



# Advantage Engineering

Geotechnical and Environmental Engineers

November 15<sup>th</sup>, 2006

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

**RE: Reply to a Notice of Violation, EA-06-214  
NRC License No. 37-30704-01**

To Whom It May Concern:

This correspondence serves to address the items presented in the *Notice of Violation*, dated October 18<sup>th</sup>, 2006, prepared by the United States Nuclear Regulatory Commission (NRC) with regard to the special NRC inspection of a temporary jobsite in Abington, Pennsylvania on July 1<sup>st</sup>, 2006, subsequent inspections of two (2) other temporary jobsites in Northampton and Bethlehem, Pennsylvania on July 3, 2006, and inspection of our Mechanicsburg and Allentown, Pennsylvania facilities on July 5<sup>th</sup>, 2006.

It is understood that eleven (11) violations were noted and are presented in the aforementioned *Notice of Violation*. One (1) of the violations constituted a Severity Level III violation (referenced as Violation I.A). According to the *Notice of Violation*, Advantage Engineering (Advantage) has adequately addressed the Severity Level III and given sufficient evidence of corrective actions in our letter dated August 12<sup>th</sup>, 2006, and according to the NRC inspection report issued on September 28<sup>th</sup>, 2006. Therefore, no further discussion of this specific violation is presented in this correspondence.

The purpose of this letter is to provide the NRC with information concerning the corrective measures taken by Advantage to prevent the occurrence of the remaining ten (10) violations presented in the October 18<sup>th</sup>, 2006 *Notice of Violation*. Each of the violations and a description of the steps taken and procedures implemented to preclude their future occurrence are presented below.

- 1. VIOLATION I.B.** – 10 CFR 20.1301(a)(2) requires that the licensee conduct operations so that the dose in any unrestricted area from external sources does not exceed 2 millirem in any one hour.

On July 1<sup>st</sup>, 2006, at a temporary jobsite in Abington, Pennsylvania a portable nuclear density gauge (gauge) was damaged and one of the sources was removed from its shielded position, resulting in a dose of 3 millirem in one hour in an unrestricted area.

*This violation occurred due to the gauge user not maintaining control or constant surveillance of the licensed radioactive material within the gauge. We have met with our senior staff and spoken to all licensed operators with regard to the event that occurred at this temporary jobsite. Specifically, we have stressed to all of our licensed operators that the gauges must remain constantly under their control and have gone over in detail the operating procedures to be followed when using the gauges on temporary jobsites.*

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*Provided that the appropriate operating procedures are followed, a gauge should never be damaged, and therefore, the source(s) should never be removed from its shielded position in an unrestricted area.*

- 2. VIOLATION I.C.** – 10 CFR 30.50(c)(2) requires, in part that each licensee who notifies the NRC of a damaged nuclear gauge and makes a 24-hour report as required by 10 CFR 30.50(b), submit a written follow-up report within 30 days of the initial report.

Advantage made an initial report within 24 hours of the event, but did not submit a written follow-up report until August 12<sup>th</sup>, 2006, which was not within the 30 day reporting requirement.

*This violation occurred due to a misunderstanding and misinterpretation of the reporting requirements. Advantage mistakenly thought that a verbal report provided to the NRC was sufficient as a follow up to the incident. Once notified that this was not the appropriate course of action, Advantage filed the appropriate written follow-up report immediately. This reporting requirement has been discussed with the senior level staff and is included within our internal nuclear density gauge operating and management procedures.*

- 3. VIOLATION I.D.** – Condition 20 of the license requires, in part, that the licensee conduct its program in accordance with the procedures contained in the Application dated November 26<sup>th</sup>, 2001.

Specifically, Item 10 of the application requires, in part, that the licensee implement the operating and emergency procedures in Appendix H of NUREG 1556, Volume 1, "Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Portable Gauge Licenses", dated May 1997, and provide copies of these procedures to all gauge users and at each job site. Procedures in Appendix H of NUREG 1556 require, in part, that licensees control and maintain constant surveillance of gauges that are in an unrestricted area.

On July 1<sup>st</sup>, 2006, the licensee did not control and maintain constant surveillance of the portable nuclear gauge in an unrestricted area, nor did the gauge user have a copy of the operating and emergency procedures.

