

To: Bob Fanner
Marian Zabler
on 9/28 (10:00a.m.)

BGC/Enforcement comments
9/28/95

From: Cynthia G. Jones, NMSS Under 20.2003, requirements
To: WNP2(RLF) R Fanner, BGC for release appear to be
Date: 9/27/95 4:47pm satisfied (solubility, concentration
Subject: AMS TAR and total quantity of radioactive
material). On that basis, the
release appears to be acceptable.

Bob-

RILL has sent us an "urgent" request for tech assistance on the potential disposal of the slightly contaminated (with Co-60) water to Geneva sewer treatment facility. Both the NRC and AMS tested for solubility per IN 94-07, and by that definition (less than 0.45 micron particles), the Region believes that the discharge is soluble.

If we can agree, for the moment that the water is soluble, the question is, are there any NRC regulations that would prohibit this discharge? If not, would AMS be required to obtain permission from NRC before discharging (See attached). The total quantity of Co-60 in the 2500 gals is much less than the exempt concentration listed in 10 CFR 30.70.

Although I have some questions for RILL about their sampling technique & the number of samples that should have been taken, can you help us out with the legal side of the question?

Pls call or e-mail if you have any Qs.

Thanks, Cyndi

CC: GCP, JXD1, WNP2(MHS)

Files: P:ITAR

More comments
on next page

The NRC has consistently stated that its definition of soluble/insoluble and acceptable methods of determining same is set forth in the 10 CFR. The regulations (Part 20) do not define soluble/insoluble. It would be open to a member of the public to challenge the NRC's (and AMS's) determination of solubility and NRC would have to be prepared to defend its position. If Geneva Ohio is prepared to accept the water, then that challenge would have to come from some member of the public who asserts that he is an affected person. All Although nothing in 20.2003 states that the NRC's permission is required on the facts, it seems that all the affected parties would expect the NRC to state its position as to the proposed release.

Given the NRC's ongoing substantial involvement in this matter, it seems advisable to assure that AMS has notified us on the docket of the proposed release, so that we can appropriately respond.

REGIONAL TECHNICAL ASSISTANCE REQUEST FORM

Date: 9/26/95

Mail or E-Mail to: Don Cool (DAC), Mail Stop: 6H3-OWFN, If E-mail,
cc: CLE

From: J. Caldwell (JLC1) (Name and E-mail initials) Region III
Deputy Division Director, DRSS

Licensee: AMS License No.: 34-19089-01

Problem/Issue:

Background: Advanced Medical Systems (AMS), located in Cleveland, OH, is currently storing 100,000 gallons of slightly contaminated, processed water in its facility. The water contains 40 uCi of Co-60, thus the average Co-60 concentration is 106 pCi/l . As discussed below, filtration tests show that the Co-60 is soluble. In the very near future, AMS may receive permission from Geneva, OH to discharge its 100,000 gallons of water into Geneva's waste treatment plant.

Questions: Are there any NRC regulations which would prohibit this action? If not, is AMS required to obtain permission from NRC before discharging this water into Geneva's waste treatment plant? Also, are the methods used to determine solubility (described below) acceptable?

Discussion: For the following reasons, Region III is of the opinion that AMS may discharge its water into Geneva's waste treatment plant, and that prior NRC approval is not necessary. We also believe that the methods used to determine solubility are acceptable.

pertains to exemption from a requirement for a license. But AMS already holds a license and question is whether the discharge may be permitted.

The exempt concentration limit for Co-60 in liquid is $5\text{E-}4 \text{ uCi/ml} = 500,000 \text{ pCi/l}$ (10 CFR 30.70 Schedule A), which is orders of magnitude greater than the average concentration of Co-60 in AMS' water.

2) 10 CFR 20.2003 allows disposal of licensed material into a sanitary sewerage system if the material is soluble and if the levels in table 3, appendix B are not exceeded. (There are more requirements, but they don't apply here.)

Monthly average Table 3 $3 \times 10^{-5} \text{ uCi/l}$

1. Solubility: AMS water samples have proved to be soluble.

At AMS, the processed water was first pumped into a 2500 gallon sample tank. Here, the water was recirculated for three hours, and then two 500 ml samples were taken - one for AMS, one for NRC.

AMS' sample was counted on a gamma spec system at one of two offsite labs. The MDA at each lab was 20 pCi/l. If no Co-60 was detected, then the water in the 2500 gallon sample tank could be pumped to one of four 25,000 gallon storage bladders. If Co-60 was detected at a level at or below 200 pCi/l (on June 9, this was changed by NRC to 1000 pCi/l), then a solubility test was performed. The method used was the American Public Health Association's "Gross Alpha and Gross Beta Radioactivity (Total, Suspended, and Dissolved)," which is listed in IN 94-07 as one of the two acceptable methods which may be used for the radioanalysis of suspended solids in water. If no Co-60 was detected on the filter, then the Co-60 was considered soluble and the water in the sample tank could be pumped to a storage bladder. On the other hand, if any Co-60 was detected on the filter, then the Co-60 was considered insoluble. If the Co-60 concentration exceeded 200 pCi/l (after June 9, 1000 pCi/l), AMS would be notified and the water in the sample tank would be reprocessed. All AMS samples tested have proved to be soluble.

Does this
apply even
if the
Cobalt deter-
mined soluble?

NRC's sample was counted on a gamma spec system in the RIII mobile lab, or in the RIII lab. The MDA at each lab varied between approximately 20 and 60 pCi/l. If Co-60 was detected above the MDA, then a solubility test was performed. The method used was ASTM D-1888-78, "Standard Test Methods for Particulate and Dissolved Matter, Solids, or Residue in Water," which is listed in IN 94-07 as one of the two acceptable methods which may be used for the radioanalysis of suspended solids in water. If no Co-60 was detected on the filter, then the Co-60 was considered soluble. On the other hand, if any Co-60 was detected on the filter, then the Co-60 was considered insoluble.

All NRC samples tested have proved to be soluble. *

2. Table 3, Appendix B: The monthly sewer concentration limit is $3\text{E-}5$ uCi/ml or 30,000 pCi/l, which is orders of magnitude greater than the average concentration of Co-60 in AMS' water.

Date Needed: No later than Sept. 29, 1995. Negotiations between AMS and the City of Geneva are ongoing, so we need the response ASAP. }

Headquarter Reviewer: _____

Regional Reviewer: _____

Reviewer Code: _____

Reviewer Phone No.: () _____ **FAX No.:** () _____

Request Needed by: 9/29/95 (date)