

September 12, 1996

Betsy Ullrich
Nuclear Materials Safety Branch 2
Division of Nuclear Safety
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1416

Subject: Response to USNRC Letter dated August 13, 1996 Meeting

Ms. Ullrich:

This memo transmits Interstate Nuclear Services' (INS) response to your request for Royersford waste water analysis data per the subject letter.

Please be confident that INS has performed an exhaustive and time-consuming search for the requested information. The information in this letter is provided as a result of pouring over literally thousands of records retrieved from archives at both the corporate office and the Royersford facility. Additionally, this information has been summarized wherever possible for your convenience.

Every effort has been made to gather the requested information for your review by the imposed deadline of September 13, 1996 and every piece of information available as of the date of this letter is conveyed to you herein.

Information to Complete Table

Table 1, below, is a reproduction of the table provided by the commission in the subject letter. The requested data has been supplied where possible.

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Table 1 - Total Activity Releases - INS Royersford 1986 - 1995

Year	Millicuries Total	Co-60	Cs-137	Sr-90	H-3
1986	242.1	N/A	N/A	N/A	N/A
1987	178.2	N/A	N/A	N/A	N/A
1988	271.3	N/A	N/A	N/A	N/A
1989	174.9	50.86	39.65	0.11	N/A
1990	69.3	17.14	38.51	0.98	34.65
1991	65.6	19.43	15.87	0.18	211 (2)
1992	146.7	10.28	15.56	0.83	141
1993	440.9	19.56	23.05	0.73	342
1994	355.2	15.1	25.6	<MDA (1)	76.63
1995	804.9	4.9	31.0	1.13	592

(1) Less than the Minimum Detectable Activity of 10 pCi per liter.

(2) Correction, replaces existing value of 186 mCi.

The shaded entries in Table 1 are values that were supplied in the subject letter. The N/A designation indicates that the data has not been located or was never generated for the radionuclides in question.

Per note (2) to Table 1, the total tritium activity released in the Royersford waste water in 1991 is 211 mCi, not 186 mCi as previously indicated. The data used to calculate this value is presented in Table 2.

Table 2 - H-3 Releases 1991

Month	Volume	H-3 (μ Ci/ml)	Month	Volume	H-3 (μ Ci/ml)
January	32830	1.12e-5	July	25460	1.46e-5
February	42720	1.12e-5	August	28140	1.46e-5
March	72360	1.12e-5	September	19430	1.46e-5
April	90780	1.46e-5	October	52800	1.33e-5
May	79060	1.46e-5	November	36900	1.33e-5
June	40100	1.46e-5	December	35555	1.33e-5

Trends in Total Activity

Results of the gross alpha and gross beta analysis of every tank released from January 1987 to November 1995 (excluding those tanks released in 1990) were located in order to evaluate trends in total activity discharged from Royersford over that time period. The records from 1990 could not be located. The data from these analyses is useful for trending purposes for several reasons including:

- A great deal of data is available. Each tank released from the plant is analyzed for gross alpha and gross beta activity which creates thousands of measurements on an annual basis.
- The analyses are relatively simple to perform and are done in a consistent manner from one day to the next. Therefore, the amount of error introduced into the measurements is minimal.

To evaluate the trends at Royersford, a random selection of discharge activity records was reviewed. The random sample comprised all discharges that occurred on the 8th of the month over the time period from January 1987 to November 1995 (excluding 1990). If there was no discharge on the 8th of the month, the next closest business day was selected instead. The 8th of the month was arbitrarily selected and is believed to be representative of all the data. The results of this review are depicted in Attachments 1 and 2 for gross alpha and gross beta, respectively.

The gross alpha data (Attachment 1) is of little use because nearly all the data points reside at the alpha detection limits in force at the time of the analysis. The alpha activity for these samples was below the Minimum Detectable Activity. No conclusions can be drawn from this data.

The gross beta data (Attachment 2) appears to have decreased significantly at the end of 1988. Analysis shows that this decrease in gross beta activity of the discharges is approximately one order of magnitude, dropping from $1.22\text{E-}5$ to $3.01\text{E-}6$ $\mu\text{Ci/ml}$. The data decreases slightly from the beginning of 1989 through November 1995 thus indicating a slight reduction in gross beta activity concentration over that time period.

