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December 9, 2016

U.S Nuclear Regulatory Commission
Region IV
1600 E, Lamar Blvd
Arlington, Texas 76011-4511

Attn: Roberto J. Torres
Radioactive Materials Licensing

Re: Application for Exemption
USNRC RAM License No. 15-29301-02

PUBLIC
☐ Immediate Release
☒ Normal Release

NON-PUBLIC
☐ A.3 Sensitive-Security Related
☐ A.7 Sensitive Internal
☐ Other:_____

Reviewer: ROC Date: 12-14-16

Dear Mr. Torres:

DBI Inc., NRC License No. 15-29301-02, hereby requests exemption from the USNRC regulations in accordance with 10 CFR 20.2301 and 10 CFR 34.111, Applications for Exemptions, to allow for use of the Instadose personnel monitoring badge. The specifics of our request are listed below:

A. We request exemption from the following specific regulations:

1) 10 CFR 20 .1003 (definition of dosimetry processor);
2) 10 CFR 20.150l(d)(l); and,
3) 10 CFR 34.47(a).

The basis for the exemption request is to allow DBI, Inc. (the licensee) to utilize the Instadose monitoring badge as the personnel dosimeter of choice for monitoring the radiation exposure to employees during industrial radiographic operations.

The Instadose monitoring badge and process, in our opinion, already conforms to the provisions of and the intent of the regulation as a personnel monitoring dosimeter processed by a NVLAP accredited processor. The Instadose monitoring badge is supplied by Mirion Technologies (Quantum Products) who maintains the role and function of the processor. Mirion is a NVLAP accredited processor holding current NVLAP accreditation (Lab Code 100555-0). The Instadose badge is approved under this NVLAP accreditation for whole body dosimetry. The badge satisfies all required personnel monitoring performance criteria and offers many additional safety related benefits, thereby providing accurate measurement of occupational radiation exposure, reporting those exposures and incorporating additional enhancements allowing improved management of those occupational radiation exposures. Attached are the current certificates acknowledging the accreditation for your reference. Please note that in no manner is DBI Inc. acting as or portraying itself as the processor for this badge. DBI Inc. is only the user (wearer) of the badge.

We understand there may be some misconception on the part of NRC regarding use of Instadose relating to the manner in which it conforms to the current regulations. Therefore, we provide the following description/clarification of the badge and the process by which it is used. The Instadose dosimeter is based on proprietary direct ion storage technology. This breakthrough technology provides radiation workers with a precise measurement of radiation dose and includes accurate long-term exposure tracking. A built-in memory chip stores each user's identity via an embedded unique serial code that is assigned to the user.

Before use, each device must be registered online. During the registration process, the driver and client are installed on the user's computer and the device is initialized for use. Unlike other types of personnel monitoring badges, the Instadose badge itself (hardware) is not physically exchanged with the processor. Each time the badge is read, the user logs into the system using a unique user name and password and plugs the USB enabled device into the USB port on the computer and hits (clicks on) "Read Device". The data contained on the badge (radiation exposure data) is then transmitted to (exchanged with) the processor without alteration, modification or other processing by the user for evaluation. The accumulated dose stored on the device processes through a proprietary algorithm. This fully automated transfer of data minimizes the chance of human error and misidentification. The processor (Mirion Technologies) then evaluates the data and an immediate report is provided to the user (monitored individual and DBI Inc).

We therefore consider the Instadose monitoring badge as meeting the requirements of 10 CPR Part 20 and 10 CFR Part 34 as follows:

1) 10 CFR 20.1003 - Mirion Technologies is a NVLAP accredited organization that, through their proprietary system, processes and evaluates ea.ch individual Instadose badge to determine the radiation dose delivered to the badge. As such, Mirion Technologies meets the definition of a dosimetry processor.

2) 10 CFR 20.150I(d)(l) - The Instadose badge is processed by Mirion Technologies, which holds a current NVLAP accreditation, and the Instadose badge is approved in this accreditation.

