up with some other things, or we may have taken them up on it. If they made an offer in writing, I think that can be done within a week.

MR. GROBE: If I could summarize, correct me if I'm incorrect. You would anticipate, within the next two weeks, of having samples of the material, performing chemical analysis, in essence, immediately and biological analysis within --

MS. BERGER: As soon as the bugs grow.

MR. GROBE: When would we expect to see the results of those tests?

MS. BERGER: The chemical analysis we can certainly tell you if it's a -- what chemical form the materials are in almost immediately after we know, we get the results.

MR. GROBE: So, within one month, you would anticipate having to us both, the chemical and biological?

MS. BERGER: Biological I don't know. In order to determine whether it, in fact, is sulfate producing bacteria, it's my understanding there's some time period where the colony needs to be cultured. And the laboratory could not tell us what that length of time would be. Just they need to start it and see. Certainly within one month we can tell you how long it will be, when those results could be expected.

MR. GROBE: Any other questions regarding this information?

MS. JONES: Would you assume, then, that the entire fraction would be soluble or insoluble, or do

you have any idea at this time?

MS. BERGER: We're assuming that it's incorporated in biological material and that, if you chink up enough of it, of course, it's not going to pass the point 45 micron filtration test; but, then, neither would a routine fecal sample. So, we're basically going to show the same material as a --

MS. JONES: Would you agree that that material that was originally at the facility was insoluble?

MS. BERGER: That was cobalt oxide.

MS. JONES: Right.

MS. BERGER: Yes, right. By virtue of its chemical form, you would consider it to be insoluble.

MS. JONES: Right.

MR. MILLER: Mr. Grobe, do you have -- you mentioned the samples that you took. Are those still in existence? Could they be tested, or are they -- have they been tested for solubility?

MR. GROBE: The samples were not chemically evaluated. They were simply radiologically evaluated. I believe the samples exist in the custody of the Sewer District.

MR. AXELSON: The samples reflected are in Table No. 3, the NRC sample here, No. 2, 4, 6, 7 and 8.

MR. GROBE: Right.

MR. AXELSON: Well, we can't make a decision, then, until we hear back from you on this chemical analysis. Then we have to review that data to come to a conclusion on the December 6 Inspection Report. That moves us into the next part of the agenda, then.

MR. GROBE: Yes, it does. The second portion of the meeting is to deal with a number of letters that we have received from you as recently as late Friday night. You have been providing us, as quickly as you have it, information regarding your plans for dealing with four issues. And you've defined those issues in your January 27, 1995 letter to us.

The first one concerns hydrostatic pressure and structural integrity of the facility at London Road. The second concerns the control of ground water at the facility; the third, processing and discharging of contaminated waters that exist currently in the facility and around the facility foundation. And the fourth deals with remediating the

contaminated sewage piping and manholes from your facility.

As I indicated, we've been getting information from you on a regular basis regarding your plans. As recently as late Friday, I'd have to estimate there's a 100-page submittal, with procedures for the processing. We have not had an opportunity certainly to review all of the information you provided us.

I think what I'd like to do, though, is go through each of the four issues and have you give a brief presentation of your approach regarding an issue. If we have questions, I believe, with Miss Berger here, you should be able to respond to a large majority of our questions. If there's questions that we have that you cannot respond to, we can make arrangements to get that information from you.

Why don't we start with the hydrostatic pressure on the foundation issue, the structural integrity. As of last week, there was a letter that we issued which confirmed your commitments to maintain the water level in the manhole of your facility

between certain ranges. And the range that was selected was to minimize the differential pressure or differential water level caused by -- pressure caused by the differential water level between the outside and inside of your facility.

As of this morning, the water level is within that range, and you have been maintaining it in accordance with those commitments. Our structural engineer, Mr. Shewmaker, was at your facility last week evaluating the structural integrity. And I'd like him to now give a brief description of his findings from that inspection.

MR. SHEWMAKER: Okay. I might sort of preface this with explaining a little bit of that structural integrity, as well as leak-tight integrity. One of the concerns was the over-pressure upward, over-pressure on the floor slab, and whether or not, if that went to too high a head differential, there would be increased leakage into the basement facility, because up until the early part of January, there had been something on the order of 12 or 18-inch head differential, and there was very little water in the

basement at that time.

However, as additional precipitation occurred in the area of your facility, with no drainage of the under drain system, that head differential began to increase. And we, I guess, from the data that you had sent in, indicated that, on January the 16th, there was a large increase in the amount of water in the basement.

And it was determined, at that time, that that was not all due to in-leakage through the structure, itself; but there was another standpipe that was found open 32 inches high off the ground, so that there'd been enough outside pressure that water actually came up through that, just as if it were a fountain, and spread onto the floor.

Then, what we have been doing is looking at the data that you have provided since that time to monitor the head differential, as well as the increase in depth of water in the basement.

There was some concern. We did some preliminary calculations. You also had submitted in your submittal a two-page document that was, I

believe, Attachment 1 by Neff & Associates and John Denega, who actually did the work. He wrote a letter. That's the attachment of January 25th.

And I guess, probably, after that was actually written, we were on a conference call with him and went into some additional detail on what he had done and some of the assumptions that I had made in my calculations.

And, I believe, based on our understanding -- and, additionally, I was out at the site on the 2nd to look at the cracks that were eventually found, even though it's fairly hard to see them through the water -- we believe that the cracks that were observed were probably there previous to this. They may have opened somewhat to allow additional leakage through them, because there was water still rising in the basement as the head differential was decreasing. So, we did have some concern. It does appear that it's stabilized at this point.

And as Jack indicated, we are in agreement with the numbers that you've submitted to

hold the differential to those levels and the level in the AMS manhole. So, at this point in time, with the monitoring data that we see, we believe that, if those values are maintained, there will not be any question of structural integrity. We will continue to see leakage until those equalize inside and out or, at least, get down to the 12-inch or so differential.

And I believe, at this time, I just obtained some latest information that we're down to something like an 18-inch or less differential at this point in time.

MS. BERGER: It may be a little -- it may be less than that. There were surveyors out there. Part of the -- one of the questions is the measurement points. This has all been a little bit fuzzy. And I only have one data point here now, and it was for the date of January the 2nd, because we had measurements all over the place there. And at that time, the differential was 8 inches, as opposed to, I think, 18 was being --

MR. SHEWMAKER: January 2nd or February?

MS. BERGER: January 2nd.

MR. GROBE: The numbers that your staff --

MS. BERGER: These are the only data I had there. But we do have elevations now from all the measurement points. I just don't happen to have them with me. So, we can make the corrections for all of the data since then and prior to then.

MR. SHEWMAKER: That may well be January. I had no real specific data. The first data point that I had that we were working with was the 14th of January. And that was a differential of about 12 and a few fractions of an inch.

MS. BERGER: Okay. I think early January, I think -- was that when it reached its maximum? I think -- was that it January, on the 2nd?

MR. MILLER: No, 15.

MS. BERGER: Oh, 15. Okay.

MR. SHEWMAKER: The maximum point that we had as a differential was the 23rd of January. I know that QES --

MS. BERGER: Right.

MR. SHEWMAKER: -- was also -- or, yes, QES was actually out there. And I guess they were working up some numbers Friday. And as far as I know, NRC has

not received those numbers at this point.

MS. BERGER: I just got these early this morning. We'll turn them around to you. But we do have some -- what's the term, survey -- surveyors went out and actually sited the levels on them. So, we have some real numbers now.

MR. GROBE: Following the benchmarking of the various receptacles, the manhole, the pump pit and the basement, we have been getting data. And as of seven o'clock this morning, from your staff at London Road, the differential between the outside of the facility and the inside of the facility was approximately 16 inches.

MR. MILLER: What Carol is saying is that that may be six inches. There's probably a correction of about ten inches, because of the surveying that was done last week.

MR. GROBE: Okay. We may need to reevaluate the commitment of the -- reevaluate the commitment to the confirmatory action, then.

MR. MILLER: Once we get the figures from Don Jones, we'll, of course, get them right to you. But I

think that brings them a little bit closer, when he actually did a survey. We been kind of eyeballing it and assuming he did a survey on all the various levels, including the level of the water in the basement.

MR. GROBE: It was my understanding, from your staff, that a survey had been performed by your plumbing contractor previously, and these numbers were based on that survey. Is there some reason that the benchmarking that was done previously was incorrect?

MR. MILLER: I don't believe there was any form of survey done, none that I'm aware of.

MR. GROBE: Your staff informed us that --

MR. MILLER: That may very well be. But this was a formal survey, with instruments and things like that. I don't believe that was ever done before.

MR. AXELSON: Jack, do you need to put this schematic up there, so that, if you're going to refer to certain things there, it might be able to make it a little bit clearer for all of us?

MR. GROBE: This is a simplification of a chart that was provided by your civil engineer. On his

chart, he included benchmarks and elevations that he obtained from your plumbing contractor. At least, this is what he informed me of; that he obtained benchmarks from your plumbing contractor and gave elevations for each of these areas, the basement, including the elevation of the first floor and the basement floor slab.

The bottom of the pump pit and the bottom of the manhole were benchmarks, and all of the measurements came from the top rim of the manhole is what we were informed.

It's somewhat troubling to me now that we find that the numbers that you been reporting that we were under the impression were based on survey results may be as much as ten inches off.

MR. MILLER: Yes. I'd --

MR. GROBE: I'd like that clarified as clearly as possible. And I'd like you to explain why these numbers that you're now giving us you have more confidence in than the last survey results that you gave us.

MR. MILLER: I was not aware that anybody said

that these were done with a surveyor, because I thought those were eyeballed.

MR. GROBE: It's information we were told; that they were shot with a transit, by your plumbing contractor.

MR. MILLER: Let me check on it. All I can tell you is I know these were. Don Jones brought a surveyor in, a transit, the whole nine yards.

MR. AXELSON: What you're saying is the net result of the differential between the basement and the manway now is less than what we thought it was?

MR. MILLER: Right.

MR. AXELSON: Instead of about 16 --

MR. MILLER: 16 inches --

MR. AXELSON: -- it's about 6 inches?

MR. MILLER: Yes.

MR. GROBE: The range that's agreed to in the confirmatory action letter was to provide a positive differential pressure from the outside to the inside, which is our primary concern at this point. We have two concerns. One is to minimize that differential, but maintain it positive, so that there isn't

out-leakage prior to you being able to process the water in the basement.

