

October 18, 2006

EA No. 06-214

Mr. Edward L. Balsavage, P.E.  
Managing Partner/Radiation Safety Officer  
Advantage Engineering, LLC  
910 Century Drive  
Mechanicsburg, PA 17055

SUBJECT: NOTICE OF VIOLATION (NRC Inspection Report No. 03035895/2006001)

Dear Mr. Balsavage:

This letter refers to the special NRC inspection conducted at a temporary job site in Abington, Pennsylvania, on July 1, 2006, in response to an event reported to the NRC on that date, involving the damage to an unattended portable nuclear gauge. The inspection also included a routine safety inspection of your licensed activities at two other temporary job sites in Northampton and Bethlehem, Pennsylvania, on July 3, 2006, and at your facilities in Mechanicsburg and Allentown, Pennsylvania, on July 5, 2006. Regarding the event on July 1, 2006, the gauge, which contained NRC licensed radioactive material (two radioactive sources), was damaged when it was run over by a bulldozer after an authorized gauge operator had left it unattended for approximately five minutes at the job site. The results of the inspection were discussed with you and members of your staff during an exit meeting on August 10, 2006, and were described in the subject inspection report that was sent to you with our letter dated September 28, 2006. You described your corrective actions taken to prevent recurrence of this event in the required 30-day written report which you submitted to the NRC on August 12, 2006.

Based on information developed during the inspection, the NRC has determined that eleven violations of NRC requirements occurred. The circumstances surrounding them are described in detail in the subject inspection report. Four of the violations, which are cited in Section I of the enclosed Notice of Violation (Notice), involve the event reported to the NRC on July 1, 2006. The most significant violation involved the failure by the authorized gauge operator to control and maintain constant surveillance of the gauge. During a telephone conversation on September 19, 2006, Ms. Judy Joustra of my staff informed you that this violation was being considered for escalated enforcement action. The NRC provided you an opportunity to attend a predecisional enforcement conference or to provide a written response, prior to the NRC determining appropriate enforcement action. During this telephone conversation, you declined the opportunity to attend a conference or to provide a written response at this time.

In this case, the damage to the gauge resulted in one of the sources being separated from the gauge causing dose rates at approximately one foot from the damaged gauge to be as high as 3 millirem per hour. However, the damage did not result in any leakage of radioactive material

from the source, and unauthorized persons did not come into direct contact with the material during the time that it was unattended. Furthermore, there is no evidence that any member of the public was exposed to unnecessary doses of radiation. Nonetheless, this violation is of concern to the NRC because (1) the failure to control radioactive material could have resulted in the loss or theft of the material; and (2) unintended radiation doses to members of the public could have occurred because one of the radioactive sources was removed from its shielded position. Therefore, this violation is categorized at Severity Level III in accordance with the Enforcement Policy.

In accordance with the Enforcement Policy, a base civil penalty in the amount of \$3,250 is considered for a Severity Level III violation involving damage to a nuclear gauge containing NRC licensed material. Because your facility has not been the subject of escalated enforcement action within the last two years or two inspections, the NRC considered whether credit was warranted for *Corrective Action* in accordance with the civil penalty assessment process in Section VI.C.2 of the Enforcement Policy. Credit for corrective actions is warranted because your corrective actions were considered prompt and comprehensive. These corrective actions, which you described to the inspectors during the exit meeting on August 10, 2006, included, but were not limited to: (1) returning the damaged gauge to the manufacturer for disposal; (2) re-instructing the authorized gauge operator regarding your security requirements for the use of gauges at temporary job sites; (3) discussing the event with all company supervisors and authorized gauge operators; and, (4) conducting a review of your radiation safety procedures.

Therefore, to encourage prompt and comprehensive correction of violations, I have been authorized, after consultation with the Director, Office of Enforcement, to issue the enclosed Notice of Violation, without a civil penalty, for this Severity Level III violation. However, you should be aware that significant violations in the future could result in a civil penalty. In addition, issuance of this Notice constitutes escalated enforcement action that may subject you to increased inspection effort.

The ten additional violations identified as a result of the inspection are included in the enclosed Notice and are categorized at Severity Level IV in accordance with Supplements IV, V and VI respectively of the Enforcement Policy. Although none of these violations warrant escalated enforcement action, the number of violations demonstrates the need for increased management attention to your radiation safety program.

The NRC has concluded that information regarding the reasons for the Severity Level III violation (Violation I.A) which involved the failure by the authorized gauge operator to control and maintain constant surveillance of the gauge on July 1, 2006, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in this letter, in your letter dated August 12, 2006, and in the inspection report issued on September 28, 2006. Therefore, you are not required to respond to this letter regarding this violation unless the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to provide additional information, you should follow the instructions specified in the enclosed Notice.