Attachment 3 depicts the total waste water volume discharged at Royersford per year from 1989 through the first quarter of 1996. It also shows the volumes projected to be released in 1997 and 1998. The total volume of water has increased an average of 10.6% per year over this period.

Given the fact that the gross beta activity concentration has decreased slightly from 1989 through 1995, any increase in total activity released would be strictly due to the increase in the volume of water discharged. Current business forecasts indicate that the expected throughput at Royersford for 1997 and 1998 to be approximately the same as for 1994-95. Therefore, the volume of water discharged from Royersford, and therefore the total activity released, is not expected to increase significantly.

Trends in Activity of Co-60, Cs-137, Sr-90, and H-3

Attachment 4 shows the total annual releases of the aforementioned isotopes from 1989 through 1995. The data plotted in the graph is from Table 1, above. Note that the tritium release values have been divided by 10 for the convenience of plotting them on the same graph as the other isotopes.

As can be seen from the plot, the data follows no discernable trend over the time period indicated.

Factors such as customer fuel cycle duration changes and the sizeable error associated with isotopic concentration measurements can contribute to wide swings in the reported data. Moreover, the way in which samples are gathered and analyzed differs from isotope to isotope. Co-60 and Cs-137 are analyzed monthly at INS - Springfield whereas Sr-90 and H-3 are analyzed quarterly by an outside vendor. These isotopes can be very difficult to detect; they are analyzed by using complex, multi step physical and chemical separation processes. Each step in the processes has its own inherent error contribution.

Because of the variability associated with isotopic data, the gross beta data shown in Attachment 2 provides a much more reliable picture of how activity concentration changes.

Filtration Systems

It is concluded from the data in Attachment 2, specifically the decreasing gross beta concentration, that the filtration system in use at Royersford is highly effective in removing radioactive solids from the waste water stream.

Release of Effluent to the Schuylkill River

The following is a summary of INS' past and present efforts to secure the necessary right of way to discharge directly to the Schuylkill river.

Project Status:

We have been dealing with the Borough of Royersford for nearly 11 years regarding the impact of INS on the Borough's sewage and resultant solid waste. The urgency of this project has waned and flared depending on local politics, but mostly due to the level of difficulty raised by the Pottstown, PA landfill that receives the Borough's solid waste, and by the level of interest that is raised by the NRC. The root cause of the dilemma is that there is no generally-agreed acceptable level of radioactive material that can be disposed at a public landfill. Thus, depending on the mood of the landfill administrator, disposal of Borough sludge can be and usually is difficult. This has led the Borough to back up the problem to the source at INS, and they have stated their desire to have INS leave the Borough sanitary sewer system.

Over the years, in our search for possible remedies, INS has investigated an alternative wastewater effluent route by installing a direct discharge line from the plant to the nearby Schuylkill River. To get to the river, a five-rail Conrail track has to be traversed, as well as a length of private property. INS has investigated several possible pathways to the river including: 1) "Sleeving" a 100-year old storm sewer that runs from INS property, across private property to the river; 2) Installing a discharge pipe from INS property across the straightest and shortest path of private property onwards to the river; and, 3) Installing a pipe parallel to the railroad tracks for a good distance whereby it would turn to intersect private property in its eventual path to the river.

After many attempts, the first two paths were judged to be of little promise. 1) The use of the existing storm sewer was disallowed because there was no clear title - INS could not use the line to traverse beneath private property without certain legal challenge. 2) the shortest path option was disqualified as the private property landowner unequivocally refused to consider the thought of a radioactive wastewater pipe traversing his property, regardless of INS' guarantees.

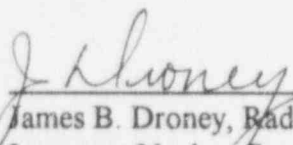
The last option seemed to have hope. In this instance, the private landowner was motivated to improve his newly-acquired property. One of his greatest limitations to development is the lack of access to the Borough sewer system which is on the other side of the railroad tracks (the INS side). After several negotiating sessions, it was orally agreed that in exchange for INS paying for the engineering, legal, permit and construction costs for his sanitary sewer installation, he would allow INS to install a discharge line across the extreme south end of his property. In early 1995, INS and the landowner completed an elementary agreement and signed a letter of intent for the mutually-beneficial project. Design engineering and permit applications for the private sewer line and the INS discharge line commenced shortly thereafter. Work progressed steadily including the receipt of many permits until the landowner's attorney got involved in the final stages of legal review. This initiated several additional rounds of negotiations and in almost all cases INS agreed to the various requests to protect landowner's interests (we had little negotiating leverage). Unfortunately to date, there remains one impossible requirement presented by the landowner's attorney. Under their proposed deal, the private landowner and his successors would have a unilateral right to terminate INS discharges should any discharge parameter ever be exceeded. This "supercop" provision goes well above the normal power of a bona-fide regulatory authority. It presents a situation ripe for blackmail and abuse. For example, the landowner could put INS out of business with out ever having to ensure that constitutional due process rights were granted. In short, it represents an demand that INS cannot accept, and it stands as an irreconcilable impasse.