There's several outstanding issues regarding structural integrity. One of them concerns the analysis that you had previously committed to submit to us regarding the waste hold-up tank. We were expecting that analysis mid-January. And as of late January, you submitted a document which indicated that you were not yet able to provide that to us. When is that document going to be available?

MR. MILLER: The document is in the process of drafting. And I would -- Dave Cesar is not here. He's really the one dealing with that. I would expect that document within a week.

MR. GROBE: We need that document as soon as possible.

MR. MILLER: Yes. But as far as I can tell, it's practically done.

MR. GROBE: In addition, there were several other commitments in the confirmatory action letter regarding evaluating the 15-inch storm water header that feeds into the manhole and insuring that that

storm water header is isolated to prevent any further injection of water into the manhole from surface water. Have those actions been completed?

MR. MILLER: No. If you could hold off on that till we get to No. 4, we'll talk about it. I can talk to you about it now, if you like; but it's really under No. 4.

MR. GROBE: That's fine. That's fine. Any other questions regarding structural integrity?

MS. JONES: If you could speak up, it's difficult hearing.

MR. GROBE: I'm sorry.

MR. MILLER: Okay.

MS. JONES: Thank you.

MR. GROBE: Let's move on to the issue of ground water control. You submitted a plan to attempt to intercept ground water, and you drilled, and we observed several monitoring wells, collected data regarding ground water around the facility. And we've had a number of conversations between our hydrologist and your hydrologist regarding the results.

Mike, if you could, just point to

various things.

This is the same chart that Mr. Kurth put up previously, with some additional points indicated. You had dug a new pump pit immediately adjacent to the facility, on the southeast corner, approximately a six foot by six foot pit down to the foundation under drains.

MR. MILLER: Right.

MR. GROBE: And, also, there were three monitoring wells drilled. I've indicated the approximate locations of those three wells -- this chart certainly is not to scale -- but one to the east of the facility, No. 2 to the south and No. 3 to the west.

You have taken and we have taken samples of the soil that came from those wells, as well as the water that came from those wells. And we spent a good deal of Saturday analyzing those samples which were brought back on Friday evening and found no cobalt 60 detectable in either the water or the soil at those locations.

We have confirmed, though, as have you, that there was contamination at the bottom of the pump

pit; and the contamination levels that we measured were slightly above 1 picocurie per gram of soil. That's significantly below our limit for release for unrestricted use, which is 8 picocuries per gram of soil. Nevertheless, there is contamination in the soils down at the level of the foundation under drains.

From conversations with your hydrologist, as he was evaluating the data collected in these monitoring wells, it appears to us that the proposed solution may not be effective. And Don Chery is here. He's a hydrologist that has been working with us and evaluating your activities.

Don, do you have anything to add to that?

MR. CHERY: Well, I just need to talk about the level of the shale and what we observed from that.

MR. GROBE: Why don't you go ahead.

MR. CHERY: Well, apparently, the basement's -- it goes beneath the layer of shale about four feet. The shale, when you drilled into it, was completely dry. Also, you're in a tight clay. So, the soil formation

above that, there's very little transmission.

MR. GROBE: Can you speak up, Don.

MR. CHERY: There's very little transmission rate for water, for ground water movement. So, if you were going to try to pump those to intercept water, they'd be ineffective. Also, it's not the issue that you -- it now does not appear to be an issue, really, anyway.

MR. GROBE: If I could summarize, in essence, the facility excavation for the foundation was dug into a shale layer, which appears to be somewhat impervious to water. The shale was dry and, in essence, creating, for lack of a better term, a bathtub; that the building sits in a little bathtub.

And the wells at the locations that the monitoring wells were drilled would not be able to intercept ground water at an elevation which would keep it below the facility foundation. Is that --

MR. MILLER: That's exactly what Don Jones said to us. We had hoped that this would obviate the need to go down to the present foundation drains. We thought we'd intercept the water before it got there, but that won't work.

MR. GROBE: What plan are you pursuing at this point?

MR. MILLER: We're just going to have to go down to the foundation drains right in front of the building. That will be in conjunction with No. 4 that we're going to talk to you about later, disconnecting the present manhole, because we think the manhole and the lateral are poisoning every bit of water that comes in there, coming in and going out, and we need to disconnect that. We'll talk to you about our proposed solution with respect to No. 4 and cut out all of the contamination of what's, essentially, clean ground water.

That's the other thing we were looking for, to see if there was contamination beyond the building. We haven't found any other than in that pump, which, of course, is probably drawing right off of that sump that's on the corner of the building, is probably drawing out of the existing manhole.

MR. GROBE: So, it would be your expecta ion that, after you isolate the manhole and lateral -- and, Mike, could you put up that other overhead.

If I understand what you're saying correctly, what's indicated as the four-inch under drain is actually in the bottom of that pump pit. The left wall of the pump pit is actually the right wall of the basement, the basement wall.

MR. MILLER: Yes, yes, that's my understanding.

MR. GROBE: Once you isolate that four-inch under drain from the four-inch sanitary line and the manhole and the lateral, you would expect the water that you would collect in the bottom of the pump pit to be clean?

MR. MILLER: Yes.

MR. GROBE: Even though you've sampled the soils in that area and the soils contain cobalt?

MR. MILLER: Well, for the last two months, three months now, there's been nothing but contaminated water sitting there. So, I would expect you're going to have some contamination there. I don't know that there necessarily was any before then. But there's certainly going to be some at this point in time.

MR. GROBE: So, you would expect, for some period of time after you isolate these, that you will have

contamination in the liquids?

MR. MILLER: Yes.

MR. GROBE: What would be your plan on dealing with that?

MR. MILLER: Well, the first thing we want to do is we've got to drain the water around the building and drain the water inside the building, roughly, at the same time, maintain the differential. All the contaminated water we intend to process.

And once we get that under drain dry, we can go in there. Carol has told us it's relatively simple to go in and determine to what extent, if any, the under drains, themselves, are contaminated. If there's any contamination in the under drains, we can either decontaminate them or replace them.

I would be surprised -- Carol can speak to this more than I can. But that there will be contamination in the under drains, other than in the front of the building, would come as a surprise to us, because that's where the water is ponding and backing up and has been for the last three months.

MR. AXELSON: As I understand it, to simplify

this, you're looking at putting in a sump pump, a clean sump pump on that side of the building, separate from the contaminated systems that you have to deal with today?

MR. MILLER: No, no. What we intend to do is we got to put in a brand new lateral. We're going to connect the under drains into the new lateral, because that's what they were designed to do, so separate them entirely from what's going on now, make sure the under drains are clean, then connect them with the new lateral.

MR. GROBE: It certainly is difficult to project if we can be successful in collecting clean water from these under drains, since it's our understanding that, for the past two months, there's been contaminated water that's been forced through those under drains, into the soils around the facility, as well as ground water accumulation.

It's our view that the surface water, through the connections on the 15-inch storm water header, was, in essence, injected into the soils around the structure of the facility.

MR. MILLER: That would be in the front.

MR. GROBE: Well, it would be throughout the piping system. It's your hope that it's only in front of the facility.

MR. MILLER: Well, I mean, we've had other hopes, too, that haven't panned out, but --

MR. AXELSON: We'll have to review this proposal and look at it. But this potential, if there's a possibility of cross-contamination here, then whatever gets pumped out will have to be monitored. I think we'll probably have to talk to you about that plan, to ensure that there's no insoluble material being released or what's going to be done with that, if it is contaminated material coming from the pump pit. I certainly think we all agree that there's a potential for cross-contamination. So, we'll have to review the proposal.

MR. MILLER: That's what I say. I say the timing on this, assuming we're -- we're assuming, that when we first open that up, it's going to be contaminated. So, we want to be able to run it all. Had we been able to intercept it with the wells, we would have had

completely uncontaminated water. But that's not going to work.

MR. GROBE: Okay. So, you would anticipate collecting whatever water is removed from this pump pit in tanks --

MR. MILLER: Uh-huh.

MR. GROBE: -- and processing that water --

MR. MILLER: Yes.

MR. GROBE: -- through some sort of filter demineralization system?

MR. MILLER: Right.

MR. GROBE: The same system you described in the letter you submitted to us on Friday?

MR. MILLER: Yes.

MR. GROBE: That would continue until -- that sort of pretreatment would continue until such time as there was no cobalt 60 in the ground water coming from the foundation under drain system?

MR. MILLER: Uh-huh.

MR. GROBE: Okay. Any other questions regarding ground water?

MR. CALDWELL: Your intention, then, is to, maybe,

to first isolate that four-inch header from the ground water system and the lateral before you start pretreatment?

MR. MILLER: Yes, because it doesn't make any sense to do it any other way. You got to isolate. In other words, it's always going to be sloshing back and forth.

MR. CALDWELL: What kind of delay would that be in actual pumping of the basement and the ground water?

MR. MILLER: Physically I don't think it will be a big delay because the -- to put that side sump pump in took two days. This would be slightly bigger, but it's -- I think, probably, two days would do it.

We've got very cold weather right now, which makes it even easier. So, I think that would be easy. And doing the disconnect and pumping would not be a difficult problem, either. So, you're probably talking, on the outside, a week.

MR. GROBE: Maybe I need to have this clarified. Would you be able to do this isolation work while there was water in the manhole?

MR. MILLER: No. We have to take the water out of

the manhole.

MR. GROBE: So, the pretreatment system will be in place or the filter demineralization system, and you will be pumping the basement and the manhole down in conjunction with each other to maintain differential pressures. And then once you've got the manhole dry, then you can disconnect the contaminated piping from the under drains?

MR. MILLER: You, obviously, have to get the manhole dry before we can do this disconnect.

MR. GROBE: Right.

MR. MILLER: I'm not sure that that would not happen before we did the processing, because you still have the sump on the side of the building.

MR. GROBE: Where would you anticipate putting all the water in the interim period of time?

MR. MILLER: We have to tank it.

MR. GROBE: So, you're anticipating several thousands of gallons of additional water in tanks?

MR. MILLER: I don't know.

Do you have any feeling for how much water is still there?

MS. BERGER: No. But it doesn't sound like it's going to be a lot. The levels are dropping now. So, we'll just have to have enough tank space for it.