3) 10 CFR 34.47(a) - DBI Inc does not allow any individual to act as a radiographer or radiographer's assistant unless, at all times during radiographic operations, each individual wears, on the trunk of the body, a direct reading dosimeter, an alarming ratemeter, and a personnel dosimeter (Instadose) that is processed and evaluated by an accredited NVLAP processor (Mirion Technologies).

Additionally, use of the Instadose badge also meets other associated requirements of the regulations as follows:

1) 10 CFR 34.47(a)(2) - Each Instadose badge is assigned to and worn by only one individual.

2) 10 CFR 34.47(a)(3) - Although the Instadose badge itself (hardware) is not physically returned to the processor, the data is transmitted to the processor (processed) at periods not to exceed one month or as otherwise permitted by license or regulation.

3) 10 CFR 34.47(a)(4) - The Instadose badge is processed immediately each time the badge is "read", and an immediate report is provided to the user. This far exceeds the requirement of "as soon as possible".

B. Use of the Instadose provides the user (DBI Inc.) with the following benefits that are equivalent to or exceed the health and safety measures provided by other forms of personnel monitoring devices.

1) The minimum reportable dose for Instadose is 3 mrem, with a useful dose range of 1 mrem to 500 rem, and a lower limit of detection of 1 mrem. This data is comparable to that of other types of personnel dosimeters available.

2) The range of photon energy response is 5 kev to 6 Mev which is within the range expected for the types of radiation (x-ray and gamma) utilized by the licensee and again is comparable to other types of dosimeters.

3) Each individual user (wearer) can upload the data from their badge as often as they wish (unlimited read capability). This allows each user to view their accumulated exposure at multiple times during the monitoring period, each time they log into the system, allowing each user to more accurately and efficiently monitor their monthly and accumulated exposure.

DBI has employees that have used Instadose at previous employers and have seen the benefits of being able to view their exposure each time the badge is read as total overall exposures have reduced and fewer established ALARA investigative exposure levels have been exceeded. We feel this is due to the employees being more cognizant of their exposure since they are able to view their exposure levels each time they log into the system.

4) During emergency situations, exposures can be determined immediately by uploading the data (reading the badge), sometimes directly at the site if a computer is available. This eliminates the need to suspend operations, send the badge for emergency processing, and wait for the report in order to determine the extent of exposure. Using Instadose, the exposure is determined as soon as the badge is read and can potentially result in less lost time on the jobsite and wearer anxiety.

5) Since badges do not need to be collected and physically returned to the processor, time and cost in maintaining the dosimeter badge program are reduced. This allows the RSO more time to focus on other elements of the program.

C. Alternative methods of complying with the regulation and their feasibility include the following:

1) In our opinion the Instadose badge meets all of the required performance criteria with the addition of several radiation exposure management benefits. This is based on information provided by the supplier that the badge is NVLAP approved.

2) The use of the Instadose badge has proven to reduce overall exposure to employees by the ability of each employee to view their dose each time they log into the system. Other types of personnel dosimeters decrease the level of safety to the employees as dose values are not viewed until the exposure report is received following processing. This can sometimes be as much as 15-20 days following the end of the month. Employees are more cognizant of their exposure utilizing Instadose since they can view their dose every time they log into the system and can upload the reading multiple times during the month. This results in an increased ability to maintain doses ALARA.

3) Currently we are unaware of a personnel dosimeter that is capable of providing the individual wearers with the information they receive from using Instadose. The convenience of being able to view exposure levels at any time during the monitoring period is an elevated safety feature not available with other dosimeters we've researched.

4) Lastly, the convenience of not having to change out badges each month has resulted in badges being processed in a timelier manner. Instead of having to determine how to get badges to/from employees that are working away from the office, readings can be uploaded from anywhere provided a computer (laptop, tablet, etc.) is available with the Instadose driver installed. Other types of personnel dosimeters have to be exchanged each month, creating additional time required of the RSO and the expense of shipping the badges back to the processor which is not necessary when utilizing Instadose.

