

37-00030-02  
030-05980  
P5

## Pennsylvania Department of Environmental Protection



Bureau of Radiation Protection  
P.O. Box 8469  
Harrisburg, PA 17105-8469  
Telephone: 717-787-2480  
Telecopy: 717-783-8965



Telecopy Transmittal

Date: 5/9/02  
To: Marie Miller  
Telephone Number: \_\_\_\_\_  
Telecopy Number: 610-337-5269  
From: Bryan Warner  
Telephone Number: 717-787-2781

Total Number of Pages (not including cover sheet): 4

Sent by: \_\_\_\_\_ Telephone Number: \_\_\_\_\_

☐ Urgent☐ For Review☐ Please Comment☐ Please Reply

## Notes:

Safety Light Response to the  
Work Plan questions.

- 1. As a license of both PA and the NRC, SLC should notify the schedule in Appendix 10 to reflect the requirement for PA DEP approval of the Safety Light Work Plan, as well as NRC approval as presently shown.**

Enclosed with these responses is a new project management schedule to reflect PA DEP approval of the work plan prepared by Solutient Technologies.

- 2. SLC should provide an emergency response plan for actions that would be taken if there were a threat of river levels high enough to impact the SLC site, or a forecast of inclement weather that might effect the safety of the on going operations. This plan should include actions to be taken to ensure control of the radioactive material in the containers to their present location, and actions to be taken in the waste processing area. Within 30 days of the receipt of this letter, SLC should advise when this contingency plan will be submitted for PA DEP review.**

The best emergency response plan is to process, repackage and recharacterize the material presently in the drums immediately and have this material shipped offsite. Safety Light Corporation can't ship this material offsite in its present state. As discussed in question 4, there isn't any other place on this site to put this waste while we are segregating and waiting for waste site acceptance without exposing workers on this site unless there is a significant reduction in exposure due to increased shielding. If that is the case, which we won't know until we get the material repackaged, then conceivably it could be moved to a higher level on the property. The flood of 1972 was the worst flood known in history in this region. Although the water levels reached the point where the waste is currently stored, the water in that area was considered back water with little or no flow down the river but was more like an eddy where the water actually swirls at times and items will actually stay in place. There are also chain link fences surrounding the containers of radioactive material that would contain those containers in a backwater situation. Safety Light Corporation cannot think of any other way to control this waste other than what we have stated in this response. Safety Light Corporation would be willing to hear suggestions on how to achieve what you want in question 2 keeping in mind the limited funds Safety Light Corporation has at its disposal and a necessity to keep producing product.

- 3. The design of the containment structure should ensure that containment integrity will be maintained if exposed to high winds or other potentially damaging weather phenomena.**

ST intends to limit the actual process to only a few containers at a time. In the event potentially damaging weather phenomena including high wind conditions exist that would be considered detrimental for working conditions, work will not start for the day. If work is underway and an alert for potentially damaging weather phenomena including high wind conditions is received that would be considered detrimental for working conditions, work will stop and all material will be returned to either a drum or B-25 box. These containers will have their lids placed on them and banded or clipped as required to seal the container. Drums with stored sources awaiting disposal will be stored with rings in place. Completed B-25 boxes will be stored with clips in place.

- 4. The Work Plan should indicate where the repackaged containers will be located prior to offsite shipment.**

It is anticipated that the processed and packaged waste will be stored in the same general location that the material is now stored in. In the current storage state, only incidental shielding is provided. The major contributor to exposure is the radium waste. After the waste is packaged, the maximum activity will be 300 mCi of radium in a container. This will be stored with several inches of concrete shielding in addition to the steel drum. This is much more shielding than is currently present and should significantly reduce the external dose rates and make storage a much simpler operation. The higher exposure containers will be stored in the center to allow the use of lower dose containers as additional shielding. There isn't anywhere else on this site to store the containers without causing exposure to the people working here on the site. If the external dose rates are low enough with the extra shielding to permit the storage of the drums that are currently stored in the lower storage area to be combined with the drums in the upper storage area until shipment, we will do that. Keep in mind that with the activity of each container conceivably being a lot lower than it may be now, that there will likely be an increase in drum count at the finish of the project.

- 5. The Work Plan should specify the minimum number of samples that will be analyzed from each drum and B-25 box to ensure a representative indication of the contents of each container.**

Solutient believes that a minimum of one sample per drum will be sufficient to ensure a representative sample of that drum. If Solutient feels that it does not represent a representative sample, more samples or a more thorough mixture will be taken to assure a representative sample.

- 6. Since the processing area will be located near the former silo location, and residual contamination remains in this location, SLC should confirm that background radiation levels in the waste processing area will be low enough to ensure that meaningful measurements are made for the container waste materials. The statement made in Section 8.5; "If possible (emphasis added) the background exposure rate will be measured before any waste is processed" is unacceptable. Background measurements should be a requirement.**

ST will make routine background measurements a requirement. The concrete work pad should significantly reduce background levels.

- 7. The Work Plan indicates that a Health and Safety Plan, and a Quality Assurance Plan will be prepared, and copies available upon request. It is requested that each plan be provided for PA DEP review.**

A copy of Solutient Technology's Radiation Health and Safety Plan and our Quality Assurance Plan are enclosed with this response.

- 8. Provision should be made for continuous monitoring of the work area for both radiological releases and hazardous materials when containers are being opened and their contents sorted.**

Solutient Technologies will monitor the workstations and employees with a combination of BZ and RAS air samplers.

