

NEUTRON PRODUCTS inc

22301 Mt. Ephraim Road, P.O. Box 68
Dickerson, Maryland 20842 USA
301/349-5001 TWX: 710-823-0542

June 21, 1989

Mr. Roland Fletcher, Administrator
Center for Radiological Health
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

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accordance with the Freedom of Information Act
Exemptions
FOIA 7008-0143

Dear Mr. Fletcher:

I am writing to report on our progress in satisfying Condition 33 of our license.

Thank you for authorizing operations under P.2 of the Conditions. Once the tamper seals were removed, the hot cell was cleaned without much further delay, and the transfers were effected without incident. Four sources were shipped last week; three more this week.

Our progress on satisfying the Conditions is summarized below:

Condition A - The Helgeson mini-HECM Portal Monitor has been completed and moved to its permanent location in the clean room of the Limited Access Area. The details of the move were approved by Mr. Potter and supervised by Mr. Pollard from Helgeson. We have received Helgeson's service contract, but we will not elect among alternatives or initiate service thereunder until expiration of the ninety day warranty period.

Condition B has been satisfied.

Condition C:

Item 1. We have completed Mr. Potter's prerequisites for requesting that the scope of P.2 be broadened to permit the encapsulation of singly encapsulated sources, and we are now working with him to define and satisfy his detailed requirements for processing unencapsulated components.

Item 2 has been completed.

Item 3 has been completed

Item 4 is in operation

Item 5 is in process per Condition M.

Item 6. Mr. Potter's work has been completed and submitted. The company has acted on his recommendations, and the revised sampling system is working well. Subject to minor adjustments, we consider the hot cell exhaust system is fully operational. Does CRH concur?

Ce/10

Mr. Roland Fletcher
June 21, 1989
Page Two

Timeline

Condition D - We have expanded the list of persons involved in the duties of health physics technician - particularly those associated with D.6 and D.8; and the full scope of health physics staffing is appended hereto as Attachment #1.

Meanwhile, pending comment by CRH, the health physics functions are being performed by the persons previously indicated, and with the exception of D.8, and D.6 as modified by Condition O, Condition D is operational.

status

The information required to develop Condition D.8 has been ordered, and a responsive surveillance plan is being drafted.

Condition E is operational.

status

Condition F - The clean room is operational with "portal monitor" in place, as is the shower room area of the clean zone. Construction on the transition zone between the clean zone shower room and the Limited Access working area has begun.

Condition G is operational.

Get outline of options

Condition H has been outlined for scope, and a detailed plan is being drafted. Meanwhile the existing program of monthly lectures continues.

Condition I - A proposed Plan of Random Inspections is enclosed as Attachment #2, and approval is respectfully requested. The Plan is not immortal and can be altered on the merits at any time. Absent adverse CRH comments, the Plan as drafted will become effective June 26, 1989.

Condition J is operational in that no waste is being compacted.

review complete - date of activities

Condition K - A comprehensive Waste Disposal Plan is enclosed as Attachment #3.

status

Condition L is operational. → on walls & monthly

status

Condition M - A strategy for the design of the courtyard enclosure has been developed and reviewed, an election among alternatives has been made, and the early submittal of a Plan is contemplated.

status - see attached

Condition N - The details of a revised plan of surveillance and recovery is being prepared as part of the response to Condition D.8. Meanwhile, based on previously noticed modifications to the 1981 surveillance plan, remedial action has been initiated.

Condition O - Two alternatives are under consideration, and an experimental program is required. The Plan for compliance is set forth in Attachment #4.

Condition P.2 operations will soon be wanting for finished sources. In view of the progress reported herein, and the absence of substantive cause for denial, an early expansion of scope has been defined and requested per Attachment #5, and CRH cooperation in its prompt approval is respectfully requested.

NEUTRON PRODUCTS inc.

Mr. Roland Fletcher
June 21, 1989
Page Three

original review
Condition Q has been completed, except for decor, insofar as the clean room and clean zone shower room are concerned. The fire in the transition zone has delayed its completion by several weeks, but the adverse effect is more one of inconvenience and delay than contamination control.

what?
Also enclosed for your information are several procedures for your information and review: 1002, Rev 5; 1003, Rev 1; 1012; 1012, Rev 1; 5011, Rev 1; NR 2028, Rev 1; NR 2029, Rev 2; R2028; and R2029. The underlined Procedures have been superceded and are for information only.