Because of this uncertainty, INS has strategically held back on the final stages of a few permits, especially the one for Conrail. This is because it names the private landowner as a beneficiary and it would allow him to install his own pipe, using our engineering and legal work should our negotiations fail completely. INS has already incurred the major engineering and permit application costs and must maintain some negotiating leverage.

To help break the impasse, and to levy greater resources at the project, it was turned over to the UniFirst Engineering Department on September 2, 1996. (INS is a wholly-owned subsidiary of UniFirst.) Meetings are scheduled within the coming months between the UniFirst Director of Engineering, the private landowner, and the Royersford Borough Manager. Success rests on convincing the private landowner to direct his attorney to remove the "supercop" provision.

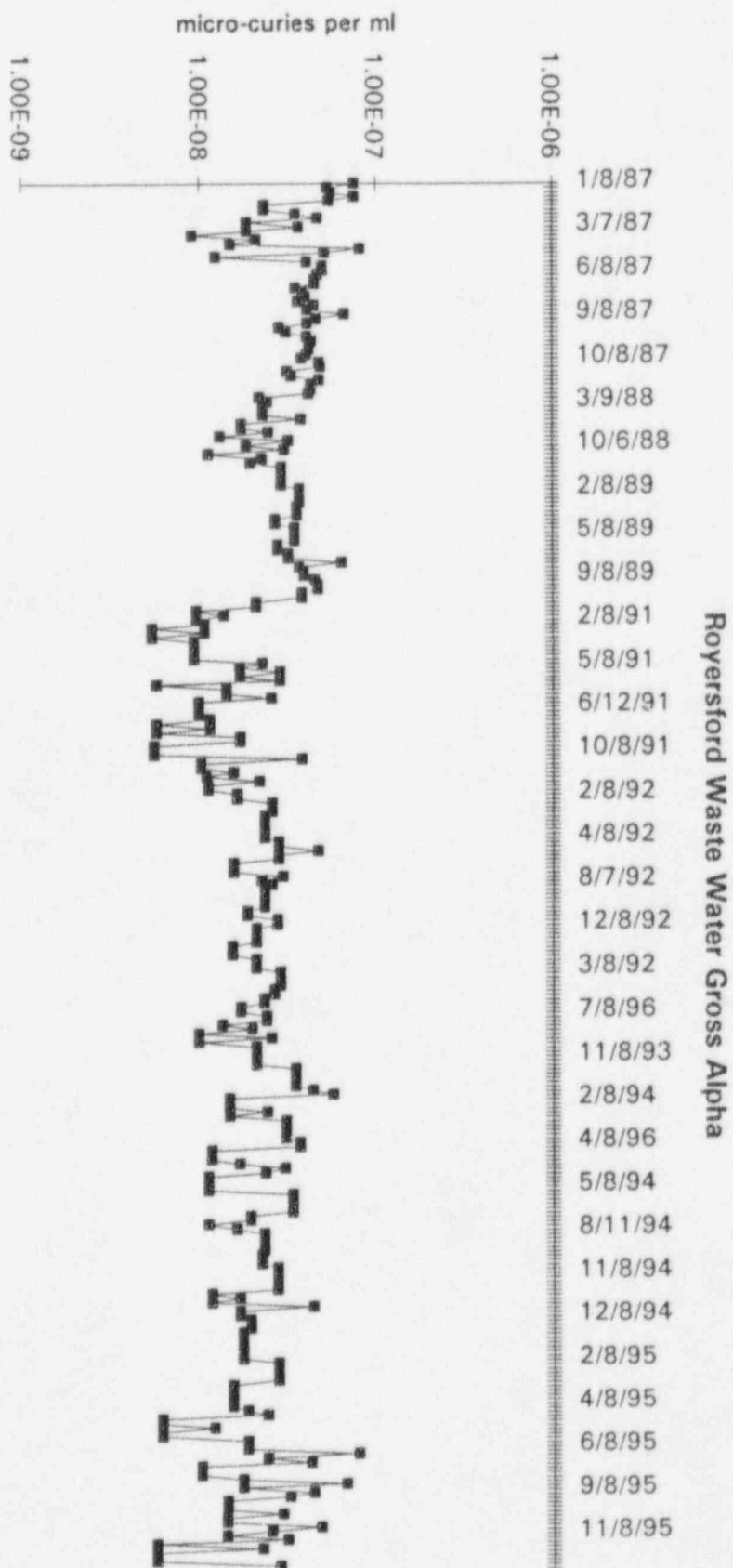
If you have any questions, please contact me at the phone number shown below.

