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Floral Park, NY 11002*

January 7, 1997

Charles W. Hehl, Director
Division of Nuclear Materials Safety
U.S. Nuclear Regulatory Commission
Region I
475 Allendale Road
King of Prussia, PA 19406-1415

Re: Docket No. 030-31085
License No. 31-28369-01

Inspection Report No. 030-31085/96-001

Dear Mr. Hehl:

With reference to my original communication of 15 October 1996 to Mr. Hugh L. Thompson, Jr. of the NRC's Washington, DC office, please note the following:

1. Upon consideration, I do not wish to voluntarily terminate my license and I hereby request that the NRC reinstate the operational status of my license upon the completion of your inquiry.
2. As previously stated, I truly believed that I submitted a license amendment request to the NRC to allow use of RAM at White Birch Farms. Upon reinstatement of my license, I will submit the required license amendment request to the NRC to allow use of RAM at White Birch Farms. Licensed materials will not be used at this location until an approved amendment is received from the NRC.
3. I have retained the services of Radiation Protection Services, Inc. of Cheshire, CT to assist me in the reply to your letter of 10 December 1996 and to provide operational review of my radiation safety practices after my license is reinstated. The experts who are assisting me are:

Michael L. Caprio, Jr., M.S., CHP, DABR: Mr. Caprio has 19-years experience in health physics and is certified by the American Board of Health Physics in Comprehensive Physics and by the American Board of Radiology in Diagnostic Radiological Physics.

Stuart R. Korchin, P.E., DABR: Mr. Korchin has 8-years experience and is a licensed professional engineer in the States of Connecticut and New Jersey. He is also certified by the American Board of Radiology in both Diagnostic Radiological Physics and Medical Nuclear Physics.

With reference to your letter of 10 December 1996, please note the following:

Violation #1: Failure to provide monitoring devices to persons who assist in the use of licensed material as stated in Condition 15 of License No 31-28369-01.

Accept this violation. In the future, I will insist that trainers and caretakers wear film badges provided to them and I will not proceed with the treatment unless the trainers and caretakers agree to wear the film badges provided to them. As observed during the 5 September 1996 inspection, I will continue to list in a log book the individual's name, the badge number issued, the individual's social security number (or other ID number) and the date that the badge was issued.

Violation #2: Failure to use licensed materials only at the Meadowlands Race Track, East Rutherford, NJ or Showplace Farm and Gaitway Farm, Route #33, Millstone

**RETURN ORIGINAL TO
REGION I**

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Township, NJ as stated in Condition 10 of License No 31-28369-01.

Accept this violation; however, as previously stated, I truly believed that I submitted a license amendment request to the NRC to allow use of RAM at White Birch Farms. Upon reinstatement of my license, I will submit a license amendment request to the NRC to allow the use of RAM at White Birch Farms. Licensed materials will not be used at this location until an approved amendment is received from the NRC.

Violation #3: Failure to secure from unauthorized removal or access licensed material (10 CFR 20.1801) - Section 9 - Page 8 of the inspection report and failure to secure or maintain constant surveillance of licensed material in an unrestricted area (10 CFR 20.1802) - Section 9 - Page 8 of the inspection report.

I disagree with this violation for the following reasons:

- (a) the inspection occurred in the early afternoon.
- (b) there were a minimal number of workers present in the area since the major portion of animal care is done in the morning hours.
- (c) I clearly informed the inspectors of the presence of licensed materials in the rear of my Pathfinder. Leaving the inspectors at the Pathfinder to review conditions inside of the stable, I assumed that the inspectors, as agents of the Federal Government, were providing the required surveillance of licensed materials. These inspectors would not allow unauthorized persons to enter the back of my Pathfinder. Thus surveillance was maintained.

Violation #4 & 5: Failure to conduct operations so that the dose in any unrestricted area from external sources does not exceed 2 millirem in any one hour (10 CFR 20.1301 (a)(2) - Section 9 - Page 10 of the inspection report.

I disagree with this violation for the following reasons:

- (a) the readings obtained by the NRC inspector's with the Eberline RO-2 ionization chamber (SN: 3249) are unrealistic. In fact, it is my contention based upon calculations by my consultants that the NRC ionization chamber is exhibiting **greater than 5-fold overresponse** in the survey of Gold-198 radiations.
- (b) according to the inspection report, I established safe boundaries during the treatment of Guildmaster and Forecast. A rope was placed at a point 12-feet from Guildmaster and 15-feet from Forecast. These barriers demark the boundary between the "safe zone" and the treatment area. The NRC reported a dose rate of 4 millirem per hour at each of these locations. By the laws of physics, the values reported show a **greater than 5-fold meter overresponse**.
- (c) By the NRC's account, 8 Gold-198 seeds were used in the treatment of Guildmaster each having an average activity of 6 millicuries and 12 Gold-198 seeds were used in the treatment of Forecast each having an average activity of 6 millicuries.