MR. GROBE: I'm concerned about the differential water levels from the inside of the basement to the outside. The water inside the basement is much more highly contaminated than the water outside. And what you're maintaining right now is a differential which keeps the water in the basement in the basement.

We're going to have to review these plans and procedures. When would you have this to us in writing?

MR. MILLER: Today is Monday. We probably could do it Wednesday.

MR. AXELSON: What you're talking about here is the sequence of this cleanup. Let me see if I understand. Obviously, we're talking about the contamination in the basement is many, many orders of magnitude more of a hazard than the low level contamination pump pit and manhole. What are the values in the pump pit and manhole? What have we seen, 200, 300 picocurie per liter?

MR. GROBE: They range up to about 600 picocuries per liter. Have you seen anything higher?

MS. BERGER: No.

MR. AXELSON: What are the values in the basement?

MR. GROBE: The back basement from 100 up to 175 thousand picocuries per liter.

MR. AXELSON: Several orders of magnitude. So, obviously, my concern, I think, or our agency's concern is that the basement water gets cleaned up with the appropriate priority and sequence such that it doesn't create more of a ground water problem by going out.

We think -- obviously, we think the water is going into the basement from hydrostatic pressure. As long as there's this ground water, it's important that we talk about how this is sequenced, so it doesn't create a bigger problem.

MR. MILLER: Okay.

MR. AXELSON: Does that kind of summarize?

MR. GROBE: Yes. As long as there's no surface water infiltration into the under drain system, the system, during the winter months, should remain dry.

I would expect that the best sequence, as far as minimizing the spread of contamination, would be to process the water first as part of your dewatering of the manhole and then disconnect the sump system and begin your process of certifying that the system is clean.

I'm somewhat skeptical that that will happen. But you feel that you can find out whether or not the system is, in fact, clean; and the only contamination was minimal contamination coming from the lateral. We'll be keeping a very close eye on that. But I would think that you will have to process water first to prevent the spread of contamination. If you see that differently, then I'd like to hear it.

MS. BERGER: We've given you a number of procedures, but there's an awful lot of choreography that has to go on on this venture. One of the issues we're still dealing with now is something as simple as analytical. We've lined up an analytical laboratory to do the testing for us, but there's a certain period of time. We all have to cool our heels while we're waiting for results back.

So, now we're evaluating setting up some on-site analytical capability, so we can do prescreening. We've got permitting we have to address through the Ohio EPA, how to treat systems. Then we've got to stage what gets pumped first into where. I have to admit there's so many pieces to that that have to fall into place before we can make a final decision on that.

We've given you the procedures for the basic treatment. We've given the procedure for how we're going to test to make a determination whether we meet the release process, but we agree that there are some other parts to be filled in that still have to be lined up. And we're still working on it.

MR. GROBE: I'm reacting to this latest comment; that you would dewater the manhole first. That doesn't seem to me to be the best approach, as far as the control of the spread of contamination. So, it sounds like the piece we're missing is what you refer to as the choreography.

MS. BERGER: Right.

MR. GROBE: You'll have that to us by Wednesday?

MS. BERGER: We hope to. Again, there's a number of things that we don't have a lot of control over. One of which hasn't crossed anyone's mind yet, of course, is what are we going to do with all this clean water when it's done. We're trying to get that addressed, as well. A lot of decisions, we can make them now; but they get impacted, if we run into a road block elsewhere.

MR. GROBE: And it's clear that -- I just want to make sure that we have one issue very clearly understood; that nothing will begin until we receive all of these plans --

MS. BERGER: Absolutely.

MR. GROBE: -- and we have given you something in writing approving the proposal that you've offered.

MS. BERGER: Exactly. This is also -- it's a very expensive financial venture here, and AMS does not want to go out and risk financially until all the pieces are in place, and we're ready to start. We don't want to mobilize a very expensive treatment contractor, only to find out that part of the dance we can't do, and then we end up just wasting money for

nothing. So, we're hoping this will all come together in a very nice, well-managed fashion.

MR. GROBE: Any other questions regarding the ground water issues? We kind of wandered into the processing of discharged waste water.

As I mentioned, we received approximately 100 pages on Friday evening. And I've distributed that to the folks that need to look at it, but we have not -- I have not had a significant opportunity to read that document and generate questions.

Carol, why don't you briefly summarize what's contained in those documents and what your plans are for the physical processing of water. You just mentioned a new issue, which came to our attention on Friday, also, regarding a potential need for permitting under Ohio Environmental Protection Agency.

MS. BERGER: Right. Since some of the water we're pulling up there was ground water, we need to touch base with the Ohio EPA, make sure we don't need to permit the system. I'm sure we probably do need to

get an Ohio EPA permit to process the water.

MR. AXELSON: For what purpose, for biological content, or what is it, the permit?

MS. BERGER: I was hoping some of them might be here today. I believe the Ohio EPA has jurisdiction any time you generate waste water. Don't they of some sort? They may have something to say in there somewhere. Do they?

MS. MC CORKLE: Again, my understanding is yes. My name is Martha McCorkle. I am an attorney with the City. So, I don't work with the EPA. But my belief is you have to have a permit to install the system. You need a permit whenever you're discharging waste waters in the State of Ohio. They will need a permit, a permit to install. It is required that plans be submitted to the Ohio EPA, and a permit to operate.

MR. GROBE: I have an attorney in Washington working on this this afternoon with the Ohio EPA. This was a new issue to me. And any additional information that you folks come across we'd appreciate.

MS. BERGER: As I say, we were hoping they would

be here, so that they can guide us quickly. Again, we -- unless we can get whatever permitting authority we need, again, that's part of the staging process. So, we'll be working on that from our end, as well.

MR. MILLER: One of the problems that we see on this is timing. We've got a problem with timing. It's very cold right now. There's not been any real precipitation in Cleveland since we got that three-inch rain about the 15th of January. The water's down.

This would be the prime time to come in and do what we have to do. If we get a spring thaw, which we, hopefully, are going to get the end of February, beginning of March, there's going to be all kinds of problems; and trying to control this water from the outside is not going to be very easy from our standpoint.

Friday was the first time I heard about the EPA on this, too. I don't have any problem -- AMS doesn't have any problem working with them, but we hope we're not going to run into a regulatory gridlock of one agency telling us one thing and the other

agency telling us another. That's the problem I'm seeing potentially develop.

MR. GROBE: You folks need to get on board with Ohio EPA as soon as possible. If you see any delays in this process, I would appreciate knowing about them as soon as possible. Likewise, I'm going to be pursuing the same issue, but I can't get involved in your relationship with Ohio EPA.

MR. MILLER: No. I understand that. But if there's some kind of cooperative mechanism that the NRC has with the EPA that can be worked out, so that we're satisfying both agencies, that's what we'd like to see happen.

MR. AXELSON: Okay.

MR. GROBE: We will be reviewing the submittal that you made up Friday as quickly as possible and get back to you with any questions or additional information as soon as possible. I would expect that by the end of the week.

MS. BERGER: Again, there's no choreography in here yet. We're still a little ways from that.

MR. GROBE: I understand. It's just a technical

description.

MS. BERGER: It's just giving you the details.

MS. JONES: Are there any other state or local permits that you would need, besides Ohio EPA?

MS. BERGER: That's being looked at right now as we speak. We're trying to determine what others, so we're not blindsided. We're trying to make sure we looked at all possible permit requirements there.

MR. GROBE: The one issue that's -- we're in somewhat of a balancing situation right now, as far as structural integrity of the floor slab, and we do not want to see any delays in the processing of the water inside and outside of that facility. If it's necessary for a permit to discharge, but not necessary for a permit to process the water and keep it in tanks, I would advise you to proceed as expeditiously as possible on the latter, because we need -- as Mr. Miller indicated a minute ago, you were at a unique opportunity, being in the wintertime.

This issue needs to be resolved as quickly as possible. And any delays -- we would encourage you to seek an avenue that would not result

in any delays.

MR. MILLER: We've been exploring some various avenues. And if we're able to call on you to be of some assistance, we'd like to do that, as well.

MR. GROBE: What are your current plans for the water after you process the water?

MR. MILLER: It depends on how low -- you gave us a letter saying we could discharge to 200. Frankly, we have asked our contractors to get a lot lower than that. We've asked them to get down towards minimal detectable levels. They're not sure how low they can get on that figure. So, some have said they think they can get down to 30. Some have said maybe a little lower. I don't know. If we get that low, we would hope we'd be able to discharge.

Although, I will tell you, on Friday, I was at a meeting where Mr. Lenhart indicated that it wouldn't accept water that had any cobalt in it. So, we may be in a position where we have water that is very, very clean, and we -- and by the way, Ohio EPA said the same thing. We couldn't discharge, unless the Sewer District was happy. We may have a problem

discharging water that is clean from everybody's standpoint in the world, I mean, 20, 30, 40, picocuries per litter.

If we could, if we had an alternative source to get rid of the water, we've looked at some of that. I'd like to try that. We're not out here to pick a fight. We want to get this water out of our basement, and we want to move it as fast as we possibly can. And if we can, as I say, enlist your assistance, we'd like to do it.

MR. AXELSON: Well, we've worked with the Ohio EPA on many other cases, Chem-Tron. So, perhaps, we need to set up a meeting soon with the appropriate other bodies to discuss this issue. And that's something I think we'll take back.

MR. GROBE: As I mentioned already, those conversations are already ongoing today. Any other questions regarding the water processing?

MR. AXELSON: Just to make it all clear, they -- I mean, from a radiological concern, it's the water in the basement that is many, many orders of magnitude higher than what else is in the pump pit or in a

manway. And although this material isn't necessarily ground water hazard, if contamination in that basement gets in the ground water, it's going to create a bigger problem, in terms of cleanup and other characterization.

My concern, I think, is to get that water cleaned up. Whether or not it can be discharged is another issue, but to get it out of the basement and cleaned up to an acceptable level, while not sequencing and choreography into such a point that you don't cross-contaminate and minimize contamination of ground water. But that source term in the basement needs to be cleaned up. I just want to make sure of that. I think we all agree on that. And that's something that has to be given the appropriate priority.