*This violation occurred due to the gauge operator not following the requirements or guidelines clearly explained to him by the senior staff at Advantage and through completion of the radiation safety training course with regard to maintaining control and constant surveillance of portable nuclear gauges. The user left the gauge unattended because he did not want to carry it back to his vehicle. The gauge user has since undergone additional training regarding the proper use and protocols for the licensed equipment.*

*Further, the emergency and operating procedures had been misplaced by the gauge user, and therefore, disregarded. Following the incident, a memo, dated July 31<sup>st</sup>, 2006, was circulated to ALL staff which, in part, included the importance of following the guidelines set forth in Appendix H "Operating and Emergency Procedures" of NUREG 1556. Also, a copy of Appendix H was placed within each of the portable gauge cases to provide a duplication of effort. All employees were provided with Appendix H and instructed on the interpretation and implementation of the procedures detailed in this document.*

**4. VIOLATION II.A.(1)** – 10 CFR 71.5 requires, in part, that each licensee who transports licensed material on public highways comply with the applicable requirements of DOT regulations in 49 CFR parts 170 through 189 appropriate to the mode of transport.

1. 49 CFR 173.448(a) requires that each shipment of Class 7 (radioactive) materials be secured to prevent shifting during normal transportation conditions.

Contrary to the above, on July 1<sup>st</sup>, 2006, the licensee transported a portable gauge containing licensed radioactive material on public highways in Pennsylvania, and the shipment was not secured to prevent shifting during normal transportation conditions. Specifically, the gauge was transported to a temporary jobsite in Abington, Pennsylvania, in the back seat of a vehicle, and was not secured to prevent shifting.

*This violation occurred because the gauge operator failed to follow the protocols that were clearly explained by Advantage staff and during radiation safety training. In order to prevent this from happening in the future, the following was submitted to all licensed gauge operators at Advantage Engineering.*

*"When transporting a nuclear gauge in your vehicle, you must have a lock on the gauge handle, a lock on the case, and independent lock which secures the gauge case to your vehicle, and the trunk of your car locked. In no case should a nuclear gauge be transported in the "passenger" area of a vehicle. Also, in the case of a pickup truck, there needs to be two (2) independent locks and chains securing the case to the truck."*

*Periodically, the methods of transportation utilized by portable gauge users are reviewed by the management at Advantage Engineering, in an effort to ensure that the appropriate protocols are being followed.*

**5. VIOLATION II.A.(2)** - 10 CFR 71.5 requires, in part, that each licensee who transports licensed material on public highways comply with the applicable requirements of DOT regulations in 49 CFR parts 170 through 189 appropriate to the mode of transport.

2. 49 CFR 172.202(a)(3) requires, in part, that shipping description of a hazardous material on the shipping paper must include the identification number prescribed for the material

Contrary to the above, on July 1<sup>st</sup>, 2006, the licensee transported a portable gauge containing radioactive material, which is considered hazardous material, and the shipping paper accompanying the shipment did not include the correct identification number UN3332. The shipping paper listed identification number UN2974.

*This violation occurred due to an oversight on the part of the senior staff at Advantage. Immediately following the identification of this deficiency, Advantage's senior staff checked all of the gauge cases and revised all of the shipping papers (where required) to ensure that the proper identification number (UN3332) was present on the case and the shipping papers.*

- 6. VIOLATION II.A.(3)** - 10 CFR 71.5 requires, in part, that each licensee who transports licensed material on public highways comply with the applicable requirements of DOT regulations in 49 CFR parts 170 through 189 appropriate to the mode of transport.

3. 49 CFR 172.704(c)(2) requires that a hazmat employee receive the training required by Subpart H of 49 CFR part 172 at least once every three years.

Contrary to the above, as of July 5, 2006, at least one hazmat employee did not receive the required recurrent training after he received his initial training, a period of time greater than three years.

*In the past, Advantage Engineering did not keep accurate records of who attended our in-house recurring training seminars. Advantage has since taken steps, including official scheduling of the required refresher training to satisfy this requirement. All staff will undergo training regarding the use, storage, and transportation of the regulated material at least once every three years.*

- 7. VIOLATION II.B.** – 10 CFR 20.1101(c) requires that a licensee periodically (at least annually) review the radiation protection program content and implementation.

Contrary to the above, between January 25<sup>th</sup>, 2002, when the license was issued, and July 5<sup>th</sup>, 2006, the licensee did not annually review the radiation protection program content and implementation. Specifically, no program reviews were conducted during this approximately three and one half year period.

*Since being notified of this violation, Advantage Engineering has developed an internal, annual audit form to be completed. The audits will be conducted in general accordance with the guidelines set forth in Appendix F "Portable Gauge Audit Checklist" of NUREG 1556.*

- 8. VIOLATION II.C.** – Condition 15 of the license requires, in part, that the licensee conduct a physical inventory every six months, or at other intervals approved by the U.S. Nuclear Regulatory Commission, to account for all devices received and possessed under the license.

