

August 27, 2009

Mr. Ed Kulzer  
U. S. Nuclear Regulatory Commission  
Region III  
2443 Warrenville Road  
Lisle, IL 60532-4351

**SUBJECT: ORISE CONTRACT NO. DE-AC05-06OR23100  
LETTER REPORT FOR ANALYTICAL RESULTS FOR NINE WIPE  
SAMPLES FROM OLIVER MEDICAL PRODUCTS IN  
GRAND RAPIDS, MICHIGAN [99990003-014] (RFTA NO. 09-001)  
DCN: 1801-LR-01-0**

Dear Mr. Kulzer:

The Oak Ridge Institute for Science and Education (ORISE) received nine wipe samples on July 28, 2009 from Oliver Medical Products in Grand Rapids, Michigan. There were four cloth wipes and five cotton swab wipes. The samples were analyzed according to the 303 form submitted with the samples with the exception of the gamma spectroscopy analysis. The sample identification numbers are presented in Table 1. The different types of wipes required that the samples be analyzed by different methodologies. The gross alpha and gross beta results obtained by Low Background for the four cloth wipes are presented in Table 2. The gross beta results obtained by liquid scintillation analysis for the five cotton swab wipes are presented in Table 3. The pertinent procedure references are included with the data tables.

A case narrative is included to describe the analytical processes used for these samples. ORISE's Quality Control (QC) requirements were met for these analyses. The QC files are available for your review upon request.

My contact information is listed below. You may also contact Wade Ivey at 865.576.9184 with any questions or comments.

Sincerely,



Dale Condra, Manager  
Laboratory

RDC:WPI:rns

Enclosures

c: T. Carter, NRC/FSME/DWMEP T-8F5  
T. Patterson, NRC/FSME/TWFFN 8D42  
File 1801

E. Abelquist, ORISE  
T. Vitkus, ORISE

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Distribution approval and concurrence :	Initials
Technical Review	ENB
Quality Review	TUR

## **CASE NARRATIVE FOR OLIVER MEDICAL PRODUCTS WIPE SAMPLES**

The samples submitted for analyses were identified as wipe samples. During the sample inspection process associated with the chain of custody review, it was noted that there were two different types of wipe samples. One type was a cloth media and the other type was a cotton swab media. This difference required that each media be analyzed by a different methodology.

The 303 form submitted with these samples requested gross alpha, gross beta, and gamma spectroscopy analyses with the isotope of concern being promethium-147 (Pm-147). A review of the gamma emissions for Pm-147 was performed and it was determined that the request to analyze the wipes by gamma spectroscopy would not provide value for the cost due to the very low abundances of the gamma emissions associated with Pm-147.

The four cloth wipes were counted on a low background alpha/beta counter.

The five cotton swab samples were placed in a scintillation vial containing liquid scintillation cocktail and counted in a liquid scintillation analyzer. Due to the infrequency of requests for Pm-147 analysis, ORISE does not have a Pm-147 standard available for calibration purposes. The average beta energy of Pm-147 is 62 keV. The average beta energy of carbon-14 (C-14) is 50 keV. The beta energies of these isotopes are close enough to provide statistically equivalent counting efficiencies. Therefore, a blank cotton swab was placed in a scintillation vial containing liquid scintillation cocktail and spiked with a known amount of a C-14 standard to establish a counting efficiency. The Pm-147 results are reported based on the C-14 counting efficiency.

**TABLE 1**

**SAMPLE IDENTIFICATIONS  
AND COLLECTION DATA  
OLIVER MEDICAL PRODUCTS  
GRAND RAPIDS, MICHIGAN**

<b>ORISE Sample ID</b>	<b>NRC Region III Sample ID</b>	<b>Collection Date</b>	<b>Collection Time</b>
1801R0001-1	OMP-09-1-01	7/14/09	NDP <sup>a</sup>
1801R0001-2	OMP-09-1-02	7/14/09	NDP
1801R0001-3	OMP-09-1-03	7/14/09	NDP
1801R0001-4	OMP-09-1-04	7/14/09	NDP
1801R0001-5	OMP-09-1-05	7/14/09	NDP
1801R0001-6	OMP-09-1-06	7/14/09	NDP
1801R0001-7	OMP-09-1-07	7/14/09	NDP
1801R0001-8	OMP-09-1-08	7/14/09	NDP
1801R0001-9	OMP-09-1-09	7/14/09	NDP

<sup>a</sup>No data provided.

**TABLE 2**

**GROSS ALPHA AND GROSS BETA ACTIVITIES  
ON CLOTH WIPES  
BY LOW BACKGROUND ALPHA/BETA COUNTING  
AP1, REVISION 15; CP3 REVISION 2  
OLIVER MEDICAL PRODUCTS  
GRAND RAPIDS, MICHIGAN**

<b>ORISE Sample ID</b>	<b>NRC Region I Sample ID</b>	<b>Gross Alpha Activities, TPUs, and MDCs<sup>a</sup> (dpm/wipe)</b>	<b>Gross Beta Activities, TPUs, and MDCs<sup>a</sup> (dpm/wipe)</b>
1801R0001-1	OMP-09-1-01	-0.4 ± 1.9 <sup>b</sup> , 11.0	-3.6 ± 5.6 , 14.0
1801R0001-2	OMP-09-1-02	1.7 ± 4.6 , 11.0	0.5 ± 6.9 , 14.0
1801R0001-8	OMP-09-1-08	-0.4 ± 1.9 , 11.0	0.5 ± 6.9 , 14.0
1801R0001-9	OMP-09-1-09	-0.4 ± 1.9 , 11.0	-1.6 ± 6.3 , 14.0

<sup>a</sup>The MDCs are after the comma.

<sup>b</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.

**TABLE 3**

**GROSS BETA ACTIVITIES  
ON COTTON SWAB WIPES  
BY LIQUID SCINTILLATION ANALYSIS  
AP9, REVISION 4; CP4 REVISION 3  
OLIVER MEDICAL PRODUCTS  
GRAND RAPIDS, MICHIGAN**

<b>ORISE Sample ID</b>	<b>NRC Region I Sample ID</b>	<b>Gross Beta Activities, TPUs, and MDCs<sup>a</sup> (dpm/wipe)</b>
1801R0001-3	OMP-09-1-03	10.9 ± 8.0 <sup>b</sup> , 12.9
1801R0001-4	OMP-09-1-04	8.4 ± 7.8 , 12.9
1801R0001-5	OMP-09-1-05	10.3 ± 7.9 , 12.9
1801R0001-6	OMP-09-1-06	4.0 ± 7.4 , 12.9
1801R0001-7	OMP-09-1-07	19.9 ± 8.6 , 12.9

<sup>a</sup>The MDCs are after the comma.

<sup>b</sup>Uncertainties represent the 95% confidence level, based on total propagated uncertainties.