MR. GROBE: Okay. Let's move on to remediation of the contaminated piping and manhole. You described four proposals. One issue that wasn't clear. Your second proposal included remediation of the lateral and decontamination of some other piping. But it wasn't clear, from your cost estimates, as to whether

or not those estimates included installation of a new lateral.

MS. BERGER: Yes, it did.

MR. GROBE: You did some analysis of cost benefit and risk and concluded that your preferred alternative, if I understand correctly, is to -- well, why don't you describe it for me.

MS. BERGER: Yes. Actually the preferred alternative has gotten even more preferred over the last couple of days. And that is to go ahead and grout in the lateral and the four-inch line coming from the AMS facility.

First, of all we need to disconnect the four-inch line, that one right there, I guess it is. We need to disconnect it from the footer drain system, anyway. And so, what we're looking at doing is, once we dig down in there and get down in there and grout in the four-inch line all the way back up as far as we can, go ahead and grout in the lateral, itself.

And then I don't know what the answer is yet on the manhole, whether we will need that space or not for other things. But, basically, that's the

preferred alternative, is just to go ahead and fill it in with the same sort of material that they cap and seal wells with and leave it sit.

Prior to that time, when we get the area dewatered, to a great extent, we'd like to do a little poking around in there to see what the residual contamination is. It could be useful information for future decommissioning.

MR. GROBE: If I understand correctly, the cost differential between that grouting operation and remediation, what I'll call remediation, as digging up the contaminated areas, putting them in safe storage, monitoring that storage for a period of time, until Ohio has a low level waste repository and decontaminating any structures that you determine it's best to decontaminate, instead of disposing as waste, the difference in cost is only a few thousand dollars. Is that correct?

MS. BERGER: Yes. The straight difference in cost was -- I can't remember the exact numbers, but I can certainly find them, if --

MR. GROBE: Why would it be a better option to

spend 40 or $50,000.00 grouting the system in place, eventually needing some sort of decontamination or remediation in the future?

MS. BERGER: Possibly. It depends on when license termination is going to be pursued. And I have no knowledge of when that might be for that facility. But the materials that are down there, it's better to keep them stable and fixed than it is to dig them up and move them and bring them above ground, as opposed to leaving them down below ground.

We're looking at it primarily as a health and safety benefit to leave it where it is, as opposed to removing it. That's the clear overwhelming advantage. The cost advantage, there's really none between the two.

MR. AXELSON: If you are looking at that as a remediation option, then that may have to be addressed as part of your decommissioning funding plan.

MS. BERGER: Oh, we're not grouting it in as a final solution. It's only being grouted in as a way of fixing whatever is down there until such time as decommissioning is going to be addressed.

MR. GROBE: You recognize the decommissioning financial assurance instrument and the value of that instrument needs to include the money that would be necessary to remediate it tomorrow --

MS. BERGER: Right.

MR. GROBE: -- not 30 years from now or 50 years from now? So, those monies would have to be set aside now.

We have some significant question as to whether or not it's appropriate to have an interim solution, which the grouting is an interim solution, or, simply, having a final solution at this point. What was the total committed dose that you calculated? It was in the order of an few milligrams, wasn't it?

MS. BERGER: 16 millirems, Option 2.

MR. GROBE: 16 millirems?

MS. BERGER: Yes. Radiologically speaking, it's almost six of one, half a dozen of the other.

MR. GROBE: So, what is the significant health and safety benefit you referred to?

MS. BERGER: No, not significant. There was some minor benefit. But if you do a simple analysis of

dose versus -- dose times dollar and if you look at the last page -- I guess it was Page 18 -- the cost benefit analysis for the final option was 51,000 for option 2 because of the doses to the above surveillance folks, the people that would have to do surveillance on it. The dollar -- that's actually the highest cost, versus rems saved.

MR. GROBE: I understand. I studied your analysis, and Mike Kurth spent some time looking at it this morning. Those analyses and that process of doing analysis was constructed for dealing with doses which are much higher than what you're dealing with and risks much higher than what you're dealing with.

MS. BERGER: Right, exactly.

MR. GROBE: I'm not even sure that that comparison technique is appropriate to this type of project. We're going to be looking very hard at what would be the appropriate approach at this point in time.

MR. MILLER: When do you expect that we're going to have some word on Item No. 4 from your agency?

MR. GROBE: I would hope within a matter of several days.

MR. MILLER: Okay. Because from our standpoint, which way we contract will make a big difference on what you decide.

MR. GROBE: I understand. I understand.

MS. JONES: Carol, you mentioned the contamination or possibility of contamination around the manhole in that whole area. Then your cost estimate for Option No. 2 talks about expected or anticipated exposure for individuals that would be cleaning that up. Do you know if there is any other -- would you be doing any analysis for determining if there is contamination that is nonstable that is moving in that area because of ground water?

MS. BERGER: Currently?

MS. JONES: (Nodding.)

MS. BERGER: I guess I'm not sure I follow the question. Has that been done in here? No, because at that -- at the time this was written, we didn't have the water problem that we have right now.

MS. JONES: I think one of the questions we have is that, if you select an option -- I'll just talk about Option 4, versus Option 2.

MS. BERGER: Right.

MS. JONES: (Continuing) -- is there a possibility that the contamination that exists in that area could move around the lateral over a period of years, and one of the benefits, perhaps, of Option 2 would be that you'd be cleaning it up; therefore, you won't have any contamination in the ground?

MS. BERGER: Of what's around the -- we've got no real evidence that there is contamination around the lateral. It's only around the areas where they been digging in there.

There's some old ORAU walk-over data that doesn't seem to indicate, at least, from the walk-over surveys, that there's anything around the lateral, itself. It's probably only where we dug holes and the contaminated water has moved into the soil in the immediate vicinity. There you would expect to see some residual contamination.

But back far from there, assuming we don't leave it sit for too terribly long, we're hoping, again, if we move quickly, it will stay fairly well-contained to the area where that pit is.

MR. GROBE: Okay?

MS. JONES: Yes.

MR. GROBE: Any other questions? We're certainly committing a tremendous amount of resources to evaluating all the plans that you're getting us. And as quickly as you can get us the choreography, as you refer to it, we appreciate that.

I'll be getting back to you. I won't wait for a final evaluation. As we complete the review of each section of your plan, if we need additional information or if we have questions, I'll get back to you on those in writing.

MS. BERGER: Particularly, if you see a snag along the way, we would appreciate calling that to our attention as soon as you can.

MR. GROBE: I tried to bring this to your attention today as I feel them. One is the choreography. That's absolutely critical. Second is this apparent need to possibly -- for permitting process through Ohio EPA. We're looking at that, and I appreciate you are, also.

And the third is this remediation

choice. We'll be evaluating that and get back to you quickly on whether or not we believe that your preferred option is what we believe is the proper way to go.

I don't have any other questions or comments at this point. Any of the other NRC staff?

Okay. As far as closing remarks, I guess the two inspection reports, Mr. Slawinski's report, dealing with previous issues prior to January of '94, will be prepared in the very near future to come to closure on that. You'll be receiving a letter from us on that matter.

The second issue you indicated is that, within a month -- within a month, you will have to us the chemical speciation of the contamination and, if not the biological, you will have a description of when you will provide that biological speciation. That will be information we need to close that matter.

Regarding the plans for dealing with water, I think we've pretty much covered that. I just want to emphasize, as Bill has, also, it's critical to balance removing the water from the basement as soon

as possible, with the structural integrity of the facility. We encourage you to move as expeditiously as possible. We will try to support that short time schedule.

Bill, do you have anything else?

MR. AXELSON: I think we need to have a meeting with the EPA to find out what their regulatory needs are. They need to hear from us what our regulatory needs are. So, we need to do that soon. And like you said, the sequencing of the water cleanup is critical, is very important to us in how that is accomplished.

MR. GROBE: I believe that all of your proposals for remediation of the contaminated piping include also remediation of the area in the city interceptor immediately at the outfall. Is that correct?

MR. MILLER: That's true.

MR. GROBE: Have you been interfacing with the Sewer District as to the procedure you use to accomplish that?

MR. MILLER: No. We wanted to get approval from you first. Once we get approval from you, then we'll go back to the Sewer District.

MR. AXELSON: One thing I think you need to consider on what your options are that you can present of which one they like to approve of the remediation of the lateral is that, I guess, our kind of analysis of it is it's segmented piping. It's five-foot segmented, Mike?

MR. KURTH: Yes, approximately.

MR. AXELSON: And it probably leaked over the years. Was it in there during the Picker days, as well, Mike? Do you remember?

MR. KURTH: I believe so.

MR. AXELSON: So, in looking at the contamination that came out of the lateral and on the rungs here, that material actually may have been leaking along the outside of the piping and into the soil. So, it's something to consider, that the soil may be contaminated.

And even though you -- let's say you tried to solidify it under concrete, there still may be material seeping out of the soil. I don't know if that needs to be characterized. It's still a technical issue we're wrestling with.

MS. BERGER: That's certainly straightforward enough to determine, though. You can hand auger to there and look to see what's in the vicinity.

MR. AXELSON: I think one of the things you ought to let us know and probably one of your options is -- it's kind of a pay me now, pay me later issue -- if the costs are about the same, the dose is insignificant, in terms of remediation. It's whether you can get rid of it all now or consider, you know, a liability as part of your DFP. Either one we're going to have to wrestle, but --

MS. BERGER: From a health physicist point of view, though, I guess my personal preference is to leave it, if it's deemed stable, where it is. I'd rather leave it where it is than to move it up above ground, make it available to be moved around, transfer contamination. Again, it's just an unnecessary step at that point, if there is an equivalent risk.

MR. AXELSON: If there is soil contamination in the outside of that piping, would that change your evaluation?

MS. BERGER: It depends on -- we certainly would

find that out and find out what the mobility of that is. If it's not -- again, if it's not moving anywhere, my preference, from a health and safety point of view, is to leave a stable situation stable, as opposed to creating what may be an unstable situation.

MR. AXELSON: All right.

MR. GROBE: Any other comments to make?

MR. AXELSON: Let me summarize one thing. The structural integrity of the facility is no longer a problem. It's our analysis. We agreed on that.

MR. SHEWMAKER: Yes, correct.

MR. CALDWELL: As long as we keep the differential.

MR. SHEWMAKER: Within those limits.