These are all implementation procedures. To the extent they call out limits that are below regulatory requirements, it is our intent to provide margin against a regulatory infraction; and they are not to be construed to provide more stringent regulatory limits in any way. *WIRING*

We would appreciate timely review and approval of Attachments #1 through #4, and the prompt approval of Attachment #5. Thank you.

Very truly yours,

NEUTRON PRODUCTS, INC.

J. A. Ranschoff
J. A. Ranschoff, President

Enclosures

cc: Mr. Lawrence M. Ward w/o enclosures
Ms. Diana Motz, Esq. w/enclosures
Thomas Potter, w/enclosures

NEUTRON PRODUCTS inc

Embassy #1

MEMO TO: Wayne Costley
FROM: J. Ransohoff
SUBJ: Neutron Products Staffing For Health Physics Technician Duties

In staffing for health physics technician duties at Neutron products, it is important to recognize that there is enormous variation in the time and skills required for the discharge of various chores that fall within the scope of duties that can reasonably be assigned to "health physics technicians".

Moreover, it is apparent from the early drafts of Condition 33, that MDE does not believe that we have the equivalent of a full time health physics tech, when in fact, we probably devote more than the equivalent of two people to various health physics chores.

It is the purpose of this memo to suggest an allocation of available personnel to these various duties in ways that will tend to enrich, rather than dullen, their jobs.

For purposes of organization, I have allocated people to the various requirements of Condition 33 D for which they are either fully or partially qualified or readily trained.

Review of Document for Circulation

D.1 Dale Repp, J. R. Demory, Yann LeGuillac, Donald Mitchell, Bernard Boswell, Russ Brown, Wayne Marsh, Jeff Corun and Joe Weedon.

D.2 Those listed under D.1 plus others qualified on an ad hoc basis.

D.3 Same as D.1

D.4 Same as D.1

Disagree with document in what evaluation

D.5 Same as D.1

Trill... document

D.6 Same as D.1 (all of whom are overqualified except for the counting and recording of samples) plus Albert Talton; Bob Brown and other D-II operators to be named as qualified; Debbie Wood, Doug Wallach, Clay Horton, William Wright, Debra Dameron, Harvey Troxell and other multiple duty personnel to be named as qualified; Rob Traviligni; and Dave Baker and other blender operators to be named as qualified. Due to the mind numbing nature of the work involved, it is important that numerous persons be qualified so that the chores can be spread.

D.7 Same as D.1

Trill... document

D.8 Same as for D.6

D.9 Same as for D.1

In addition, it seems to me that our prior definition of health physics tech has been too narrow. For example, the responsibility for Condition #33L, might be allocated to Debra Dameron, who has not hitherto been thought of as a health

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physics tech, but who in fact controls the flow of all film badges, and could be readily qualified to perform the work and analyse the data.

Principles of Allocation and Training

It is not my purpose here to prescribe specific allocations. Rather, I want to be sure that we don't get locked into a concept of health physics technician that has us assigning highly qualified electronics people to a heavy schedule of duties, such as plant monitoring, for which less skilled people could be easily qualified, and more likely to cheerfully and effectively perform.

PCO attitude toward important HP duties

The training should be tailored to fit the task or general assignment, the requirements for qualifying a person to maintain the portal monitor being much different than those required to qualify a person for general health physics duties in the limited access area, or for those required to clean the floors and sample the mop water.

June 20, 1989

Enclosure # 2

MEMORANDUM TO: J. Corun
W. Costley
J. R. Demory
D. Repp
F. Schwoerer
M. Turkanis

FROM: J. Ransohoff

SUBJ: Plan for Random Inspections of the Limited Access Area

Introduction

Condition I of Amendment # 33 requires the submission of a plan for random inspection of the Limited Access Area on a monthly basis by the Radiation Safety Officer. It is the purpose of this Plan to supplement, not replace, a parallel program of regular inspections and reviews.

Define parallel program scope? or visit etc.

