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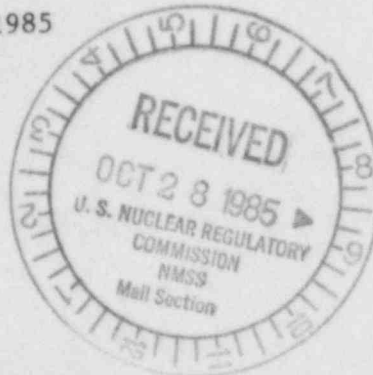


SOHIO CHEMICAL COMPANY

FT. AMANDA ROAD, P. O. BOX 628, LIMA, OHIO 45802

October 15, 1985

U.S. Nuclear Regulatory Commission
ATTN: Donald A. Cool, PhD
Division of Fuel Cycle and Material Safety
7315 Eastern Avenue
Silver Springs, MD 20910



Dear Dr. Cool:

Thank you very much for the opportunity to meet and discuss with you the dismantlement of the former Acrylonitriles facility and other issues relating to future decontamination and termination of our license. This memo will confirm in writing the understandings reached and the points of concern that were raised.

1. Outline of Proposed Decommissioning Plan

It was agreed that the outline touches all the necessary areas. More detail will be expected in the decommissioning plan, especially in the following areas:

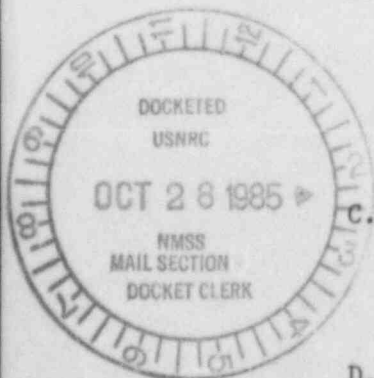
A. Care must be taken to assure that measurements are accurate, using appropriate techniques, and that they can be correlated to ORAU - determined values. This will avoid discrepancies when a final investigation is performed.

B. Personnel safety procedures should be documented in detail throughout the decontamination process. Testing should continue during operations to confirm decisions regarding personnel protection. Protective equipment should be employed if concentrations exceed 50% of the maximum permissible concentration.

C. Decontamination procedures for various areas should be described in detail in the final plan. A protocol should be established in advance as to the techniques that will be applied and in what order they will be used.

D. Detailed records should be kept during any decontamination operations including movement of contaminated materials around the plant.

E. It was suggested that a summary be prepared of the Catalyst 21 operations, especially with regard to movement of materials or waste in the plant or any burial of radioactive materials. This should be done before a request for license termination takes place.



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- F. Pond sludges that contain both radionuclides and hazardous substances covered under RCRA may be disposed of at RCRA disposal sites, as long as the U-238 concentration is less than 300 pCi/g. NRC will consider termination of the license prior to disposal of these sludges if an EPA-approved closure plan exists that deals adequately with the sludges. If less than 15 lbs. source material is contained in the pond sludges, that area is exempt. Any plan which uses onsite burial would require a notation on the land deed.

2. Acrylonitrile I Dismantlement - Scope of Work

It was agreed that the document was appropriate for use in the dismantling of Acrylonitrile I plant, with some additions and clarifications, as noted below:

- A. Under II.c.2 (Decontamination of equipment), techniques should be applied that will reduce the level of contamination below the specified limit, and the techniques used should be applied to their practical limit.
- E. With regard to asbestos insulation removal and disposal, it was agreed that the asbestos hazard overrides. Aside from training of personnel and use of TLD's, the safety precautions for asbestos will be adequate for the radioactivity exposure. As long as the U-238 concentrations are below 300 pCi/g, contaminated asbestos can be disposed of at the same locations as "clean" asbestos. Any material over 300 pCi/g must be sent to a low-level nuclear waste facility. "Hot" material that is already segregated should not be reopened in order to be mixed with less-contaminated material.
- C. If Sohio elects to use its own personnel for screening of radioactive materials, great care should be taken. The people involved should thoroughly understand the challenges of radiological monitoring, especially the operation and calibration of field instruments. Training courses, such as those available through ORAU might be appropriate. Training should also include record-keeping and safety considerations.
- D. Screening of materials removed should be done for concentration of U-238 as well as total radiation. U-238 is a difficult isotope to detect. It will be necessary to develop a correlation between measurements of radiation and concentration of U-238.

3. License Termination

The procedure to be taken for license termination was discussed. The following major items were focused on:

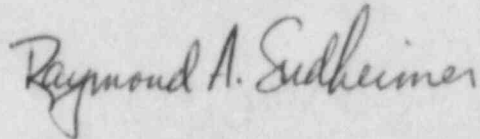
- A. Submittal of a decontamination plan will take the form of a license amendment request. When the request is approved, it will have a time limit attached. The time frame requested should be justifiable by Sohio.