MR. AXELSON: I guess we agree with you. The final solution of this needs to be happening before the spring rains, clearly, or it could become a potential structural integrity problem.

MR. GROBE: There was a question I asked before that really relates clearly to that. The ceiling of the storm water manholes, which we're currently

grating, as well as studying the remainder of the 15-inch interceptor, you made a commitment on that?

MR. MILLER: I think there was some work done on those manholes last week. Dave Cesar worked on that. He's not here today.

MR. GROBE: Please confirm that. It's absolutely essential that the subground piping be isolated from any surface water or the control of sub-surface water is going to be significantly complicated, if you get additional liquid precipitation, either snow melt or rain.

MR. MILLER: Yes. I said we would talk about that 15-inch. And, frankly, we intend to disconnect that from the manhole, as well. We have hope to be able to use that in conjunction with a new lateral, disconnect that and just --

MR. GROBE: Maybe in the interim, if you can isolate and make sure that that 15-inch area is isolated from the surface water contribution, that would minimize the impact.

MR. SLAWINSKI: They were working on that on Friday morning.

MR. MILLER: I thought they were.

MR. SLAWINSKI: Their plan was to complete that isolation by the end of the day on Friday. But I don't know if they were successful.

MR. MILLER: I don't know, either.

MR. AXELSON: Did you want to add something to what I just said?

MR. SHEWMAKER: No.

MR. GROBE: I'm sorry, Bob.

I have know further questions. Dr. Stein or Mr. Miller, do you have?

MR. MILLER: Yes. I think, as I mentioned to you, we have committed a great deal of resources to what we've done so far, and we haven't moved any water yet. We're ready to go. We want to cooperate with the NRC and any appropriate agency to get this out before spring, because come spring we're going to have problems. It's going to dwarf the present problem. That's what we're concerned about. We want to get it done while we have this window of opportunity.

MR. GROBE: We'll support you with reviewing your procedures promptly.

Dr. Stein?

DR. STEIN: (Shaking head.)

MR. GROBE: Very good. That completes this portion of the meeting. We'll take a five-minute recess. And then NRC Staff will be available to respond to any questions that the public may have. You folks are welcome to stay and answer questions, if you so choose.

(Whereupon, a recess was held.)

MR. AXELSON: The court reporter asks that you stand and give your name and speak loudly, so she can hear.

Are there any questions that you have of this technical staff, any issues?

MR. GROBE: Staff's not allowed to ask questions at this point. If anybody from the public has a question, we'd be glad to try to answer it.

MS. MC QUEEN: I just wanted to clarify one thing. So, pending the test of the biological segments and and pending the sample tests -- I'm Anjetta McQueen, the Plain Dealer, in Cleveland. I just wanted to

clarify your postponement on making any decision until you receive updates on the -- on the -- first, the tests from the second report that they're going to make on samples that they have conducted.

MR. AXELSON: I think what we're saying is we're going to -- we have to delay making a Regulatory decision on whether this is violation or not, but that's not going to stop us from corrective action. We're moving forward, discussing that now.

The AMS indicated that they have testing to show the substance may need current regulations. And, therefore, we need to have information accessible.

MR. GROBE: Any other questions?

MS. MC CORKLE: Jack, my question was: If you find that your memory is serving you correctly and that the plumbing contractor for AMS did, in fact, do a survey that differs 10 to 12 inches, however many from this next survey that was done, is the Nuclear Regulatory Commission going to do anything about determining which survey will be used to make the evaluation of where that water is?

MR. GROBE: It's going to be a high priority item on our next inspection, which will likely occur in the near future.

MS. MC CORKLE: So, you will do an independent survey, then?

MR. GROBE: I don't know if we'll have an independent survey conducted. But we will find out why there is a difference between the numbers we received earlier and the numbers we received now. I believe Mr. Miller said they, also, will examine why those numbers have changed. And we'll try to get to the bottom of that.

Any other questions?

MS. MC QUEEN: One more question. I just wanted to get a working definition of "lateral," of the term "lateral," something I can explain in lay terms.

MR. GROBE: Maybe we can refer to the experts in the Sewer District.

MR. LENHART: It's a piece of piping. I believe it's approximately 15 inches in diameter and 40 feet long. And it transfers sewage from a manhole that is on the AMS property to the sewer which is

approximately four and-a-half feet in diameter which runs down the center of London Road.

MR. GROBE: For the sake of ease of communication, we have consistently called the one in the middle of London Road the interceptor, which I believe is technically correct.

MR. LENHART: That's right.

MR. GROBE: The one that transfers materials from the interceptor is the lateral. And that way everybody speaks the same language.

MR. AXELSON: There is a diagram. There's a diagram in our December 6, 1994 Inspection Report.

MR. GROBE: There's a number of pipes that come into the manhole from the facility that tr[illegible]t storm water and sanitary water. And they go into the manhole. Then coming from the manhole is one pipe that connects the manhole to the interceptor in the street.

MS. MC QUEEN: I just didn't want to assume that I was correct in calling it a pipe. I just wanted to make sure what that was.

MR. GROBE: Okay. Any other questions?

MS. MC CORKLE: Yes, I do have one question for the structural engineer. That's you, sir. Do you feel comfortable with the explanation that the additional water that ended up in the basement of that facility between the 16th and the 19th of January was, at that time, undiscovered standpipe? You believe it has come up through the standpipe system?

MR. SHEWMAKER: I believe so. In fact, I believe the on-site person, senior person at the site for AMS, actually found tnat running and actually plugged it on the 16th. So, it very definitely appeared that that's where that water came from.

MR. GROBE: The report I received the morning of the 16th was that the individual found the water emanating from that standpipe the morning of the 16th, proceeded to get a compression plug and seal that standpipe.

MS. MC CORKLE: Okay.

MR. LENHART: I will ask one question, Jack. In a conversation some time ago, we heard something about a standpipe that was capped with a pinhole in it. Are we talking about a different standpipe from now?

MR. GROBE: Mike, could you put up that other chart.

There are two standpipes we're talking about right now. One of them is approximately eight inches high. When I say high, I mean above the -- protruded approximately eight inches above the floor slab. It had previously been a part of the processing and transfer system for liquid effluents from the facility, radioactively contaminated liquid effluents.

MR. AXELSON: That's where the 55-gallon drum batch release sat on top of the standpipe.

MR. GROBE: Mr. Slawinski previously referred to a batch tank. That batch tank sat on top of the eight-inch pipe. That eight-inch pipe was capped a number of years ago. And in December, I believe, when we first had some hydrostatic pressure from the outside of the building, there was a pinhole leak in that cap, which was plugged, I believe, with some lead.

The 32-inch standpipe was previously not disclosed by our inspections or the licensee's assessment of the system. And it was not identified

until water level outside the facility rose above 32 inches above the floor slab, such that water came out of that standpipe. Does that answer your question?

MR. LENHART: Where is that standpipe in relation to the wet room, not inside?

MR. GROBE: The waste hold-up tank room is in the center of the facility. The 8-inch standpipe is in the back basement. The 32-inch standpipe is in the front basement.

MR. GROBE: Any other questions?

MR. AXELSON: The standpipe is sealed now?

MR. GROBE: Yes.

MR. AXELSON: Wayne, did you observe the --

MR. GROBE: Wayne and Bob Shewmaker both observed it.

Okay. That completes the meeting. Thank you very much.

(Which were all the proceedings had at the hearing of the above-entitled cause.)

STATE OF ILLINOIS)
) SS.
COUNTY OF DU PAGE)

I, LAURA L. D'ORIO, C.S.R., Notary Public duly qualified and commissioned for the State of Illinois, County of DuPage, do hereby certify that I reported in shorthand the proceedings had at the hearing of the above-entitled cause, and that the foregoing transcript is a true, correct and complete report taken at the time and place hereinabove set forth.

CERTIFIED SHORTHAND REPORTER
NOTARY PUBLIC

My Commission expires:
March 24, 1996

OFFICIAL SEAL
LAURA L D'ORIO
NOTARY PUBLIC STATE OF ILLINOIS
MY COMMISSION EXPIRES MAR. 24,1996

March 24, 1995

Cuyahoga Emergency Management
Assistance Center
ATTN: Michael S. Kalstrom, Secretary
Cuyahoga County Local Emergency
Planning Committee
1255 Euclid Avenue, Room # 102
Cleveland, Ohio 44115-1807

Dear Mr. Kalstrom:

On January 20, 1995, we responded to your letter dated December 29, 1994, that expressed concern and requested information regarding the radiological contingency plan for the London Road facility of Advanced Medical Systems, Inc. (AMS). I have enclosed copies of those letters for your reference.

On February 7, 1995, you provided us with a copy of your correspondence with the Ohio State Emergency Response Commission (SERC), on behalf of the Cuyahoga County Local Emergency Planning Committee (LEPC), requesting that the SERC designate the AMS facility as an additional facility under the provisions in the Ohio Revised Code (ORC) Sections 3750.05 and 3750.08. There are several issues raised in your letter to the SERC that concern us. I discussed those issues with you during a telephone conversation on March 2, 1995. This letter confirms those discussions and responds to several issues expressed in your February 7, 1995 letter.

As you correctly indicated in your letter, the key consideration for radiological emergency planning is the amount of radioactive material that could be released during an event. Your implication that current and precise inventory information is unattainable due to historically poor inventory practices is incorrect. Past inventory practices at AMS were weak; however, following NRC action several years ago, the inventory practices of AMS have dramatically improved. These practices have been reviewed as recently as March 23, 1995.

The Cleveland Mayor's Ad Hoc Task Force on Emergency Planning at AMS (Task Force), is evaluating the hazards on the AMS site and the potential risks resulting from an emergency that those hazards represent to the surrounding neighborhoods. The Task Force received a report from AMS indicating that the cobalt-60 inventory available for dispersion during an event at AMS is 29 curies, a very small portion of the total cobalt-60 inventory at the facility. A representative of the Ohio Emergency Management Agency performed off site dose calculations using the 29 Curie cobalt-60 source term indicating that protective actions would not be needed following a credible event at AMS, because the projected offsite radiation exposures did not exceed the Environmental Protection Agency Protective Action Guidelines for initiating offsite actions following a radiation incident.