You are required to respond to the ten additional violations included in the enclosed Notice and should follow the instructions specified therein when preparing your response. In your

response, you may reference any previous correspondence that is applicable to this case to avoid repetitive submissions. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements. Questions concerning this letter and the enclosed Notice may be addressed to Sattar Lodhi, Acting Chief, Materials Security and Industrial Branch, Division of Nuclear Materials Safety. Mr. Lodhi can be reached at telephone number (610) 337-5364.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response, if any, will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

**/RA/** Original Signed by Marc L. Dapas for

Samuel J. Collins  
Regional Administrator

Docket No. 03035895  
License No. 37-30704-01

Enclosure: Notice of Violation

cc w/encl: Commonwealth of Pennsylvania

Edward L. Balsavage

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ENCLOSURE

## NOTICE OF VIOLATION

Advantage Engineering, LLC  
Mechanicsburg, Pennsylvania

Docket No. 030-35895  
License No. 37-30704-01  
EA No. 06-214

During an NRC inspection conducted on July 1, July 3, and July 5, 2006, at temporary job sites in Abington, Northampton, and Bethlehem, Pennsylvania, as well as at your facilities in Mechanicsburg and Allentown, Pennsylvania, for which an exit meeting was held on August 10, 2006, eleven violations of NRC requirements were identified. In accordance with the Enforcement Policy, the violations are listed below:

I. VIOLATIONS ASSOCIATED WITH DAMAGE TO A NUCLEAR GAUGE

- A. 10 CFR 20.1802 requires that the licensee control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage. As defined in 10 CFR 20.1003, *controlled area* means an area, outside of a restricted area but inside the site boundary, access to which can be limited by the licensee for any reason; and *unrestricted area* means an area, access to which is neither limited nor controlled by the licensee.

Contrary to the above, on July 1, 2006, at a temporary job site in Abington, Pennsylvania, the licensee did not control and maintain constant surveillance of licensed radioactive material contained in a Troxler Model 3411 portable nuclear density gauge that was being used in an unrestricted area. Specifically, the gauge user left the gauge unattended for approximately five minutes while he went to his vehicle which was approximately 600 feet away from the gauge. During the time period that the gauge was not in direct line of sight with the operator, the gauge was damaged when it was run over by a bulldozer. In addition, the gauge user failed to control access to the area around the gauge, which was an unrestricted area, and failed to provide constant surveillance of the gauge for approximately four hours after it was damaged.

This is a Severity Level III violation (Supplement IV)

- 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.

Contrary to the above, on July 1, 2006, at a temporary job site in Abington, Pennsylvania, the licensee's operations resulted in a dose of 3 millirem in one hour in an unrestricted area when a portable nuclear density gauge was damaged and one of its sources was removed from its shielded position.

This is a Severity Level IV violation (Supplement IV).

- 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.

Contrary to the above, pursuant to 10 CFR 30.50(b), the licensee made a report of damage to a portable gauge on July 1, 2006, and the required written follow-up report was not made until August 12, 2006, a period of time which was not within 30 days of the initial report.

This is a Severity Level IV violation (Supplement VI).

- 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, 2001.

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.

Contrary to the above, on July 1, 2006, at a temporary job site in Abington, Pennsylvania, the licensee did not (1) control and maintain constant surveillance of a portable nuclear gauge that was in an unrestricted area, and (2) provide copies of the operating and emergency procedures to the gauge user.

This is a Severity Level IV violation (Supplement IV).

## II. OTHER VIOLATIONS OF NRC REQUIREMENTS

- A. 10 CFR 71.5 requires, in part, that each licensee who transports licensed material on public highways comply with the applicable requirements of the 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, 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 job site in Abington, Pennsylvania, in the back seat of a vehicle and was not secured to prevent shifting.

This is a Severity Level IV violation (Supplement V).

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, 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 is a Severity Level IV violation (Supplement V).

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.

This is a Severity Level IV violation (Supplement V).

- 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, 2002, when the license was issued, and July 5, 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.

This is a Severity Level IV violation (Supplement IV).

- 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, 2002, when the license was issued, and July 5, 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.

This is a Severity Level IV violation (Supplement VI).



- 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, 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, 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, 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.

This is a Severity Level IV violation (Supplement VI).

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, 2006, at a temporary job site 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 nor operational.

This is a Severity Level IV violation (Supplement IV).

The NRC has concluded that information regarding the reasons for Violation I.A, the corrective actions taken and planned to correct the violation and prevent recurrence, and the date when full compliance was achieved is already adequately addressed on the docket in this letter, in your letter dated August 12, 2006, and in the inspection report issued on September 28, 2006. Therefore, you are not required to respond to this letter regarding this violation unless the description therein does not accurately reflect your corrective actions or your position. In that case, or if you choose to respond to this violation, clearly mark your response as a "Reply to a Notice of Violation, EA-06-214" and send it to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555 with a copy to the Regional Administrator, Region I, within 30 days of the date of the letter transmitting this Notice of Violation (Notice).

Furthermore, pursuant to the provisions of 10 CFR 2.201, Advantage Engineering, LLC, is hereby required to respond to the ten additional violations included in the enclosed Notice of Violation (Notice) by submitting a written statement or explanation to the U.S. Nuclear

Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Regional Administrator, Region I, within 30 days of the date of the letter transmitting this Notice. This reply should be clearly marked as a "Reply to a Notice of Violation, EA-06-214" and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001. Under the authority of Section 182 of the Act, 42 U.S.C. 2232, any response which contests an enforcement action shall be submitted under oath or affirmation.

Your response will be placed in the NRC Public Document Room (PDR) and on the NRC Web site at <http://www.nrc.gov/reading-rm.html>. To the extent possible, it should, therefore, not include any personal privacy, proprietary, or safeguards information so that it can be made publically available without redaction. However, if you find it necessary to include such information, you should clearly indicate the specific information that you desire not to be placed in the PDR, and provide the legal basis to support your request for withholding the information from the public.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days.

Dated this 18th day of October 2006.