Sincerely,

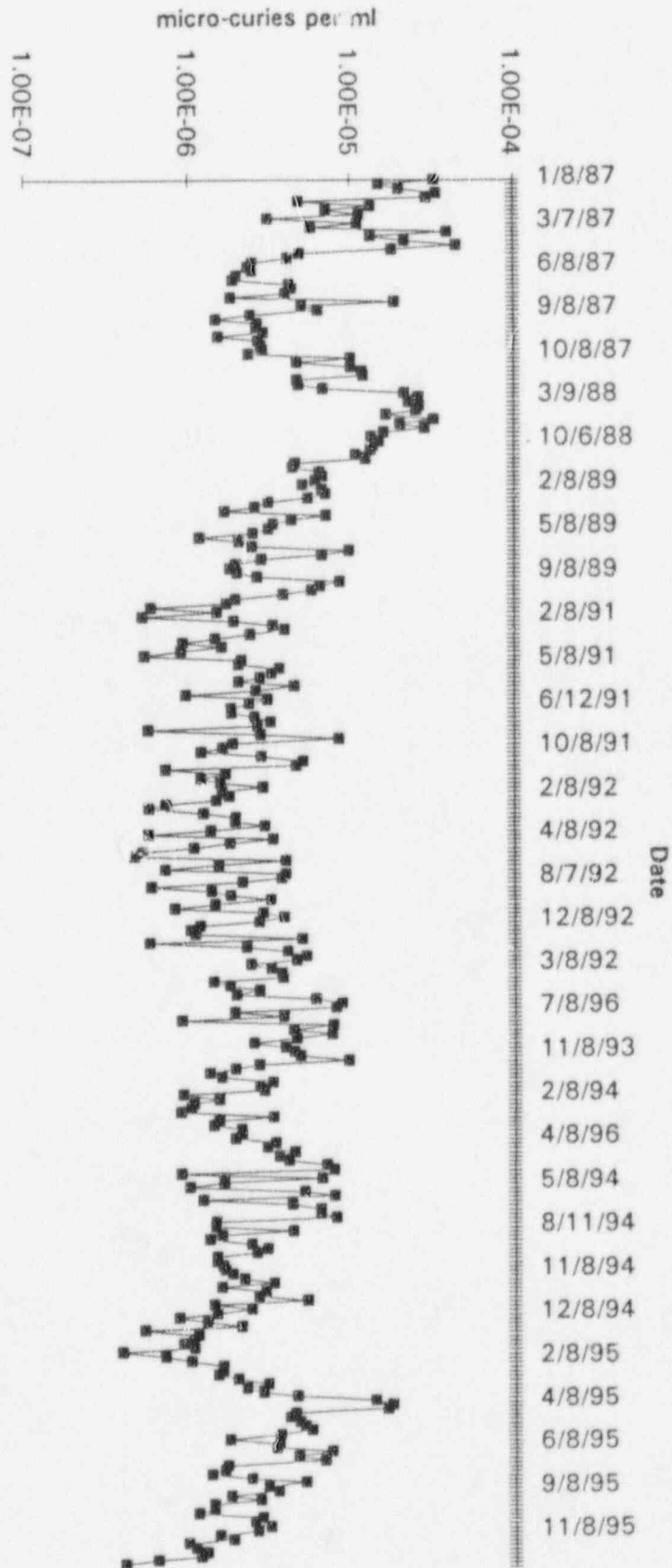


James B. Droney, Radiation Protection Engineer
Interstate Nuclear Services Corporation