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Notwithstanding these offsite dose calculations presented to the Task Force, the NRC is currently conducting a thorough evaluation of the basis for AMS' recently updated radiological contingency plan and assessing the adequacy of that plan. The updated plan was submitted as part of AMS' license renewal on January 31, 1995. The results of our assessment will be provided to you and the Task Force when it becomes available.

You made several statements in your letter alleging an NRC lack of commitment in correcting emergency preparedness problems and supporting local agencies. The NRC has been fully supportive of local agency efforts in the emergency planning process. Representatives of the NRC staff have attended the Task Force meetings and intend to participate in future Task Force activities. In addition, NRC staff is coordinating closely with the Cleveland Fire Department and meeting at least bi-weekly in person or telephonically with representatives of the Cleveland Department of Health to discuss emergency preparedness and other AMS facility issues.

With respect to your concerns regarding the existing AMS emergency plan, NRC inspection activities identified weaknesses in the plan's implementation last fall and several actions, including training for and close interface with emergency response personnel from Cleveland, have been taken to improve preparedness. AMS continues to work closely with Cleveland through the Task Force to bring emergency planning concerns to closure. This information was previously shared with you during personal conversations and in our January 20, 1995 letter. During my evaluation of activities at the AMS London Road facility on March 23, 1995, I noted that the redesign of the AMS fire detection system requested by the Cleveland Fire Chief was being installed.

I look forward to discussing AMS issues with the SERC on March 27, 1995. During that meeting, we can discuss methods to improve interface between the SERC, LEPC and NRC regarding AMS matters.

I have enclosed several documents that may be useful to familiarize yourself with radiological emergency planning. I have also added your office to our standard distribution list for all correspondence to and from AMS. Please do not hesitate to contact me at (708) 829-9806 if you have any questions regarding AMS.

Sincerely,

Original Signed by John A. Grobe

John A. Grobe, Chief
Nuclear Materials Inspection Section 2

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

See Attached Enclosure List and Distribution

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DATE	03/24/95		03/24/95		03/24/95		03/24/95	

Enclosures:

1. 12/29/94 letter from M. Kalstrom to J. Grobe
2. 01/20/95 letter from J. Grobe to M. Kalstrom
3. NUREG-1140, "A Regulatory Analysis on Emergency Preparedness for Fuel Cycle and Other Radioactive Materials Licensees"
4. NUREG-0767, "Criteria for Selection of Fuel Cycle and Major Materials Licenses Needing Radiological Contingency Plans"
5. NUREG-0810, "Standard Review Plan for the Review of Radiological Contingency Plans for Fuel Cycle and Materials Facilities"
6. Regulatory Guide 3.67, "Standard Format and Content for Emergency Plans for Fuel Cycle and Materials Facilities"
7. Revision 1 to Policy and Guidance Directive 84-14, "Standard Review Plan for Emergency Plans for Fuel Cycle and Materials Licensees"

Distribution

w/encls 1 and 2:
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Radiation Safety Officer
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Geneva, OH 44041

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COUNTY OF CUYAHOGA

Cuyahoga Emergency Management Assistance Center (CEMAC)

December 29, 1994

John A. Grobe, Chief
Nuclear Materials Safety Branch
U.S. Nuclear Regulatory Commission
801 Warrensville Rd.
Lisle, Illinois 60532-4351

Dear Mr. Grobe:

I am the Secretary of the Cuyahoga County Local Emergency Planning Committee (LEPC), and the Committee has directed me to express some serious concerns regarding the Advanced Medical Systems (AMS) facility at 1020 London Road, Cleveland, Ohio.

The LEPC is very concerned that the emergency plan for this facility is not adequate and that the plan's implementation scope of work has not been adequately fulfilled by AMS personnel. These considerations are important factors that serve to protect the public from unnecessary risk. Members of the LEPC have reviewed various documents regarding this situation, including the AMS Onsite Radiological Contingency Plan (RPC), the NRC's fire safety evaluation report, and related correspondence between AMS and the NRC. The facility has been inspected by Captain Thomas Root of the Cleveland Fire Department, who is also a member of the LEPC. Finally, I have represented the LEPC at two recent meetings of a task force initiated by the City of Cleveland to address the aforementioned issues.

In the safety evaluation report (SER), the NRC states that up to two curies of Cobalt-60 may be released to the air if burning embers reach the HEPA filtration system. The SER does not discuss, however, potential releases in the event of a major fire, explosion, tornado or other disaster. There is no discussion regarding the vulnerability of either the hot cell or the waste hold-up room to such scenarios, and, as a result, no hazards analysis regarding any possible community impacts from such events.

On page 12 of the SER there is the following puzzling statement: "No significant release of radioactive effluents to the environment expected from basement fire; however, water from fire fighting activities could be contaminated and runoff into the sanitary sewer system through the basement floor drains." Due to the presence of the waste hold-up room in the basement and other contamination apparently present, it is essential that the potential release of radioactive material via this pathway be quantified. The LEPC does not believe that an indirect release to the environment via the sewers is any less significant than a direct release.

The Radiological Contingency Plan also has deficiencies. For example, on page 3-2 the Range of Postulated Accidents assumes that a radioactive material spill as a result of a fire, earthquake, or tornado will occur in the hot cell only and ventilation system will continue to operate normally. Given the quantities of Cobalt-60 stored in locations other than the hot cell and structural damage that can occur in severe disasters, both of the above assumptions appear to be insupportable. In addition the LEPC has found no documented attempt by AMS personnel to conduct the off-site exercise and communication checks with emergency response personnel specified on pages 7-1 and 7-2 of the RPC. These steps are required implementation steps outlined in the RPC.

The above are but a few examples of weaknesses in the emergency planning and implementation for this facility. As you may know the LEPC is locally responsible for emergency planning for facilities within its jurisdiction that possess specified quantities of Extremely Hazardous Substances, as defined by Section 3750.01(B) of the Ohio Revised Code. Although the LEPC has not previously addressed emergency planning for nuclear material licenses, AMS appears to be a unique case in that the facility presents a greater than normal risk for which the current plan appears inadequate. The LEPC therefore requests that the NRC conduct a thorough review of the risks posed by the facility, including a survivability assessment and a hazards analysis of the hot cell, waste hold-up room, and other contaminated areas. A review of the RPC and its implementation should also be completed. The LEPC and the Cuyahoga County Emergency Management Division appreciate the opportunity offered by the City of Cleveland the NRC and AMS to participate in this process and would be pleased to discuss our future mutual efforts with you.

In addition to working with the NRC and others as described above, the LEPC, as authorized by a vote of its members, will file a written request with the Ohio State Emergency Response Commission for a variance under Division (B) of Section 3750.11 of the Ohio Revised Code to authorize requests to AMS for emergency planning information under Division (C) of Section 3750.05 of the Ohio Revised Code. This information would be included in the LEPC's comprehensive plan for emergency response to hazardous materials incidents and updated annually.

While the LEPC would prefer that an adequate emergency plan be developed with the full cooperation of AMS and the NRC, these actions are being taken at this time to assure that these matters are addressed promptly. Please call me at (216) 443-7597 to discuss how these matters can be most effectively addressed.

Sincerely,

Michael S. Kalstrom

Michael S. Kalstrom, Secretary
Cuyahoga County LEPC

cc: Edmund M. Mecklenburg, Manager, Emergency Management
Robert J. Patton, Chairman, Cuyahoga County LEPC
Captain Thomas Root, Cleveland Fire Marshal

[illegible]ing\NRC AMS.ltr

January 20, 1995

Cuyahoga Emergency Management
Assistance Center
ATTN: Michael S. Kalstrom, Secretary
Cuyahoga County Local Emergency
Planning Committee
1255 Euclid Avenue Room # 102
Cleveland, Ohio 44115-1807

Dear Mr. Kalstrom:

This responds to your December 29, 1994 letter to me regarding the Advanced Medical Systems, Inc. (AMS) facility at 1020 London Road, Cleveland, Ohio and its Radiological Contingency Plan (RCP). Specifically, you questioned the adequacy of the existing RCP and expressed concern that the plan has not been properly implemented. In addition, you pointed out that the NRC's Fire Protection Safety Evaluation Report (fire safety assessment) for the AMS facility did not include a complete hazards analysis of the AMS facility and possible community impacts from a major fire, explosion, tornado or other disaster. The committee which you represent requested that the NRC conduct a thorough review of the risks posed by the facility, including a survivability assessment and hazards analysis of the hot cell, waste holdup room and other contaminated areas. You also requested a review of the RCP and its implementation.

As background information, in 1985, the Radiological Assessment Program of Oak Ridge Associated Universities (ORAU) was contracted by the NRC to evaluate the AMS radiological and fire protection programs. A second similar ORAU evaluation was conducted in 1988. In June 1990, the NRC developed a fire safety assessment, documenting NRC staff's evaluation of the fire protection and emergency planning programs for the AMS facility, and consolidating NRC fire protection recommendations. Our fire safety assessment was not a detailed hazards analysis of the entire AMS London Road facility.

The 1990 assessment concluded that AMS's previously developed emergency pre-plan was inadequate and should be expanded to address those items outlined in 10 CFR 30.32. 10 CFR 30.32(i) is the regulation that addresses, in part, emergency plan requirements for domestic licensing of byproduct material under the Atomic Energy Act of 1954, as amended. In January 1992, AMS developed an RCP which addressed the items in 10 CFR 30.32(i). The plan was approved and incorporated into the AMS license through Amendment No. 25, dated July 30, 1992. This plan continues to be referenced in License No. 34-19089-01.

License No. 34-19089-01 expired on December 31, 1994. A timely renewal application was submitted to the NRC prior to the license expiration date. Preliminary review of that application revealed that it was not adequate to meet our expectations. A deficiency letter was sent to the licensee and a revised renewal package is due to be submitted by the end of January. Hazards assessment information is required to be submitted by the licensee in its license renewal application, along with an emergency plan that meets the

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current criteria of 10 CFR 30.32(i)(3)(ii). As part of the license renewal process, the adequacy of the updated RCP will be reviewed for compliance with current emergency plan criteria of 10 CFR 30.32 and NRC standard review plan guidance (NUREG-0810).