1. Scope

is this to be documented

1.1 The scope of this Plan comprises a series of periodic physical inspections, log reviews, and queries by a panel of management personnel including, as a minimum, the radiation safety officer, the health physics consultant and me. These inquiries shall be designed to effect information transfer, to assure that management is well informed, and to test the quality of our radiation safety program as it applies to the Limited Access Area. The areas of interest to be tested in this manner include:

- a) the depth and adequacy of personnel relationships, qualifications and understanding, for then existing responsibilities, and for prospective responsibilities;
note - presence of conditions or practices affecting public & employee safety
- b) the effectiveness of training programs, both formal and on-the-job;
- c) the quality, sufficiency and timing of data collection, and the extent of performance on reporting requirements;
- d) the quality, sufficiency and timing of data analysis, and the actions taken thereon;
- e) the status of measures taken to assure compliance with license requirements and established operating procedures;
- f) the state of general housekeeping;
- g) the adequacy of process technology and controls, and the maintenance status, readiness and suitability of major items of equipment;
- h) the status of contingent plans and capabilities, and the readiness of emergency equipment and practices;

and any other matters that are considered to be important at the time of these inspections.

2. Methods and Reports

2.1 It is expected and intended that the techniques of evaluation and analysis will vary among the persons conducting the inspections, but in all cases, the inspections will be informal and no reports will be issued. Rather, the purpose of these inspections is to insure that top management and those with responsibilities for radiation safety are intimately familiar with the state of our human and material capabilities with respect thereto.

2.2 For example, I am particularly interested in the extent to which people who work here really understand what they are doing, as distinguished from memorizing a procedure. A program that periodically distinguishes between these two forms of knowledge will, in itself, be part of the solution. Moreover, many people are light on understanding because they don't want to ask what might be a "stupid question", and reports won't cure that.

2.3 In fact, a fair share of the "stupid questions" will be asked by the inspectors, and it is important for all involved to recognize that the purpose of these random inspections is to improve communication and enhance the development of a common understanding with regard to radiation safety issues.

2.4 These inspections are intended to supplement, not replace, regular formal reviews, such as: the periodic analysis of water and air sample data, the formal analysis and planning of projects involving substantive prospective exposures, the conduct of post mortems thereon, the review of new procedures, and scheduling sessions.

2.5 Nevertheless, one inspection technique might involve a one-on-one discussion on the sampling, measurement and workup of data; another might be the one-on-one review of a procedure; another might involve a discussion of the techniques used by an operator in his discharge of a particular contamination control function; another might provide an opportunity to air grievances, and another might seek the operator's views and advice on the solution of an intractable problem.

3. Planning and Critiques

3.1 No less often than quarterly, I will chair a meeting among "inspectors", each of whom shall undertake not less than two, nor more than five, random inspections per quarter. These meetings will comprise a series of challenges among those present as to the status of one matter or another, and a series of oral reports on the resolution of previously defined uncertainties or concerns.

3.2 The objects of greatest concern or uncertainty shall be defined, and the responsibility for major analyses assigned. Thus, although the random inspections will be designed to be informal and informative in nature, they are not to be fishing expeditions conducted without prior thought or prospect.

3.3 The basis for evaluating the success or failure of this program will comprise:

*→ also will make this
analysis*
the extent to which those involved on the management side of it are informed; and

the extent to which those involved at the operating level believe that management is both informed and productive.

No effort will be devoted to making this program subject to audit. The proof of effectiveness, or lack thereof, will be in the pudding.

June 19, 1989

cc: T. Potter

Enclosure #3

NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 1 of 6

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NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 2 of 6

(b)(4)

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NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 3 of 6

(b)(4)

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NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 4 of 6

(b)(4)

~~CONFIDENTIAL~~

NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 5 of 6

(b)(4)

~~CONFIDENTIAL~~

NEUTRON PRODUCTS, INC.
Plan for Disposal of Low Level Radioactive Waste
June 12, 1989
Page 6 of 6

(b)(4)

FS:RVC:8

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ATTACHMENT I

(b)(4)

~~CONFIDENTIAL~~

Enclosure # 4

MEMORANDUM TO: J. Corun
W. Costley
J. R. Demory
D. Repp
F. Schwoerer
M. Turkanis

FROM: J. Ransohoff

SUBJ: Development of A General Survey Plan for the Dickerson Plant

Introduction

In defining a contamination control standard for the Dickerson Plant outside the Limited Access Area, Neutron Procedure R 1003 prescribes a level of 440 dpm per 100 cm² smearable, removable (hereinafter "440/100").