In summary, we respectfully request this exemption to the regulations in an effort to receive NRC's approval for the use of the badge as the personnel dosimeter of choice. DBI Inc. interpretation of the regulation, in conjunction with our research on the badge and the supplier, indicates the Instadose badge meets the essential requirements of a personnel monitoring badge as referenced in the regulations. Mirion Technologies, as a NVLAP accredited processor, also meets the definition of a dosimetry processor. We feel the use of the Instadose badge is not detrimental to the health and safety of our employees and actually provides an increased level of safety that promotes ALARA practices and reduces overall exposure.

If you should require any additional information or should you have any questions regarding this application for exemption, please contact me at (913)238-2429 or (913)888-2321

Sincerely,

Matt Slaymaker
Corporate Radiation Safety Officer
DBI Incorporated

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100555-0

Mirion Technologies (GDS), Inc
Irvine, CA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

Ionizing Radiation Dosimetry

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2015-06-11 through 2016-06-30
Effective Dates

DEPARTMENT OF COMMERCE * UNITED STATES OF AMERICA *

For the National Voluntary Laboratory Accreditation Program

NVLAP® National Voluntary Laboratory Accreditation Program

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Mirion Technologies (GDS), Inc
2652 McGaw Avenue
Irvine, CA 92614
Mr. Kip Bennett
Phone: 949-419-1000 x2371 Fax: 949-296-1150
E-Mail: kbennett@mirion.com
URL: http://www.mirion.com/index.php?p=dosimetry_division

IONIZING RADIATION DOSIMETRY **NVLAP LAB CODE 100555-0**

This facility has been evaluated and deemed competent to process the radiation dosimeters listed below through employing the TLD automatic readers: Panasonic model UD710A, UD7900, and Harshaw models 5500 and 8800; MacBeth TD932 densitometer, a custom automatic developer and densitometer for film processing, and a TASL Image track etch system.

WHOLE BODY

This facility is accredited to process the following dosimeters by demonstration of compliance with ANSI HPS N13.11 through testing.

100555-G, RemTrak Wallet Card (Badge Type 21/22) - TLD-100-WC for ANSI N13.11-2009 categories IB and IIB.

100555-H, TLD760 (Badge Type 16) - TLD-760-PB for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and VCA.

100555-N, TLD760-CR39 (Badge Type 15) - TLD-760-PB-CR39 for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and ANSI N13.11-2001 category VIA.

100555-Q, Film (Badge Type 01) - Film-FB for ANSI N13.11-2009 categories IB, IC, IIA, IIIB, and IVAB.

100555-W, Genesis 100 (Badge Type 14) - TLD-100-DB for ANSI N13.11-2009 categories IB, IC, IIA, IIIB, and IVAB.

For the National Voluntary Laboratory Accreditation Program

IONIZING RADIATION DOSIMETRY **NVLAP LAB CODE 100555-0**

100555-X, Genesis-CR39 (Badge Type 15) - TLD-760-DB-CR39 for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and ANSI N13.11-2001 category VIA.

100555-Y, Genesis Ultra-CR39 (Badge Type 35) - TLD-MCP-DB-CR39 for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and ANSI N13.11-2001 category VIA.

100555-Z, Genesis (Badge Type 16) - TLD-760-DB for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and VCA.

100555-A1, Genesis Ultra (Badge Type 36) - TLD-MCP-DB for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and VCA.

100555-A3, Panasonic TLD (Badge Type 03) - TLD-Pan-HB for ANSI N13.11-2009 categories IA, IIA, IIIA, IVAA and VCA.

100555-A5, Instadose ID-1.5 - ID-1.5.1 for ANSI N13.11-2009 categories IA, IIA, and IIC.

100555-A7, Instadose ID-1.6 - ID-1.6 for ANSI N13.11-2009 categories IA, IIA, and IIC.

100555-B3, Instadose ID-2.1 - Detector type: DIS for ANSI N13.11-2009 categories IA, IIA, IIIB, and IVAB.

100555-B4, Instadose ID-1.7 - ID-1.7 for ANSI N13.11-2009 categories IA, IIA, and IIC.

100555-B6, APex (Badge Type 30) – OSL-BeO2-Bx for ANSI N13.11-2009 categories IA, IIA, IIC, IIIB, and IVAB.

EXTREMITY

This facility is accredited to process the following extremity dosimeters by demonstration of compliance with ANSI N13.32 through testing.