Factors used in my calculations:

Guildmaster boundary of 12-feet = 366 centimeters
Forecast boundary of 15-feet = 457 centimeters
Gold-198 gamma factor = 2.3 R/hour-mCi at 1 square centimeter
Roentgen to Rad conversion factor for Au-198 = 0.957 (tissue)
Gamma quality factor = 1, therefore, 1 Rad = 1 Rem

NRC's dose rate formula from Attachment #3 - Page 3 of the inspection report:

$$I = A * t * \text{gamma factor} / d\text{-squared}$$

For the Guildmaster treatment => A = 48 mCi

Therefore, $I = (48) * (2.3) * (0.957) / (366) * (366)$
 $I = 0.00079 \text{ Rem/hr} = 0.79 \text{ millirem/hr}$

For the Forecast treatment => A = 72 mCi

Therefore, $I = (72) * (2.3) * (0.957) / (457) * (457)$
 $I = 0.00076 \text{ Rem/hr} = 0.76 \text{ millirem/hr}$

These calculations, based upon the formulae of physics, show that the readings obtained by the NRC inspectors could not be valid. In fact, my consultant used the above formula to "back calculate" the required activity implanted to produce exposures based upon the NRC's reported readings and found that in the treatment of Guildmaster, an activity of 243 mCi would have had to be present for a measured dose rate of 4 mRem per hour at a distance of 12-feet and that in the treatment of Forecast, an activity of 379 mCi would have had to be present for a measured dose rate of 4 mRem per hour at a distance of 15-feet.

Therefore, the NRC's measurements are in error due to an **overresponse** of the Eberline RO-2 (SN: 3249) ionization chamber. I, hereby, request that this violation be removed.

Failure to make or cause to be made surveys under Part 20 to evaluate the extent of radiation levels, and the potential for radiological hazards that could be present (10 CFR 20.1501) - Section 9 - Page 10 of the inspection report.

I disagree with this violation for the following reasons:

- (a) Nothing in 10 CFR 20.1501 states that the licensee must be the individual who performs the required safety surveys.
- (b) A complete reading of 10 CFR 20.1501 states that "... each licensee shall make or **cause** to be made, surveys that ...".
- (c) At the time of the inspection, two (2) NRC inspectors were present. These inspectors made a complete survey of the treatment area and the safe boundary line. Therefore, the spirit of 10 CFR 20.1501 was upheld in that I caused a survey to be made by the actions of the NRC inspectors. Their survey fulfilled that requirements of 10 CFR 20.1501.

For the above reasons, I, hereby, request that the above stated violation be removed.

VIOLATION #6 & 7: Failure to transport the licensed materials without complying with the applicable regulations of the DOT (10 CFR 71.5) and failure to use a Type A package during the transports of licensed materials (49 CFR 173.415 - 172.403 - 173.448(a)).

I accept this violation. After my license is reinstated, I will only transport licensed materials in Type A containers (ie: the original shipper's container) and the licensed materials will be secured to insure that these materials cannot change position during conditions normally encountered during transportation.

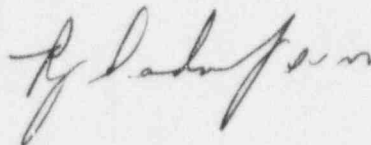
VIOLATION #8: Failure to limit the annual dose to the extremity and to the whole body to below the limits of 10 CFR 20.1201(a)(2)(ii) and to limit occupational dose to individual adults pursuant to 10 CFR 20.1201(a)(1)(i).

The assumptions and calculations made by the NRC in the evaluation of my extremity dose and whole body dose are currently under review by my consultants. Their initial opinion is that the doses calculated by the NRC are **overestimates** of the true dose. They inform me that they will need additional time to determine the validity of the NRC's assumptions and to recalculate my extremity and whole body dose. I will forward

their report to your offices no later than 10 February 1997.

After receipt of the dosimetry report from Radiation Protection Services, Inc., if I provide any additional information on this matter, please do not hesitate to contact me.

Sincerely,

A handwritten signature in dark ink, appearing to read "Roy Sadovsky", written in a cursive style.

Roy Sadovsky