In its interpretation of that procedure, CRH has ignored the "smearable, removable" part of the criterion, and has sought to apply the 440 dpm/100 cm² standard to sites of fixed activity as well. Said interpretation is troublesome in numerous ways that are known, it renders the procedure inoperable, and it is unacceptable. *total line sample procedure of CRH position and requirements*

Moreover, there is no doubt that CRH will want to interpret Neutron's standard for smearable, removable in a way that is out of context to its intent, and at present, there is no state of the art method likely to satisfy CRH's likely interpretation of 440/100 as it applies to smearable, removable contamination. It is Neutron's policy to accomodate the desires of the Department to the extent that it can do so without creating artificial opportunities for regulatory infractions; and we have designed a development program to evaluate the feasibility of two alternative plans for general plant surveillance that might achieve that purpose.

The Need for a New Plan

In the ratcheting of regulations that has occurred over the past decade or so, numerous practices have become invalid, and the representative smear is perhaps the one most in need of a substitute. As initially applied to radioactive shipments, the use of representative smears was intended to provide reasonable assurance that the maximum level of contamination on a uniformly treated surface was no higher than ten times the maximum found on any of a group such smears. For example:

The permitted level of smearable removable contamination on a shipping container was 22,000 dpm/100 cm², not 2,200 as is widely believed.

In order to assure compliance, it was prescribed that if none of a group of representative smears exceeded 2,200 dpm/100 cm², that fact would be sufficient evidence that the required level of 22,000 dpm was satisfied.

In receiving such containers, the partially informed sometimes report, as out of compliance, any smear of an incoming container that exceeds 2,200 dpm/100 cm², even though the applicable spec is ten times that amount.

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The fact is that a smear of X does not assure a contamination level of X except for the location smeared, and a smearable, removable standard of 440/100 is simply a statement of a condition that requires cleaning. It neither implies nor assures that such a level exists in any other place. While it may be feasible to set our achievement standard (as distinguished from our standard for ordering decontamination) at 440/100, our ability to document compliance must be dramatically improved if we are to do so. The purpose of this plan is to evaluate the extent to which we can do so within the limits of several promising prospects.

Although it established general compliance, the 100% manual smear that was used after receipt of the March 3 Notice is much too inefficient to be viable as a general practice, and a more efficient method must be developed. Whether or not we can consistently achieve and confirm 440/100 in the general plant will not be at issue unless we are unable to do so. However, in seeking to do so, it is important to note that, at these levels, we are concerned with the detection and removal of smearable removable contamination, not fixed activity.

Alternative A

Based on both written and oral comments from CRH, it appears that CRH believes that 440/100 can be surveyed within the state of the art as practiced by Mr. Nimitz of NRC in his general plant surveys of March 13-14. Although I have serious misgivings about its cost and technical feasibility, the technique demonstrated by Mr. Nimitz can be accorded the courtesy of a good faith evaluation, and the proposed program for doing so is set forth below.

A.1 Equipment

A.1.1 The survey equipment comprises: a gas proportional counter panel no smaller than the 415 cm² Ludlum Model #43-46; a portable gas bottle; shielding for the panel; an existing ratemeter; and a cart upon which to mount the active components.

A.2 Procedure for Use

A.2.1 In developing a practical procedure, it must be recognized that there are serious problems to solve if the Nimitz technique is to serve our purpose.

a) In order to complete a 440/100 general plant survey in a reasonable period of time, it may be necessary to use a detector that can survey an area appreciably greater than 415 cm². For a response time of thirty seconds for example, the use of a 415 cm² detector would require more than 1,100 hours to survey the 60,000 square feet of general plant, a period of time that is impractical in terms of cost, effectiveness and surveyor sanity.

b) By increasing the detector area to 1,200 cm² and decreasing the response time to 15 seconds, the time required for the same survey would be reduced to 200 hours. The sensitivity would be much reduced; it is unlikely that such a technique would assure the low level of contamination that is known to be attainable; and the conduct of one plant survey per month would constitute the equivalent of a full time job.

c) Moreover, although this technique may not be sensitive enough for the purpose intended, it is more than sensitive enough to generate a plethora of false positives. When Nimitz was conducting his survey for example, he resolved the stems in the tees of the lunch room floor; and in surveying my home, I found that the radiation level of common bathroom fixtures exceeded 440/100 by a generous margin. Accordingly, because we are contending here with probable "contamination" levels that are low compared to probable fixed activity, the Nimitz technique, even if heavily shielded, is likely to direct excessive attention to the resolution of false positives.

