



Department of Energy

Washington, DC 20585

October 6, 2015

Dr. Raymond J. Juzaitis
President
National Security Technologies, LLC
P.O. Box 98521, NSF001
Las Vegas, Nevada 89193-8521

WEL-2015-04

Dear Dr. Juzaitis:

The Office of Enterprise Assessments' Office of Enforcement has completed an evaluation of an incident involving a worker exposure to n-propyl bromide (1-Bromopropane) that potentially exceeded the 2014 American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV) of 0.1 parts per million (ppm) at the Remote Sensing Laboratory – Nellis Technical Services Building high bay area. National Securities Technologies, LLC (NSTec) manages and operates the Nevada National Security Site and the Remote Sensing Laboratory under a contract with the National Nuclear Security Administration (NNSA) and is subject to the provisions of the U.S. Department of Energy's (DOE) *Worker Safety and Health Program* (WSHP) rule 10 C.F.R. Part 851. The Office of Enforcement is issuing this enforcement letter to NSTec in response to information provided in Occurrence Reporting and Processing System (ORPS) NA- -NVSO-NST-NLV-2015-0001, dated March 16, 2015, and ancillary contractor records. This event is significant because it suggests a lack of management attention to the hazards of chemical products entering the workplace and revealed recurring issues in chemical handling and control that were evident at the time of a drum explosion at NNSS on June 13, 2014.

The event occurred during quantitative exposure sampling on February 26, 2015, and involved the use of a solvent Entron-CE, which is composed of 1-Bromopropane and 1,2 Epoxybutane, not inclusive, in a Branson ultrasonic degreaser (model B252R). The Office of Enforcement determined that NSTec continues to be challenged in implementing effective processes for workplace hazard identification and assessment, hazard prevention and abatement, and employee training. Specifically:

- NSTec did not implement the processes described in its 10 C.F.R. Part 851 *Worker Safety and Health Program Description* to evaluate and document the assessment of hazards associated with the handling and use of Entron-CE as a



degreasing solvent in a Branson ultrasonic degreaser. Additionally, NSTec's *Job Hazard Analysis No. FY14-RSLN-X141-071, Operation of Branson Vapor Degreaser* did not incorporate the manufacturer's instructions on machine operations and chemical handling.

- NSTec did not identify one of the components of Entron-CE (1,2 butylene oxide) as a possible carcinogen as listed by the International Agency for Research on Cancer. As a result, NSTec did not implement the processes described in NSTec's directive CD-P450.013, *Occupational Exposure Prevention and Control of Carcinogens and Reproductive Hazards*.
- NSTec did not assess worker exposure to chemical workplace hazards as often as necessary to ensure compliance with changes to the TLV. On July 31, 2013, the Occupational Safety and Health Administration (OSHA) issued a News Release and a Hazard Alert advising of the ACGIH proposal to lower the TLV for 1-Bromopropane from 10 to 0.1 ppm. On January 31, 2014, ACGIH did, in fact, change the TLV for 1-Bromopropane from 10 to 0.1 ppm. The Branson ultrasonic degreaser was installed on September 9, 2014, and first used on September 10, 2014. NSTec became aware of the TLV reduction only after being advised by the NNSA Nevada Field Office.
- NSTec did not consider necessary precautions (e.g., respiratory protection) for protecting personnel who participated in a February 26, 2015, exposure assessment that was designed to produce "worst case" sampling results. This work evolution during degreasing operations with the Branson ultrasonic degreaser generated an unknown breathing zone concentration of 1-Bromopropane. The operating parameters established for this work evolution did not reflect "routine" work conditions addressed in the existing industrial hygiene process evaluation dated February 10, 2015. Rather, the sampling strategy was intended to monitor 1-Bromopropane in an inadequate ventilated work area during multiple cleaning cycles. In addition, NSTec did not develop a strategy to assess conditions after the sampling campaign ended in order to verify that the work area was safe for resuming normal operations.
- NSTec did not provide effective training on the use of the Branson ultrasonic degreaser and degreasing solvent.
 - The pre-job brief did not adequately address the hazards associated with filling, operating, and maintaining the Branson ultrasonic degreaser and NSTec's industrial hygienists were not aware of the potential respirator requirements when using Entron-CE. As a result, workers were unaware of the enhanced ventilation requirements when opening the degreaser's cover during the cleaning process, or the inappropriateness of using disposable dust masks.

- Hazard communication training did not give workers sufficient information about the methods and observations they could use to detect the presence or release of hazardous chemicals in the work area, or the measures they could take to protect themselves. Hazard communication training should emphasize the inappropriateness of using dust or paper masks for handling any chemicals. Recommendations for respiratory protection were provided to first line management February 10, 2015, approximately five months after operations began.

The Office of Enforcement acknowledges NSTec's initiative in submitting the ORPS report to share information about this event within the DOE complex and notes that the event did not exceed regulatory exposure limit for 1-Bromopropane (10 ppm) based on the ACGIH standards incorporated into NSTec's approved Part 851 WSHP. Nevertheless, Part 851 does not relieve NSTec from complying with any additional applicable requirements that would protect the safety and health of its workers. NSTec should have considered the 2013 OSHA hazard alert on 1-Bromopropane as well as the ACGIH's reduction of the TLV as clear indications that an exposure limit of 10 ppm would not adequately protect NSTec's workers.

In addition to the above concerns, the Office of Enforcement determined that the documented corrective actions may be insufficient to prevent recurrence of this type of event because those actions do not include an examination of commonalities in process deficiencies related to the 2014 drum explosion event, or identification of all potential regulatory noncompliances. For example, both events demonstrated a lack of (or ineffective) worker exposure assessment to chemical hazards through workplace monitoring as well as ineffective pre-job briefings to prepare workers for the assigned tasks. In addition, both events revealed weaknesses in industrial hygiene monitoring, which would verify compliance with required occupational exposure limits, verify qualitative assumptions regarding the level of exposures to workers, and help determine effectiveness of any hazard controls (or personal protective equipment used).

Issuance of this enforcement letter reflects DOE's decision to not pursue further enforcement activity at this time. In coordination with NNSA, the Office of Enforcement will continue to monitor NSTec's efforts to maintain a safe workplace.

This letter imposes no requirements on NSTec and no response is required. If you have any questions, please contact me at (301) 903-7707, or your staff may

contact Mr. Kevin Dressman, Director, Office of Worker Safety and Health Enforcement, at (301) 903-0100.

Sincerely,

A handwritten signature in black ink that reads "Steven C. Simonson". The signature is written in a cursive style with a large, prominent 'S' at the beginning.

Steven C. Simonson
Director
Office of Enforcement
Office of Enterprise Assessments

cc: Steve Lawrence, NA-NV
Brian Barbero, NSTec