cc: J. Kinneman, USNRC
M. Fuller, Corporate Health Physicist
D. Neely, Plant Manager, INS - Royersford
M. Bovino, CHP
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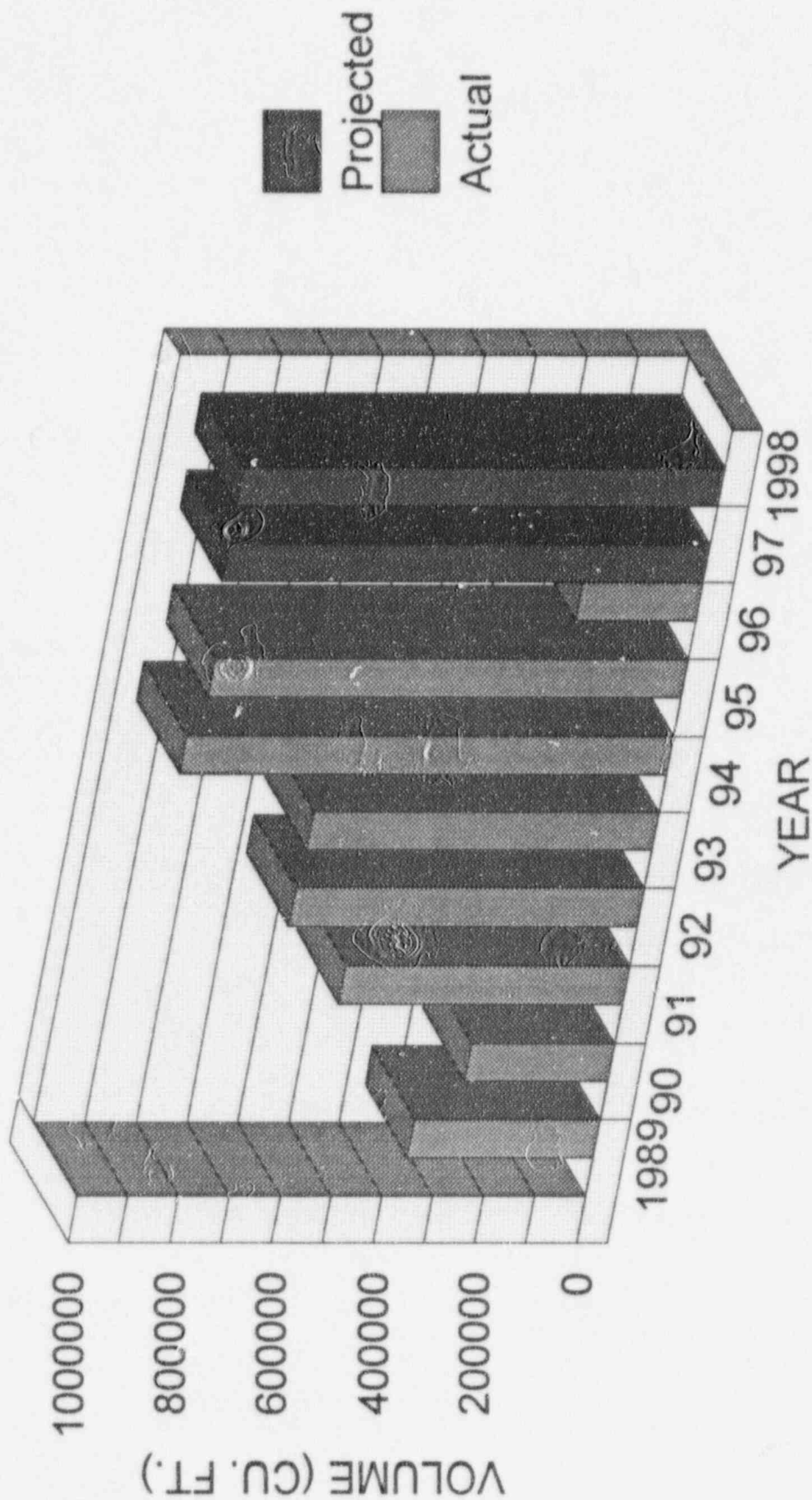


Royersford Waste Water Gross Beta



INS - ROYERSFORD

AVG. WASTE WATER RELEASES



INS - ROYERSFORD

ISOTOPIC RELEASES