Thus, I am skeptical that Alternative A will achieve the desired result. Nevertheless, it may be useful for other purposes, such as the detection of multi-nanorcurie levels of fixed activity, and its use for the purpose intended may be feasible because of attributes not now appreciated. In any event, the development of a method that is more likely to succeed is highly desirable if Neutron is to assure compliance with 440/100, as distinguished from some higher level that would be assured by cleaning when a smear exceeds the 440/100 level. One such prospect is presented as Alternative B.

Alternative B

Neutron has several electrically powered mechanical floor scrubbers which are capable of cleaning approximately 20 to 60 square feet per minute. Using and supplementing this equipment, it is practical to define a plan that would:

monitor active portions of the general plant no less often than biweekly;

monitor all parts of the general plant no less often than monthly; and

do so in the course of cleaning the areas to be monitored.

The equipment required, the contemplated operating procedure, and an analysis of the probable effectiveness for the intended result are set forth below.

B.1 Required Equipment

B.1.1 At least one mechanical floor scrubber, one or more wet vacuum cleaners, sample bottles, floor mop and bucket, fouled water containers, a survey meter and a shielded well counter. All equipment is on site and operable.

B.2 Summary of the Contemplated Procedure

B.2.1 A specific area no larger than 100 square meters is selected for cleaning and monitoring, and prepared therefor by moving furniture and equipment as required to create a clear area and sweeping or dry vacuuming to remove dust and debris.

B.2.2 In what I originally considered the preferred method, the floor area is then cleaned by the mechanical scrubber of choice without recovering the water. The water is recovered by the wet vac, a sample taken, dated and identified as to time, location, volume of water taken, and the area surveyed.

It is contemplated that the plant survey will be taken in fractions, each comprising about a dozen samples taken from cleaning a few thousand to ten thousand square feet.

B.2.3 There seems to be a question as to the relative merits of mechanical floor scrubbing and manual mopping for this purpose; and an acceptable alternative to the method outlined in B.2.2 would comprise the use of a mop and bucket; and the sampling of water for each identified fraction.

B.2.4 In either case, the water is removed from the mop bucket or wet vac at the conclusion of each sectional cleaning and stored in open mouthed containers which are weighed or measured, and tagged with the sample number. If the 440/100 level is exceeded, it will be possible to estimate that fact with the survey meter; and in such event the area will be re-cleaned and surveyed. In either case, the water and the samples referred to in B.2.2 must be saved and counted, and the results recorded.

B.2.5 After the samples have been counted, the average contamination of each cleaned area is calculated and entered in the log, as is the average activity of the water collected. Except in unusual circumstances, the contamination levels will be less than $2E-4$ microcuries/cc, and can be disposed of by the responsible technician as sanitary waste. In cases where such level is exceeded, the RSO will be notified and the water held for disposition per his instructions.

B.2.6 If the reckoning of counts divided by the area shows an average contamination level of less than 440/100, the contamination level observed is simply recorded in the log. If a higher level is verified by the well counter, the RSO must be notified as well.

B.2.7 If a second clean-and-survey sweep of an area found to be contaminated fails to reduce the contamination level to less than 440/100, the area shall be subdivided for further analysis and decontamination.

B.3 Probable Effectiveness

B.3.1 This technique provides the prospect of readily detecting average contamination levels well below 440/100. For example, an area of 100 square meters (930 square feet) that is contaminated to 440/100, would yield 1.86 microcuries; and if the contamination were contained in 10 liters of water, the concentration would be $2E-4$ microcuries per cc, a level that can be estimated with a survey meter in the field, and accurately measured in the shielded counter. More important, a much lower level can be accurately measured, so it will be practical to document the margin of compliance, or lack thereof, even for areas as small as 10 square meters.

B.3.2 When 440/100 is met, as our March 100% smear survey showed to be the norm, Alternate B is a one step procedure. Moreover, the test tends to be conservative in that: contamination measured is for the precleaned condition; the scrubbing or mopping action renders the test much more stringent than standard wipes; and the residual contamination level is certain to be lower than the level measured and reported by a significant margin. Moreover, the cleaning should be relatively uniform, so that the samples would tend to fairly characterize the area cleaned and surveyed.