- 9. The discharge limits and monitoring frequency for the exhaust through the HEPA filters should be specified.**

ST plans to sample at least one discharge stack on a daily basis when work is underway. Sampling will be done with a single point, isokinetic probe. Based on continued results below 10% of the DAC, this interval may be increased.

- 10. Instead of using direct heating of the containers, consideration should be given to alternative methods of thawing frozen contents. Scheduling the work for warmer weather would eliminate the risk from direct heating of containers.**

Hopefully the answers that we are giving will allay your concerns and grant us approval to go ahead with the project. We are ready to commence work and get this wrapped up this summer.

- 11. The design of the work area should include provision for control of any potential liquids that may be in the containers.**

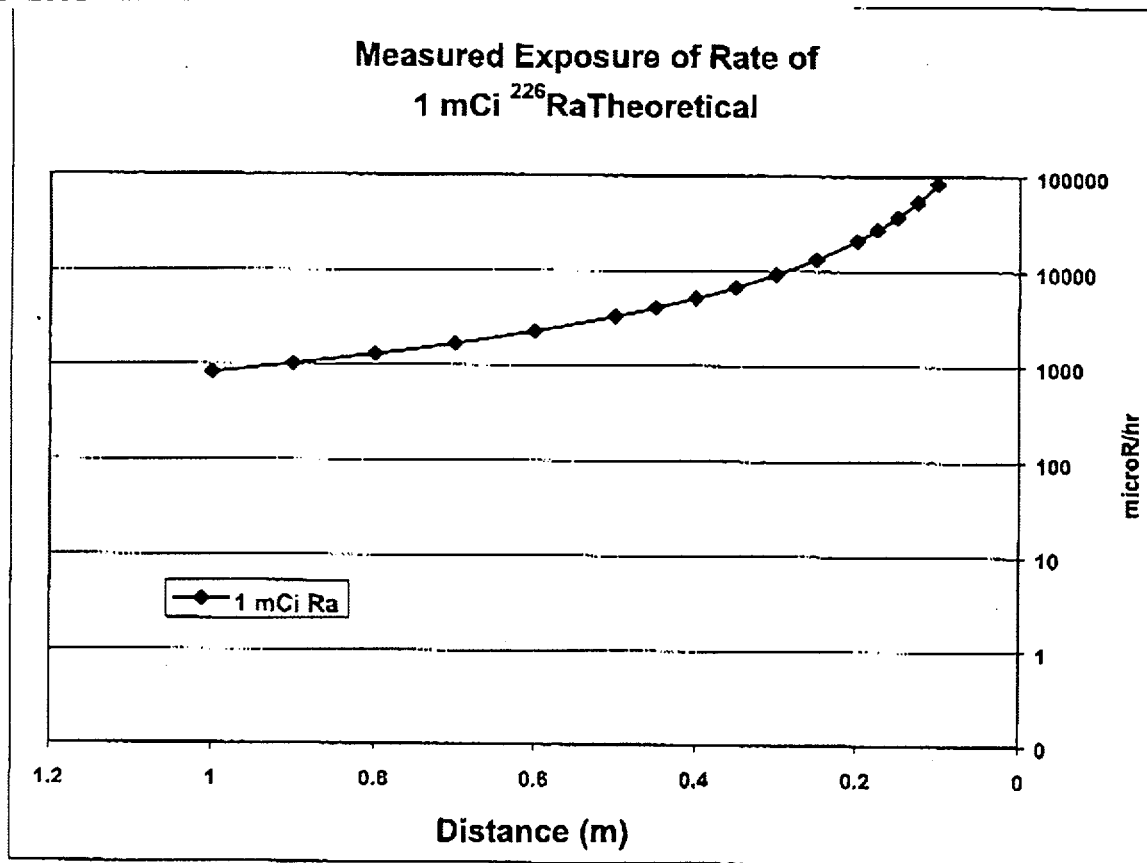
All containers will be inspected prior to emptying to prevent spills, areas where containers are handled will have spill kits and portable containment units where transferring of liquids can take place and be handled without losing control of the material.

- 12. The procedure for processing the highest activity containers discussed in Section 5.5 should be provided for PA DEP review in advance of employing the procedure.**

The procedure for processing the highest activity containers is three fold. The first is to refine the operations and perform a crude calibration for radiation reading vs. activity for the low activity containers. The ALARA review committee will use this information to project the activities and required handling times. This will result in an expected exposure to the workers. If the expected exposure is unacceptable, then the committee will require additional controls such as tooling and or training. This information will result in the RWP for the operation. Employees will be trained as required. The ALARA committee will monitor actual performance vs. planned and may make additional adjustments as deemed appropriate. This process is available for review as desired.

- 13. Section 11.1 refers to a dose vs. distance conversion for Ra-226, which follows. However, the information is missing from this section.**

To quantify the activity, the exposure rate of an item with a near point geometry will be measured at several distances and compared to the theoretical exposure rates from a one (1) milliCurie point source of radium, as shown on the following graph. Items with a very low activity may be grouped to reduce measurement error. Data obtained during the project will be plotted and the resulting lines compared to determine the shape of the measured data.



14. In Section 11.3 the frequency should be specified for the radiation surveys to confirm that the controlled area is acceptable.

Radiation surveys will be performed each work day.

15. In Section 12.1, the QC Manager for the project is identified and his function to independently review measurement systems used by project employees is discussed. However, in Section 11.2, this same (individual) is identified as the manager of the MCA system to be used for gamma spectroscopy analysis. This inconsistency should be resolved to maintain appropriate independence of the project QC function.

The lab manager is responsible for daily measurements and system performance. The QC manager will routinely review results and verify system performance.