We agree with your concern regarding AMS's implementation of its existing RCP. A routine NRC inspection of the AMS facility on October 11 and 12, 1994, revealed several weaknesses with the plan's implementation. The results of our inspection were forwarded to the licensee in a letter dated November 29, 1994, and included three violations related to RCP implementation, three other specific concerns and an overall concern with inadequate AMS management oversight in the emergency planning area. These problems are currently being addressed by the licensee. A copy of our November 29, 1994 correspondence is enclosed for your information.

On December 12, 1994, we met with representatives of the Cleveland Department of the Environment, other state and local officials, and you to discuss the AMS facility and its emergency plan. On January 3, 1995, AMS representatives met with you and other state and city of Cleveland officials to further discuss emergency planning issues. As a result of these meetings, we understand that a radioactive material source term has been derived for the AMS facility and will be used by the Ohio EPA to assess offsite radiological impacts under various accident scenarios. We further understand that you will be a continuing participant in these meetings to review and evaluate the AMS emergency planning capability.

In response to your concern regarding contaminated water runoff potentially resulting from fire fighting activities at the facility, we understand that the fire pre-plan being developed by the Cleveland Fire Department and AMS will include provisions for use of dry chemicals to fight fires in contaminated areas of the facility, as a preferred fire fighting technique in lieu of water. Nevertheless, should water be necessary to extinguish a fire in the hot cell portion of the facility, this water would likely drain into the basement of the facility, which has no direct flow path to the sewer system or the environment. This water would need to be collected and disposed of pursuant to NRC regulations.

We appreciate your concern and interest in the AMS emergency plan. We will continue to cooperate with the committee you represent and other interested parties in resolving emergency planning concerns. Cuyahoga County is now on routine distribution of documents exchanged between NRC and AMS. I can assure you that the license for the AMS facility will not be renewed unless an emergency plan meeting the current criteria of 10 CFR 30.32(i) is in place. Implementation of the plan will continue to be reviewed during NRC inspections of the AMS operations.

Please do not hesitate to contact me with any further questions.

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: Letter and Notice of
Violation dtd 11/29/94

See Attached Distribution

Distribution

cc w/enclosure:
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

November 29, 1994

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

Dear Mr. Cesar:

This refers to the routine safety inspection conducted by Mr. Wayne Slawinski of the NRC Region III office and Mr. Robert Shewmaker of our headquarters office on October 11-12, 1994, to review certain aspects of your NRC licensed activities authorized by NRC Byproduct Material License No. 34-19089-01. This also refers to the discussion of our findings with Robert Meschter at the conclusion of the site inspection on October 12, 1994 and to the telecon with you on October 21, 1994.

The inspection was limited in scope and included a review of: (1) the implementation of your Radiological Emergency Contingency Plan; (2) information relative to assessing the Waste Holdup Tank (WHUT) room's structural integrity; and (3) recent facility water usage practices. The inspectors also met with Cleveland Fire Department representatives at your facility to discuss their readiness to respond to an event at your facility.

The enclosed copy of our inspection report identifies areas examined during the inspection. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations, and interviews with personnel. Our assessment of the WHUT room's structural integrity is continuing. Assessment results will be provided under separate cover upon completion of our review.

During this inspection, certain of your activities were found to be in violation of NRC requirements, as specified in the enclosed Notice. In addition to the violations, we also identified the following other concerns during the inspection.

(1) The only available emergency contact person listed in your Radiological Contingency Plan who provides backup to the RSO is not sufficiently familiar with the plan.

(2) The Director of Regulatory Affairs has key responsibilities in the implementation of the Radiological Contingency Plan, including being listed as a backup emergency contact; however, this individual has been on leave for more than one year and no other individual has fulfilled the director's role under this plan.

(3) Your staff has not interfaced sufficiently with the Cleveland Fire Department and other response organizations, to ensure they have an adequate understanding of your Radiological Contingency Plan and the facility.

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(4) While routine radiation and contamination surveys are conducted in the vicinity of the WHUT room area, the specific WHUT room surveillances and radiation surveys described in your February 8, 1988 letter to the NRC have not been conducted.

In addition to your response to the violations, please also respond to the four concerns noted above, indicating your corrective action and actions to prevent recurrence. Of particular concern is the status of your readiness to respond to an emergency. While we believe that your RSO is competent to respond to and support emergency response activities, the available backup for the RSO listed in your contingency plan is not fully cognizant of the plan. It appears that your management oversight of this important aspect of your program has been ineffective. This area requires your prompt attention to ensure you have: (1) a properly trained staff in emergency response positions; (2) appropriate equipment and supplies available; (3) effective audits and exercises to assess emergency response readiness; and (4) a productive relationship with offsite emergency response organizations. Please ensure your response addresses these areas.

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

The response directed by this letter and the accompanying Notice are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

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

Sincerely,

John A. Grobe, Chief
Nuclear Materials Inspection Section 2

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

Enclosures: 1. Notice of Violation
2. Inspection Report No. 030-16055/94004

NOTICE OF VIOLATION

Advanced Medical Systems, Inc.
Cleveland, Ohio

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

During an NRC inspection conducted on October 11-12, 1994, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1994), the violations are listed below:

License Condition 18 requires that the licensee maintain and execute the response measures of their Emergency Plan dated October 25, 1991 and revised January 1992, May 27, 1992 and April 26, 1993.

A. Item 7.3 of the "Onsite Radiological Contingency Plan For the Cleveland, Ohio Facility," revised May 27, 1992 and April 26, 1993, requires that the licensee conduct a full scale biennial exercise with offsite emergency response personnel.

Contrary to the above, from inception of this requirement in July 1992 to the date of this inspection on October 12, 1994, no full scale exercise involving offsite emergency response personnel has been conducted.

This is a Severity Level IV violation (Supplement VI).

B. Item 7.5 of the "Onsite Radiological Contingency Plan For The Cleveland, Ohio Facility," revised May 27, 1992 and April 26, 1993, requires that the licensee conduct an annual audit to review the emergency response program, emergency plan procedures, training, equipment and supplies.

Contrary to the above, from inception of this requirement in July 1992 to the date of this inspection on October 12, 1994, no licensee audits of the emergency response program, emergency plan procedures or training has been performed.

This is a Severity Level IV violation (Supplement VI).

C. Items 6.3 and 6.4 of the "Onsite Radiological Contingency Plan For The Cleveland, Ohio Facility," revised May 27, 1992 and April 26, 1993, list the emergency response equipment and supplies located in the fire pumphouse. Item 7.6 requires that fire pumphouse emergency equipment and supplies be inventoried and checked quarterly, and that inoperable or missing equipment be repaired/replaced as soon as possible.

Contrary to the above, on October 12, 1994, certain emergency response supplies required to be located in the fire pumphouse were not available. Specifically, supplies absent included building keys, a current listing of emergency response personnel and corresponding telephone numbers, and $3.00 in quarters for pay phone usage.

This is a Severity Level IV violation (Supplement VI).

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Pursuant to the provisions of 10 CFR 2.201, Advanced Medical Systems, Inc. is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, Region III, 801 Warrenville Road, Lisle, Illinois, 60532-4351, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. If an adequate reply is not received within the time specified in this Notice, an order or a demand for information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

Dated at Lisle, Illinois
this 29th day of November 1994

UNITED STATES NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 030-16055/94004(DRSS)

License No. 34-19089-01 Priority I Category B

Docket No. 030-16055

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

Inspection At: Advanced Medical Systems, Inc. (AMS)
1020 London Road
Cleveland, OH 44110

Site Inspection Conducted: October 11-12, 1994

Inspectors: Wayne Slawinski 11/23/94
Wayne Slawinski, Senior Date
Radiation Specialist, Region III

Robert Shewmaker 11/29/94
Robert Shewmaker, Senior Structural Date
Engineer, Office of Nuclear Material Safety
and Safeguards

Reviewed By: John Madera 11/23/94
John Madera, Chief Date
Materials Licensing Section,
Region III

Approved By: John A. Grobe 11/29/94
John A. Grobe, Chief Date
Nuclear Materials Inspection Section 2
Region III

Inspection Summary

Inspection on October 11-12, 1994 (Report No. 030-16055/94004(DRSS))
Areas Inspected: Routine, announced inspection to evaluate certain limited aspects of the licensee's NRC-licensed program including a review of: (1) the implementation of the facility Radiological Contingency Plan; (2) information relative to assessing the WHUT room's structural integrity; and (3) recent facility water usage practices. One of the inspectors also met with representatives from the Cleveland Fire Department at the London Road facility to discuss its radiological hazards and the licensee's Radiological Contingency Plan.

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Results: Three violations of Radiological Contingency Plan (RCP) requirements were identified as described in section 4(b). In addition, several RCP related concerns were noted including licensee personnel familiarity with the plan and a lack of management oversight in the plan's implementation. Similarly, the licensee has not adequately interfaced with local emergency response officials to ensure they are fully cognizant of the facility's hazards and its RCP. The inspection also disclosed that a WHUT room surveillance and radiation survey program has not been implemented in accordance with licensee commitments.

DETAILS

1. Persons Contacted

Licensee Representatives

+David Cesar, Treasurer, AMS
*Robert Meschter, Radiation Safety Officer, AMS
Vincent Rocco, Technician, AMS
++Seymour Stein, Ph.D., President, AMS
++Edward Svigel, Engineering Manager, AMS

William Muniak, Attorney, Arter & Hadden

Cleveland Fire Department Representatives

Reginald Keith, Lieutenant, Pre-Plan Office
William Little, Captain, Pre-Plan Office
Thomas Root, Captain & Fire Marshal

The inspectors also met with other members of the Cleveland Fire Department during a meeting with Captain Root at the AMS facility on October 12, 1994.

*Denotes presence at site exit meeting on October 12, 1994.
+Denotes participation in the exit meeting teleconference on October 21, 1994.
++Denotes telephone contacts only.

2. Purpose and Scope of Inspection

This was a limited scope safety inspection conducted primarily to gather information and visually examine accessible areas of the London Road facility relative to assessing the Waste Holdup Tank (WHUT) room's structural integrity. Also reviewed, in part, was the implementation of the licensee's RCP for the London Road facility, including discussions with the Cleveland Fire Department regarding the licensee's plan and related matters. Additionally, the inspectors reviewed the London Road facility's recent water usage and sanitary sewer discharge practices.