- B. Sohio will be required to reimburse NRC for all costs associated with processing and administration of the request for license amendment (submittal of the decontamination plan). NRC's current rate is about \$60/hr.
 - C. Termination of the license could not occur until all materials were disposed of, with the possible exception of RCRA sludges. NRC could amend the license to a storage-only status for a small storage area of the plant if final disposal of wastes is inhibited by lack of access to a radiological disposal site.
4. Natural Radionuclides Unrelated to U-238 Processing

Sohio believes that the current NES study will show that one area of the plant is contaminated with a naturally-occurring radioactive material (phosphate rock) unrelated to the licensed activity that occurred at the plant. NRC agrees that if the material in question is indeed as Sohio suspects, the material need not be treated as a licensed radioactive waste. NRC encouraged Sohio to dispose of the material and to keep the plant free of such material in the future in order to avoid confusion.

Again, we wish to thank you for your assistance in reviewing our plans for future decontamination. We look forward to working with you in the future toward our goal of license termination.

Sincerely,



R. A. Sudheimer

Scope of Work

Radiation Detection and Control Plan for ANI Dismantlement Rev. 1

Outline

- I. Limits to Reach
- II. Policy on what to check
- III. Methodology
 - A. Finding and controlling Radioactive Contamination
 - B. Personnel/equipment protection

This document specifies the radiation limits and methodology that will be used to control the radiation contamination during ANI dismantlement.

Plan

- I. Limits. (The contractor will ensure that nothing above these limits leaves the work site, and that all above-ground equipment, materials and structures above these limits remaining on the work site are identified for decontamination.)
 - A. Surface Contamination Limit - above background:
 - 1. 5000 dpm alpha, beta, gamma/100 cm² averaged over 1m² or the total object if the object is less than 1m².
 - 2. 15000 dpm alpha, beta, gamma/100 cm² maximum, for an area \leq 100 cm², on any one object or within any 1 m².
 - 3. 1,000 dpm beta, gamma/100 cm² removable - determined by wiping the area with dry filter paper and testing the filter paper with an appropriate survey meter.
 - 4. 220 dpm alpha/100 cm² removable - determined as in 3. above.
 - 5. The limits are applied and tested for independently for alpha and for beta, gamma.
 - B. Radiation Limits associated with beta, gamma surface contamination:

1. 0.2 mrad/hour average at 1 cm - over $\leq 1\text{m}^2$
 2. 1.0 mrad/hour maximum at 1 cm - over $\leq 100\text{cm}^2$
 3. These limits are above background
- C. U-238 nuclide concentration limit - above background.
1. 35 pCi/gm of soil. (Under this dismantlement operation of above-ground structures, it is expected that no soil will be removed from the work site).
 2. 300 pCi/gm of insulation (asbestos) or other material in which U-238 could be homogeneously mixed and which will be disposed of in an approved landfill.
 3. These limits will be applied as an average value of all samples taken from a container of well-mixed material.
- D. Background will be as determined by the contractor on undisturbed soil and surfaces in or near the plant.
- E. U-238 concentration in water limit will be 40,000 pCi/liter for any free-standing water to be released to an unrestricted area.
- F. U-238 concentration in air limit will be 5 pCi/m³ air in any area proposed as unrestricted.

II. Policy

- A. Equipment and material will not be released from the Plant unless it is below the Limits shown in I. above.
- B. Contaminated Material
1. Material from areas identified on previous surveys (ORAU or NES) as having a contamination or radiation level above the limits will be put into radiological waste containers separate from other material.
 2. This contaminated material will be tested for all appropriate limits to determine if it is releasable.
- C. Equipment
1. All equipment and bulky scrap (e.g. pipes) will be checked for surface contamination where it might reasonably be expected to be found. (For example, catalyst piping and process piping from the reactors to the waste water column will be checked inside the piping, with special attention to testing low points and valve packings. Piping in the Purification area will not be checked inside the pipe, since there was no process condition that should have caused its contamination.)

2. Where feasible, contaminated surfaces will be decontaminated in place by washing with water and degreaser if appropriate, then rechecked. Either Sohio or the contractor can do this decontamination.
3. When any decontamination technique is used, it is to be applied to the maximum extent that the technique can take it. If several techniques are possible and reasonable, the most effective technique is to be used.