Contrary to the above, between January 25<sup>th</sup>, 2002, when the license was issued, and July 5<sup>th</sup>, 2006, the licensee did not conduct physical inventories every six months to account for all devices received and possessed under the license. Specifically, no physical inventories were conducted during this approximately three and one half year period.

*Advantage Engineering was under the assumption that the "portable density gauge log in / log out book" was sufficient to satisfy this requirement. Since notification, Advantage has completed a physical inventory and will conduct subsequent physical inventories on a quarterly basis. The records of the physical inventories will be maintained.*

- 9. VIOLATION II.D.(1)** – Condition 20 of the license requires, in part, that the licensee conduct its program in accordance with the procedures contained in the Application dated November 26<sup>th</sup>, 2001.

1. Item 10 of the application requires, in part, that the licensee provide copies of the operating and emergency procedures in Appendix H of NUREG 1556, Volume 1, "Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Portable Gauge Licenses", dated May 1997, and provide copies of these procedures to all gauge users and at each job site. Procedures in Appendix H of NUREG 1556 require, in part, that licensees control and maintain constant surveillance of gauges that are in an unrestricted area.

Contrary to the above, on July 3<sup>rd</sup>, 2006, at temporary job sites in Northampton and Bethlehem, Pennsylvania, the licensee did not provide copies of the operating and emergency procedures to the gauge users.

*Following our receipt of notification concerning the above,, a memo, dated July 31<sup>st</sup>, 2006, was circulated to ALL Advantage staff which, in part, included the importance of following the guidelines set forth in, and a copy of, Appendix H "Operating and Emergency Procedures" of NUREG 1556. Also, a copy of Appendix H was placed within each of the potable gauge cases to provide a duplication of effort.*

**10. VIOLATION II.D.(2)** - Condition 20 of the license requires, in part, that the licensee conduct its program in accordance with the procedures contained in the Application dated November 26<sup>th</sup>, 2001.

2. Item 10 of the application requires, in part, that the licensee either possess and use, or have access to and use, a radiation survey meter that meets the criteria in the section entitled, "Radiation Safety Program – Instruments", in NUREG 1556, Volume 1 "Consolidated Guidance about Materials Licenses: Program-Specific Guidance about Portable Gauge Licenses", dated May 1997, in the event of an incident.

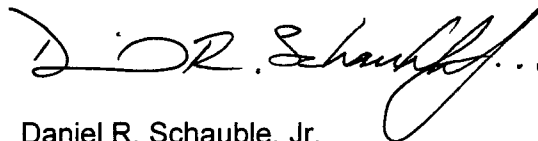
Contrary to the above, on July 1<sup>st</sup>, 2006, at a temporary jobsite in Abington, Pennsylvania, the licensee had an event when a portable gauge was damaged by a bulldozer, and the licensee did not possess nor have access to a radiation survey meter that met the criteria specified in NUREG 1556. Specifically, although the licensee possessed a survey meter, it was not calibrated or operational.

*Since the occurrence of the incidence, Advantage has purchased new, calibrated, radiation survey meters for each of our facilities which meet the criteria specified in NUREG 1556. All users currently have access to a radiation survey meter which is in good working order, should any future incident occur.*

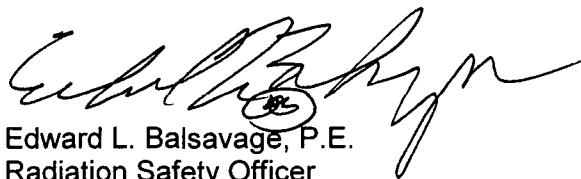
We trust that the above adequately addresses our response to the violations identified by the NRC during inspections of temporary job sites as well as our facilities. In addition, we sincerely hope that our responses clearly present our sense of urgency in bringing our operations in line with the requirements of our materials handling license and the seriousness with which we view these issues.

We appreciate your guidance in assisting us in bringing our operations and management of our portable nuclear gauges into compliance with the regulations set forth in our license agreement.

Sincerely,  
**ADVANTAGE ENGINEERING, LLC**

A handwritten signature in black ink, appearing to read "D. R. Schauble, Jr.", with a stylized flourish at the end.

Daniel R. Schauble, Jr.  
Director of Geotechnical Services

A handwritten signature in black ink, appearing to read "Edward L. Balsavage, P.E.", with a stylized flourish at the end.

Edward L. Balsavage, P.E.  
Radiation Safety Officer  
President