B.3.3 If the 440/100 standard is not met, and a second cleaning fails to yield a much lower result, the presence of partially fixed contamination is indicated, and a fine grid local survey would be in order.

B.3.4 Even if the general plant is clean, it must be recognized that 440/100 is in the sub-nanocurie range, that slightly contaminated brushes, mops, lines, and containers can yield misleading results, and that the frequent monitoring, and exchange or decontamination, of equipment will be required.

Conclusions and Authorizations

Alternative A represents a faithful effort to evaluate and apply a concept that CRH seems to consider feasible, and will presumably approve. Pending said approval, I recommend that we proceed with design, and obtain bids and delivery dates for components, so that when the anticipated approval is received, we can proceed promptly with procurement and attempted implementation.

In contrast, the incremental cost of testing Alternative B is modest, the probability of feasibility is high, and I think it likely that we will have to prove performance before CRH will approve it. As a result, I recommend that we proceed with the development and evaluation of Alternate B while CRH approval is pending. We have the equipment on hand, and I have asked Dick and Les Demory to initiate the development and testing of the concept, with supporting staff assigned as required.

A brief report of the first experiment is attached hereto as an addendum.

June 21, 1989

cc: T. Potter

Addendum to JAR Memo on Plant Surveys

On June 20, th. Demory brother, experimented with Alternative B by cleaning and monitoring the lunch room. The lunch room was divided into three sections, one of about 900 square feet, one of about 560 square feet, and one of about 490 square feet.

The method of B.2.2 was followed, with one person scrubbing, the other following with the wet vac. The water recovery for each zone totalled about 20 liters. The results for each area varied somewhat, but all showed an average contamination level substantially lower than 440/100.

The water from Zone #1 was sampled in two fractions:

the sample from the top of the container, which contained no large particle suspended solids, read $1 \text{ E-}7$ microcuries/cc;

the sample taken from the bottom of the container, which did contain a representative fraction of large particle suspended solids, was measured at $2.8 \text{ E-}6$ microcuries/cc.

Even if the sample taken from the bottom were assumed to be representative of the whole container, the measured activity would indicate a smearable removable level of about $12 \text{ dpm}/100 \text{ cm}^2$.

The water from zone #2 was sampled only from the bottom of the container. The sample measured $3.4 \text{ E-}6$ microcuries/cc, and if representative, would indicate an average level of smearable removable of about $29 \text{ dpm}/100 \text{ cm}^2$.

The water from zone #3 was sampled only from the bottom of the container. The sample measured $5.3 \text{ E-}6$ microcuries/cc, and if representative, would indicate an average smearable removable of about $51 \text{ dpm}/100 \text{ cm}^2$.

This initial experiment indicates that the approach will be feasible, and provided some direction for further work.

Both parties to the experiment thought that mopping might be more efficient than the scrubber-wet vac technique; and it was agreed to let the practioner choose his/her method of cleaning and water recovery.

More attention must be paid to sampling. In view of the data from the two samples of zone #1 water, it appears that the overwhelming majority of the activity is contained in the sediment. With sufficient data, it may be practical to decant the sediment free water, mix the balance, and rely on the sediment containing fraction to be a concentrate, containing substantially all of the activity. Thus, a 10 liter mop bucket may have all the activity concentrated in a 500 cc sample. If so, the method becomes duly sensitive, even for sections of less than 100 square feet, and the amount of fouled water that must be retained is greatly diminished.

Enclosure #5

NEUTRON PRODUCTS inc

22301 Mt. Ephraim Road, P.O. Box 68
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301/349-5001 TWX: 710-828-0542

June 21, 1989

Mr. Lawrence M. Ward
Deputy Assistant Secretary
Toxics, Environmental Science and Health
Maryland Department of the Environment
2500 Broening Highway
Baltimore, MD 21224

Dear Mr. Ward:

Enclosed herewith, without its enclosures, is a copy of a letter of even date to Roland Fletcher. It reports on our progress in satisfying the Conditions of Amendment #33, and serves as a cover letter for the transmittal of several implementation documents.

