PERMAGRAIN PRODUCTS, INC.

February 28, 1994

USNRC
Attn: Document Control Desk
Wash. DC 20555

Copy:

USNRC
Region I
475 Allendale Rd.
King of Prussia, PA 19406

Director
Office of Nuclear Regulatory Research
USNRC
Washington, DC 20555

Copy: Dr. A.E. Witt (Omit Termination Reports)

REF: Reply to a Notice of Violation

Docket Nos. 030-13573
030-29288

License Nos. 37-17860-01
37-17860-02

Dear Sir: 160010

Please accept this "Reply to a notice of Violation" also as an application for exemption from the requirements of 10 CFR 36.63 as permitted in 36.17.

The inspection conducted on 11/11 & 12/1993 resulted in a Notice of Violation cited as two items, A and B.

Item A notes failure to maintain a pool water conductivity level below 20 microsiemens per centimeter as required in 10 CFR 36.63. The reason for the violation is that this is a new requirement and in fact a more correct statement than is in the violation is that we never achieved the required conductivity level. As required by 10 CFR 36.83

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P. O. Box 115, Karthaus, Pa. 16845 (814) 263-4871

a telephone report and written report were submitted to inform the NRC of this fact on the effective date of the new regulation, 7/1/93.

Our underwater irradiator is used in the manufacture of acrylic impregnated flooring products. Small quantities of acrylic monomer and wood dust from our manufacturing operation provide a food source for microorganisms in our irradiator pool water, and together these have given us difficulty in terms of pool water clarity and conductivity for many years. We made every reasonable equipment and procedure change we or our consultants could think of to minimize the amounts of wood dust and acrylic monomer contamination with only modest results. Then in 1989 we found that we could significantly reduce the micro-organism problem by heating the pool to a temperature at which they no longer thrive. Although it is very costly we have maintained a pool temperature between 90 - 105°F ever since. Once this biological problem was constrained, we added activated charcoal filtering columns to remove the microorganisms and contaminants more effectively. We then re-engineered the piping of the system to pump the water first through the charcoal filters, then through the ion exchange resin columns in series configuration so as to best utilize the filtration and minimize organic fouling of the resin. Our pool water clarity is now excellent and the ion exchange resin columns are functioning well.

The corrective steps taken and results achieved to date are summarized in the Pool Filtering System Summary (attachment I) in terms of activated charcoal and ion exchange resin changes to date, as well as cost, chloride concentration, and conductivity. In the last four ion exchange resin changes we have chosen a mixed bed resin with a strong chloride ion affinity to quickly reduce the chloride ion concentration. Our reasoning is as described in IV Summary of the Requirements and the Resolution of Comments on the Requirements, that chloride ion is a more aggressive c.ntributor to the corrosive potential of the high conductivity condition of the pool water. And we believe from analysis of incoming water and examination of the process for the addition of contaminants to the water, that the chloride level will be relatively controllable once reduced. Our intention is to continue focusing on chloride ion reduction until we reach 3 PPM or less, and then return to a more balanced resin mix for further reduction of conductivity.

We ask for an exemption from the requirements of 10 CFR 36.63 in two respects, both the sustained conductivity level required and the date expected. From the previous very brief description of our situation I believe you can recognize that our comments to the regulation as proposed are already on record. We believe that even with the substantial investments we have already made that we may not be able to

maintain the standard of 20 microsiemens per centimeter in our operation. As we are a small business with very finite resources we requested a copy of the Regulatory Analysis but the response indicated an analysis was not considered necessary. We have invested well in excess of the $5,000 incremental cost estimated on this facet of the new regulation alone, with more yet to be done.

We propose that we continue reducing conductivity as we are currently doing until we reach equilibrium. We would then suggest that we take conductivity measurements for a statistically significant period of time to monitor severity and frequency of excursions and their causes. And finally with this data we suggest we enter a dialog with you to discuss the results. If the level of 20 microsiemens per centimeter is indeed not sustainable we can then discuss risks and benefits versus costs of possible alternatives to reach agreement on a mutually acceptable level of conductivity. We would expect both achievement of equilibrium and the probability of excursions to be indicated by the data rather than occur on a timetable but we can report status to you on fixed dates if this is more acceptable to you. As for the request for exemption from the date of achieving compliance to even a negotiated, more liberal limit of conductivity we feel we have made clear progress in a responsible and timely manner and offer a logical course of action to pursue resolution of the problem.

Item B of the Notice of Violation notes our failure to submit termination reports as required in 10 CFR 20.408 (b). We agree that we did not note the requirement to submit these reports originally and have not been in compliance as a result. All termination reports have been completed within the required time frame all along and have been held in our files. Copies of all prior termination reports are attached to this reply, and thir reply with attachments is being sent to the Director, Office of Nuclear Regulatory Research. All termination reports produced in the future will be sent to you as required.

We have also asked for a forum in which to present our approach to the satisfaction of 10 CFR 36.23 (i), the personnel access barrier. To the extent that an application for exemption from the regulation is one possible forum we are using this as a vehicle but we believe what is described in fact meets the regulatory requirement. Our underwater irradiator is surrounded by a concrete wall 38 1/2" high and nominally 12" thick at the top. Access to the area over the pool is controlled by two stairways with 36" high side rails and a locked gate at the top of the stairs. Our contention is that the pool walls constitute an acceptable personnel access barrier for the purposes of the regulation.

If this seems less of a barrier than ideally possible there are associated facts to consider. We would prefer not to raise the pool wall as our operators must reach over it to do their jobs. And the purpose of the barrier is not

supposed to be to prevent deliberate entry but rather "to prevent a reasonably prudent person from carelessly, inattentively, or accidently entering". And unlike the personnel access barriers associated with radiation rooms as in 10 CFR 20.203 (6)(7) from which this section was derived, there is a lot of water shielding and superstructure between the sources and any personnel at any time. The intrusion alarm is activated by photoelectric sensors across the access at the top of the stairways leading to the area over the pool and the local annunciator is sufficient to summon trained personnel on site 24 hours per day. If the gate is unlocked by authorized personnel the alarm is silenced.

In response to the cover letter accompanying the Notice of Violation, the personnel access barrier as described above with lockable, spring-loaded gates and controlled keys was fully implemented on 11/19/93 as discussed by telephone. We await your review and comments.

If you have any questions please call.

Sincerely yours,

L.W. Griest
Vice President, Special Services

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ATTACHMENT I

POOL FILTERING SYSTEM SUMMARY

DATE	CHANGE	MATERIAL COST	DATA	
			ppm Cl–	CONDUCTIVITY
8/03/89	ION RESIN	$2,400 *	N/A	575
06/90	CHARCOAL	$2,000	N/A	750
05/92	CHARCOAL	$2,000	N/A	500
2/02/93	ION RESIN	$1,200 *	N/A	440
7/09/93	ION RESIN	$1,140	61	290
8/10/93	ION RESIN**	$1,240	35	247
9/28/93	ION RESIN**	$1,240	28	259
12/2/93	ION RESIN**	$1,240	20	210
2/09/94	ION RESIN**	$1,240	11	176

* Estimate

** Resin purchased to focus on chloride ion removal