3. WHUT Room Structural Assessment

As noted above, the primary purpose of this inspection was to assess the structural integrity of the London Road facility's WHUT room. The WHUT room is a poured concrete structure located in the basement of the facility beneath the hot cell, housing two liquid radwaste holdup tanks. The holdup tanks contain unknown quantities of cobalt-60 contaminated liquids and/or sediment. The WHUT room was isolated by the licensee

beginning in 1988 in lieu of its decontamination, as described in the licensee's letter to the NRC dated February 8, 1988. The room's temporary isolation was approved by the NRC in a letter dated October 20, 1988.

To assess the structural integrity of the WHUT room, the inspectors reviewed information relative to the room's design and construction, and visually examined accessible exterior portions of the room and adjacent structures. Original facility blueprints and construction photographs taken in approximately 1960 were also reviewed. Personnel entry into the WHUT room is currently prohibited due to the room's existing radiological condition.

The NRC's assessment of the WHUT room's integrity is continuing. The licensee will be provided the results of the assessment when they become available.

Licensee letter dated February 8, 1988 describes the remedial actions for the WHUT room, including a description of the isolation methods proposed for the room and plans for monitoring the area after its isolation. Section H of the attachment to the February 8, 1988 letter, entitled "Maintenance of the Isolated State," describes a monitoring and surveillance program to ensure the room remains properly isolated. The monitoring program is to include weekly radiological surveys of the accessible exterior surfaces of the room. Specifically, the monitoring program is to consist of radiation level measurements and smears taken in reproducible locations on the exterior walls, and smears of all accessible penetration blocks. Section H further states that procedures addressing the room, its status and other specified information will be included in facility ISP procedures.

The inspection disclosed, however, that the commitments in Section H of the attachment to the February 8, 1988 letter have not been met. For example, as of October 12, 1994, ISP procedures do not address methods for verifying the integrity of WHUT room isolation. In addition, a radiation level measurement and contamination smear survey program has not been implemented for the exterior walls of the WHUT room. Although no deliberate changes to the WHUT room and its contents have been made since the rooms isolation in 1988/89, a monitoring and surveillance program is necessary to ensure its continued proper isolation.

Subsequent to the inspection, the licensee performed radiation measurements on exterior portions of the WHUT room's walls. No evidence of WHUT room integrity problems were identified.

No violation of regulatory requirements was identified; however, one concern was noted.

4. Radiological Contingency Plan (RCP)

a. Background Information

In 1991, the licensee developed a RCP for its London Road Cleveland, Ohio facility, pursuant to 10 CFR 30.32(i). A RCP dated October 5, 1991, was submitted by the licensee for NRC review, reportedly after incorporating comments/suggestions from the Cleveland Fire Department, Police Department and Emergency Medical Services Agency. The RCP outlines licensee and certain offsite response organization responsibilities and describes its emergency plan for responding to fire, explosion or other events that could result in a release of radioactive material.

The RCP developed by the licensee was reviewed and approved by the NRC and incorporated into License No. 34-19089-01 via Amendment No. 25, dated July 30, 1992. License Condition No. 18 currently requires that the licensee maintain and execute the response measures of their Emergency Plan dated October 25, 1991 and revised January 1992, May 27, 1992 and April 26, 1993.

b. Plan Implementation

Portions of the RCPs implementation were evaluated during this inspection. Additionally, the plan and the London Road facility's radiological hazards were discussed with Cleveland Fire Department representatives during a meeting at the facility on October 12, 1994.

The inspection showed that the RCP has not been implemented as required. The inspection also disclosed licensee management involvement and oversight of the plan's implementation to be weak, particularly within the last year since the licensee's Regulatory Affairs Director has been on leave. Problems have been compounded by continued turnover in radiation safety officer staff. The inspection identified several RCP implementation violations and related concerns, as described below.

Item 7.3 of the "Onsite Radiological Contingency Plan For The Cleveland, Ohio Facility," revised May 27, 1992 and April 26, 1993, requires that the licensee conduct a full scale biennial exercise with offsite emergency response personnel. As described above, the RCP was incorporated into License No. 34-19089-01 on July 30, 1992.

As of October 12, 1994, no full scale exercise involving offsite emergency response personnel has been conducted by the licensee. Failure to conduct a full scale exercise is a violation of License Condition 18 which references the RCP.

In a letter to the NRC dated September 22, 1993, the licensee informed the Commission of its intent to conduct the required exercise in December 1993. However, according to licensee representatives, the exercise was not conducted.

Item 7.5 of the RCP requires that the licensee conduct an annual audit to review the emergency response program, and emergency plan procedures, training, equipment and supplies.

As of October 12, 1994, no licensee audits of the emergency response program, emergency plan procedures or training have been conducted.

Items 6.3 and 6.4 of the RCP list the licensee's emergency response equipment and supplies located in the fire pumphouse located approximately 300 feet west of the London Road facility. Item 7.6 of the RCP requires that fire pumphouse emergency equipment and supplies be inventoried and checked quarterly, and that inoperable or missing equipment be repaired/replaced as soon as possible.

During the inspection on October 12, 1994, certain emergency response supplies required to be located in the fire pumphouse were not available. Specifically, supplies absent included London Road facility building keys, a current listing of emergency response personnel and corresponding telephone numbers, and $3.00 in quarters.

In addition to the violations described above, other concerns related to RCP implementation were identified. These concerns are described below.

(1) Appendix A of the RCP includes a list of licensee "Emergency Contact Personnel." The list was revised in September 1994 and includes the name of the RSO, Engineering Manager and Director of Regulatory Affairs. Inspector conversation with the Engineering Manager revealed only a cursory familiarity with the RCP. Also, the revised emergency contact list failed to include the correct telephone number for the NRC Operations Center and Region III office.

(2) The Regulatory Affairs Director has several responsibilities in the RCPs implementation. However, the director has been on leave for over one year and no other individual(s) has fulfilled the director's RCP responsibilities.

(3) An October 12, 1994 meeting with Cleveland Fire Department representatives revealed that the licensee has not interfaced sufficiently with fire department personnel, to develop a thorough familiarity with the RCP and the licensee's facility. Subsequent to the inspection, the NRC learned that the fire department has classified the AMS facility as an Extremely Hazardous Substances (EHS) facility. According to the Cleveland Fire Department, EHS facilities warrant an emergency pre-plan, detailing fire department procedures and planned actions for responding to facility emergencies.

As of November 18, 1994, the fire department's first response units have toured the facility and been instructed by the licensee in its radiological hazards. The department's hazardous materials unit plans to tour the facility in the near future. The fire department anticipates development of its emergency pre-plan by the end of 1994.

Three violations of regulatory requirements and several concerns were identified.

5. Water Usage and Disposal Practices

The inspectors reviewed City of Cleveland water billing records for the London Road facility and discussed recent water usage practices with the licensee.

According to the current AMS facility RSO, no liquid radwaste has been discharged into the sanitary sewer system since his employment initiated in July 1994. The RSO further stated that no liquid radwaste has been generated, other than on August 22, 1994, when an employee showered to remove a small quantity of facial contamination. The facial contamination occurred during the decontamination of lead blankets in the isotope shop. Approximately 2-3 gallons of water was reportedly used by the employee while showering in one of the facility's designated decontamination showers. The decontamination showers drain to a 200-gallon plastic tank located in the front basement of the facility. The liquid generated during the shower remained in the tank and has since evaporated.

The licensee receives water billing and consumption information on a quarterly basis. Quarterly records for the London Road facility were reviewed by the inspectors for the period July 1992 through June 1994. The records show, with one exception, quarterly water usage to range from about 45,000 ft^3 during the fourth quarter of 1992 to 83,000 ft^3

for the first quarter of 1994. This equates to a volume range of 3740 to 6900 gallons per day. The exception occurred during the second quarter of 1993, when only 6000 ft^3 (500 gallons/day) was used. Billing records show total water usage for the 12-month period July 1993 through June 1994, to be nearly twice that used during a corresponding period in 1992-1993. The licensee attributes the increased usage in mid-1993 to mid-1994 to escalating plumbing problems in the facility. The reason for the relatively small volume of water used during the second quarter of 1993 is unknown.

According to the licensee, facility water usage is primarily limited to general use of toilets, sinks and urinals for sanitary and consumption purposes. Since the facility is normally occupied by only two or three individuals for a single shift, typical daily water usage is expected to be only about 100-200 gallons. As noted above, the licensee's water usage over the last two years has been significantly greater than expected. According to the licensee, plumbing problems have plagued the facility for several years and have been allowed to continue unrepaired. According to the licensee, the plumbing problems were continuous, however, their severity could fluctuate day-to-day. The problems have worsened over the last 6-10 months. NRC inspectors have been aware of some of these plumbing problems for over one year, including a continually flushing toilet and leaking urinal flush mechanism in the men's lavatory.

During an NRC inspector London Road facility site visit on July 7, 1994, the inspector observed unexpectedly large quantities of water discharging into the sewer system, when viewed from the manhole area just outside the facility. The July 1994 discharges were, at the time, attributed by the licensee to the aforementioned plumbing problems. This explanation was plausible since a stuck flush mechanism on the men's toilet was known to be a continuing problem.

A standard toilet continuously flushing at about 50% of its normal capacity can use roughly three gallons of water per minute or 4300 gallons per day. Therefore, the London Road facility's unusually large water usage since 1992 appears to correlate with the plumbing problems.

On or about September 29, 1994 and continuing the week of October 3, 1994, a contractor repaired the plumbing problems known to exist at the facility. The work included installation of two new urinals to existing flush valves, and repair of a toilet flush valve. As a result of the repairs, facility water usage beginning the fourth quarter of 1994 should be significantly reduced. During the inspection on October 12, 1994, the inspectors removed the manhole cover where discharges to the sanitary sewer system exit the London Road facility, and verified that discharges had ceased. The inspectors also observed the new plumbing fixtures and plumbing contractors billing record.

No violations of regulatory requirements were identified.

6. Exit Meeting

The inspectors met with the licensee's RSO at the conclusion of the site inspection on October 12, 1994, and summarized the scope and findings of the inspection. On October 21, 1994, a teleconference was conducted between Mr. Roy Caniano and other NRC Region III staff and Mr. David Cesar of AMS. The inspection findings, NRCs planned enforcement action and the licensees corrective action options were discussed during the teleconference.

The licensee did not indicate that any of the information reviewed during the inspection was considered proprietary.