D. Other Material

1. All other material, such as insulation not previously found to be contaminated, will be spot checked against the Limits before release. The target will be to check 20% of this material for alpha, beta, gamma surface radiation and up to 1% for U-238 concentration.
2. The percentage of checking for U-238 concentration in any area will be adjusted based on initial results.
3. The contractor must establish correlations between the 300 pCi U-238/gram asbestos insulation and the alpha or beta/gamma surface radiation. Any container of material found to have surface radiation above these correlations will be sampled for U-238 concentration.
4. Dilution for Decontamination
 - a. Where safe and cost effective, contaminated material that cannot be segregated with reasonable methods can be mixed with uncontaminated material to bring the radiation levels below the Limits.
 - b. If the material above the Limits can be segregated with reasonable methods, it is not to be diluted. Bags of asbestos will not be diluted with other bags of asbestos, to limit the hazard of asbestos handling.

E. Control of Contaminated Material

Any material found to have radiation levels above the Limits, and not subsequently decontaminated, will be relocated to a controlled area on the Plant site and contained to prevent contamination of the environment or exposure of personnel.

- F. The calibration of radiation detection instruments will be checked at least once every day against standards appropriate for the isotope we're trying to detect.
- G. Documentation

Records will be kept showing

- personnel exposure to radiation

- radiological conditions on site during the work
- all calibration checks of radiation detection instruments
- what equipment or material was tested
- its original location
- the results of the test(s)
- whether decontamination was attempted
- the results of any retest(s)
- where it was sent (i.e., to Waste Management, released to Tilton, radioactive containment area, etc.)

H. Material will not be removed to a "clean" area for testing unless a high radiation level in its immediate vicinity is the primary factor in causing a test result to be over the limit.

III. Radiation Detection/Control Plan Methodology

A. Finding and controlling radioactive contamination

1. Receive NES radiation survey results
2. Pinpoint problem areas with appropriate alpha and beta, gamma survey meters. Mark problem areas (areas showing a surface radiation level above the Limits or above the correlation with a high U-238 concentration).
3. Take steps to isolate or remove high contamination areas by placement in radioactive waste containers or decontamination. Such removal or decontamination will follow the pattern of a) radiation check, b) decontamination, c) recheck; while constantly monitoring for any personnel hazard.
4. Asbestos removal
 - Check for radiation prior to removal
 - Bag asbestos per OSHA guidelines
 - Separate suspect asbestos from clean asbestos (in separate bags)
 - Check all bags of asbestos for radiation prior to removal from site
 - Degree of check per Section II "Policy".
 - Sohio Chemical to dispose of asbestos below the Limits.
 - Material above the Limits to be removed to a "radioactive material containment area" designated by Sohio Chemical.

5. Pipe removal, vessel removal, miscellaneous equipment removal

- Safety check of piping, vessels prior to cutting
- Pipe vessels removed, and tested inside and outside per sections I and II above.
- Equipment or scrap above the Limits to be decontaminated in place by the contractor, or removed to an area for decontamination by Sohio.
- Pipe retested (by radiation contractor) to ensure radiation below the limits.
- The contractor removes the "clean" equipment or scrap from the plant.
- The contractor moves material remaining above the Limits to the "radioactive material containment area" on site.
- Degree of check may vary with location of pipe and equipment removed from unit, per section II.C.

B. Demolition personnel, equipment protection

1. Prior to work starting, clean up contaminated areas which pose a likely risk of personnel or equipment contamination.
(Note: This has already been done by NES.)
2. All personnel in area during asbestos removal will be in full protective clothing until testing proves not required.
3. Following asbestos removal begin pipe and equipment removal.
 - A. Check pipe at several flanged connections for contamination.
 - B. Use respiratory protection during cuts at "hot" spots
 - C. During early phase of dismantlement use respiratory protection everywhere until testing proves it unwarranted. Continue testing to see if respiratory protection becomes warranted again. The criteria is as shown in section I. Limits.
 - D. For vessel cuts, enter vessels and test prior to cutting. Follow "B" if necessary.
 - E. Control ingress and egress to area through one gate. Check for radiation at the gate.
 - F. Check all equipment for radiation prior to leaving area. Decontaminate as necessary.

- G. Use area monitoring to assure that dismantlement procedure is not compounding contamination problem.
- H. Piping and vessel sampling should be highest in areas of likely contamination.

BC Riddel

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September 16, 1985
Rev.1 - 9/30/85

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CONTROL NO. 25947
DATE OF DOC. 10/15/85
DATE RCVD. 10/28/85
FCUF ☒ PDR ☒
FCAF ☐ LPDR ☐
WM ☐ I&E REF. ☒
WHUR ☐ SAFEGUARDS ☐
FCTC ☐ OTHER ☐

DESCRIPTION:

thank you for the
meeting and discussion
relating to future
decontamination and
termination of their license
10/29/85 INITIAL CEC