It is the purpose of this letter to request an expansion of the scope of P.2 that would enable us to perform on some additional commitments that predated the March 3 License Modification. Because of the License Modification, we had to defer performance on such commitments in April, and it is not plausible that any safety consideration would be compromised by the grant of this request. The scope of the request, and the salient facts and considerations are set forth below:

1. Scope

1.1 Please amend Condition P.2 to also permit:

- a) the addition of a second encapsulation to singly encapsulated sources; and
- b) the replacement of the second encapsulation on double encapsulated sources to permit the inspection and/or rearrangement of the singly encapsulated sources therein contained.

2. Facts and Considerations

2.1 Expansion of the scope requested in 1.1(a) presents no increase in risk over the existing authorization. Rather, it would reduce, however slightly, the contamination potential since it enables the transformation of singly encapsulated sources to doubly encapsulated sources.

2.2 The expansion of scope requested in 1.1 (b) is structured to render remote the probability that any such operations would give rise to any substantive increase in contamination potential by incorporating several temporary restrictions:

- a) The outer capsule of a double encapsulated source may be removed only in the hot cell, and only under circumstances where the equipment required for reencapsulation is in the cell and ready to use, and the components required for reencapsulation are present and previously accepted for use.

Mr. Lawrence Ward
June 21, 1989
Page Two

b) Each singly encapsulated source generated by removing the outer capsule shall be promptly inspected visually through the hot cell periscope, leak tested, smeared, and promptly reencapsulated if deficient for interim storage.

2.3 In removing an outer capsule, the possibility of an inner capsule breach is made remote by cutting the outer tube on a section of the source that is backed by an end cap. In two decades of hot cell operations involving the removal of outer capsules from hundreds of sources, none of us (there are six) who have worked here all that time can recall an occasion upon which an inner capsule was breached. Even in the event of such a breach, there is no simple mechanism for contamination to be released to the environment or for hot cell contamination to be increased in a way likely to compromise employee safety.

2.4 Nevertheless, the provisions of 2.2 assure that if an inner capsule were found to be breached, or defective for any reason, it would be promptly reencapsulated. In such event, the authorization requested does not permit either the use or removal of a breached inner capsule, only the replacement of the removed outer capsule to restore the singly encapsulated condition.

2.5 Our progress toward satisfying Condition 33 has been substantial, and whatever qualms may have caused the Department to ban the type of operation hereby requested should have been long since resolved by interim events.

2.6 The substance and background of this request has been reviewed by our health physics consultant; and a copy of his letter of concurrence is attached.

In summary, twenty years of experience has established that the risks deriving from the requested authorization are trivial compared to the benefits; and we respectfully request the Department to grant the authorization hereby sought. If granted promptly, said authorization might enable Neutron to perform on commitment(s) of long standing that it undertook in good faith, and thereby avoid or mitigate financial damages of substance that would otherwise accrue. Thank you for your prompt consideration.

Very truly yours,

NEUTRON PRODUCTS, INC.

J. A. Ransohoff, President

cc: Roland Fletcher, CRH
Ms. Diana Motz, Esq.
Thomas Potter

NEUTRON PRODUCTS inc

part of Enclosure # 5
Morton and Potter

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6/20/89

Mr. Jackson Ransohoff
Neutron Products, Inc.
Dickerson, MD 20842

Dear Mr. Ransohoff:

This letter is a response to your request for an evaluation of NPI readiness for operations with singly-encapsulated cobalt. In my report dated 5/22/89, I stated that my evaluation was focused on processing of encapsulated sources. I did not make a distinction between singly-encapsulated sources and doubly-encapsulated sources. The only difference is the level of contamination on the source, which is higher for the single-encapsulated source. However, the levels of contamination on the singly-encapsulated sources (on the order of a microcurie or less, based on NPI information) are low relative to levels of contamination on other surfaces in the hot cell. Therefore, contamination control measures that have been successful for handling doubly-encapsulated sources should be successful for handling singly-encapsulated sources.

It is my understanding that one of the operations planned involves removal of the second encapsulation of doubly-encapsulated sources. The cutting of doubly-encapsulated sources does present a risk of contamination release by inadvertent breach of the inner encapsulation. In my judgment, however, the risk is small for the following reasons:

- The breach of the inner capsule is highly unlikely, in part because of the design of the source.