100555-L, MeasuRing (Badge Type 19) - TLD-100-Mx for ANSI N13.32-2008 categories IA, IIA, IIIA, and IIID.

100555-S, UltraRing (Badge Type 18) - TLD-100-Hx for ANSI N13.32-2008 categories IA, IIA, IIIA, and IIID.

100555-A2, FlexRing (Badge Type 18) - TLD-100-RF for ANSI N13.32-2008 categories IB and IIB.

IONIZING RADIATION DOSIMETRY **NVLAP LAB CODE 100555-0**

100555-A6, MeasuRing (Badge Type 19) - TLD-107-Mx for ANSI N13.32-2008 categories IA, IIA, IIIA, and IIID.

100555-A8, EXT (Badge Type 16) TLD-760-PW for ANSI N13.32-2008 categories IB, IC, IIA, IIIA, and IVAA.

100555-A9, Genesis-EXT (Badge Type 16) TLD-760-DW for ANSI N13.32-2008 categories IB, IC, IIA, IIIA, and IVAA.

100555-B1, Genesis Ultra-EXT (Badge Type 36) TLD-MCP-DW for ANSI 13.32-2008 categories IB, IC, IIA, IIIA, and IVAA.

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1600 E LAMAR BLVD

ARLINGTON TX 76011-4511

TX 760 0-01

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(05-2016)

U.S. NUCLEAR REGULATORY COMMISSION

ACKNOWLEDGEMENT - RECEIPT OF CORRESPONDENCE

Name and Address of Applicant and/or Licensee	Date
Matt Slaymaker, Radiation Safety Officer DBI, Inc. 8853 Lenexa Drive Overland Park, KS 66214	12/13/2016
	License Number(s) 15-29301-02
	Mail Control Number(s) 592504
	Licensing and/or Technical Reviewer or Branch CHill

This is to acknowledge receipt of your: ☑ **Letter and/or** ☐ **Application** **Dated:** 12/09/2016

The initial processing, which included an administrative review, has been performed.

☑ **Amendment** ☐ **Termination** ☐ **New License** ☐ **Renewal**

☐ **There were no administrative omissions identified during our initial review.**

☐ **This is to acknowledge receipt of your application for renewal of the material(s) license identified above. Your application is deemed timely filed, and accordingly, the license will not expire until final action has been taken by this office.**

☐ **Your application for a new NRC license did not include your taxpayer identification number. Please complete and submit NRC Form 531, Request for Taxpayer Identification Number, located at the following link:** http://www.nrc.gov/reading-rm/doc-collections/forms/nrc531.pdf

Follow the instructions on the form for submission.

☐ **The following administrative omissions have been identified:**

Your application has been assigned the above listed MAIL CONTROL NUMBER. When calling to inquire about this action, please refer to this control number. Your application has been forwarded to a technical reviewer. Please note that the technical review, which is normally completed within 180 days for a renewal application (90 days for all other requests), may identify additional omissions or require additional information. If you have any questions concerning the processing of your application, our contact information is listed below:

Region IV
U. S. Nuclear Regulatory Commission
DNMS/NMSB - B
1600 E. Lamar Boulevard
Arlington, TX 76011-4511
(817) 200-1209 or (817) 200-1140

✓12/13/16

BETWEEN:

Accounts Receivable/Payable
and
Regional Licensing Branches

[FOR ARPB USE]
INFORMATION FROM WBL

Program Code: 03320
Status Code: Pending Amendment
Fee Category: 3O
Exp. Date: 08/31/2018
Fee Comments:
Decom Fin Assur Reqd: N

License Fee Worksheet - License Fee Transmittal

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee:	DBI, Inc.
Received Date:	12/13/2016
Docket Number:	3038754
Mail Control Number:	592504
License Number:	15-29301-02
Action Type:	Amendment

2. FEE ATTACHED

Amount: _____

Check No.: _____

3. COMMENTS

Signed: Paul R Hence

Date: 12/13/16

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered / /)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:

Amendment: _____

Renewal: _____

License: _____

3. OTHER _____

_____

Signed: _____

Date: _____