TECHNICAL CONSULTANTS

- Any breach will be evident by visual inspection of the source through the cell window.
- Any release would be confined to the interior of the hot cell.
- Operators will be able to re-encapsulate any breached source without entering the cell.
- Procedures for access to the cell protect operators from undue radiation exposure from materials released in the event a breach.

Please call if you have any questions.

Sincerely,



Thomas E. Potter

INTERIM PROCEDURE FOR EXIT FROM THE LIMITED ACCESS AREA

PROCEDURE NR 2029

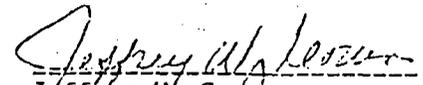
REVISION 2

June 7, 1989

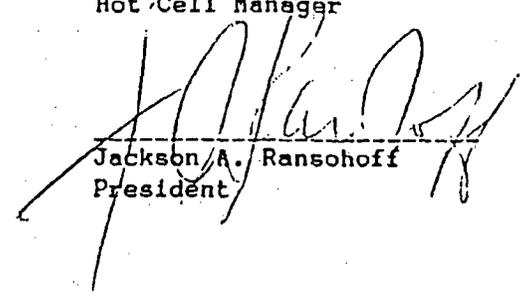
Reviewed for Radiation Safety
and Approved


Wayne J. Costley, RSO 6/8/89

Reviewed for Adequacy for
Intended Purpose and Approved


Jeffrey W. Corun
Hot Cell Manager

Reviewed for Management Acceptance
and Approved


Jackson A. Ranshoff
President

SAMPLING PROCEDURE

PROCEDURE R 1002

REVISION 5

JUNE 7, 1989

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SAMPLING PROCEDURE

PROCEDURE 1002

REVISION 5

JUNE 7, 1989

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PROCEDURE FOR ENTRANCE TO AND EXIT FROM
CONTAMINATION CONTROL AREAS -

PROCEDURE R 1003

REVISION 1

June 6, 1989

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PROCEDURE FOR ENTRANCE TO AND EXIT FROM
CONTAMINATION CONTROL AREAS

PROCEDURE R 1003

REVISION 1

JUNE 6, 1989

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PROCEDURE FOR DAILY OPERATIONAL CHECKOUT
AND ROUTINE MAINTENANCE OF THE
HELGESON MINI-HECM BOOTH MONITOR

PROCEDURE R 1012

REVISION 1

JUNE 8, 1989

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PROCEDURE FOR DAILY OPERATIONAL CHECKOUT
AND ROUTINE MAINTENANCE OF THE
HELGESON MINI-HECM BOOTH MONITOR

PROCEDURE R 1012

REVISION 1

JUNE 8, 1989

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NEUTRON PRODUCTS, INC.

PROCEDURE FOR SAMPLING THE
HOT CELL VENTILATION SYSTEM EXHAUST

PROCEDURE R 5011

REVISION 1

(b)(4)

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INTERIM PROCEDURE FOR ENTRANCE TO THE LIMITED ACCESS AREA

PROCEDURE NR 2028

REVISION 1

May 2, 1989

(b)(4)

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INTERIM PROCEDURE FOR ENTRANCE TO THE LIMITED ACCESS AREA

PROCEDURE NR 2028

REVISION 1

May 2, 1989

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PROCEDURE FOR ENTRANCE TO THE LIMITED ACCESS AREA

PROCEDURE R 2028

REVISION 0

June 14, 1989

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PROCEDURE FOR ENTRANCE TO THE LIMITED ACCESS AREA

PROCEDURE 2028

REVISION 0

June 14, 1989

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PROCEDURE FOR EXIT FROM THE LIMITED ACCESS AREA

PROCEDURE R 2029

REVISION 0

JUNE 14, 1989

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PROCEDURE FOR EXIT FROM THE LIMITED ACCESS AREA

PROCEDURE R 2029

REVISION 0

JUNE 14, 1989

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Procedure R 2029
Revision 0
June 14, 1989
Page 4 of 5

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INTERIM PROCEDURE FOR EXIT FROM THE LIMITED ACCESS AREA

PROCEDURE NR 2029

REVISION 2

June 7, 1989

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INTERIM PROCEDURE FOR EXIT FROM THE LIMITED ACCESS AREA

PROCEDURE NR 2029

REVISION 2

June 7, 1989

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NR2029/Policies and Procedures

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