

## Roldan, Lizette

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**From:** Roldan, Lizette  
**Sent:** Tuesday, October 02, 2012 8:45 AM  
**To:** 'michael\_beshore@cameco.com'  
**Subject:** REQUEST FOR ADDITIONAL INFORMATION REGARDING NEW LICENSE APPLICATION CONTROL 577906  
**Attachments:** sr1556v14.pdf

License No.: 49-27458-02  
Docket No.: 030-38564  
Control No.: 577906

Dear Mr. Beshore:

This is in reference to your application dated June 29, 2012 requesting a new Nuclear Regulatory Commission License. In order to continue our review, we need the following additional information:

1. Please provide a statement: "Pursuant to 10 CFR 30.35(g), we shall maintain drawings and records important to decommissioning and transfer these records important to decommissioning and transfer these new records to a new license before licensed activities are transferred, or assign the records to the appropriate NRC Regional office before the license is terminated."
2. The NRC prohibits from using neutron generators in fresh water aquifers unless the licensee requests and receives written permission from the NRC. Please confirm you will NOT use neutron generators in fresh water aquifers. **OR** Please confirm you WILL use neutron generators in fresh water aquifers **AND** you will update your Operating and Emergency procedures to include the following information:
  1. Obtaining specific knowledge of the borehole conditions from the drilling team or company
  2. First running a caliper log to show the hole is open or to find problem areas
  3. First running a tool without a radioactive source to show it can be freely removed
  4. Placing a temporary casing in sections of the hole giving problems.
3. Please provide a statement: "We will provide training of applicable sections of 10 CFR Part 19 and 20 to all logging supervisors and logging assistants."
4. You have stated in your application that successful completion of your training exam is 70%. Please note that NRC requirements state an 80% as the minimum passing grade. Please provide a statement: "We will update our Operating and Emergency Procedures to reflect the training exam passing grade to 80%."
5. Please provide a statement: "We will prepare a written agreement with the employing well owner in accordance with 10 CFR 39.15 if we use the tritium neutron generator target source in a well without a surface casing to protect fresh water aquifers."
6. In addition to your survey instrument descriptions, please provide a statement: "We reserve the right to upgrade our survey instruments as necessary."
7. Please provide a statement: "Prohibited activities described in Section 8.10.9.3 of NUREG-1556, Vol. 14 (attached) will not be conducted unless approved by the NRC."

8. Please confirm either "Major decontamination procedures will NOT be performed. Decontamination of the facilities or sealed sources requires special authorization from the NRC or an Agreement State." **OR** "Major decontamination procedures will be performed, and procedures to perform major decontamination activities are provided. Applicants should submit their procedures to perform major decontamination activities if they intend to perform the activity rather than contracting the work to a licensed entity."
9. Please provide a statement that: "We will only use radioactive markers where each individual marker contains only quantities of licensed material not exceeding the exempt quantities identified in 10 CFR 30.71, Schedule B, as described in Section 8.10.14 of NUREG-1556, Vol.14." **OR** Submit procedures for using radioactive markers that are in excess of the quantities in Section 8.10.14 of NUREG-1556, Vol.14.
10. Please provide a statement that: "We will use neutron generator (accelerators) in accordance with the criteria in Section 8.10.15 of NUREG-1556, Vol. 14".

Current NRC regulations and guidance are included on the NRC's website at [www.nrc.gov](http://www.nrc.gov); select **Nuclear Materials; Medical, Academic, and Industrial Uses of Nuclear Material**; then **Regulations, Guidance, and Communications**. You may also obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-866-512-1800. The GPO is open from 7:00 a.m. to 6:30 p.m. EST, Monday through Friday (except Federal holidays).

We will continue our review upon receipt of this information. Please reply to my attention at the Region IV Office and refer to Mail Control No. 577572. You may respond by regular mail, fax at 817-200-1188 or email as a PDF attachment. If you have any technical questions regarding this deficiency letter, please call me at 817-200-1596.

If we do not receive a reply from you by **October 10, 2012** we will assume that you do not wish to pursue your application and this amendment request will be voided without prejudice to the resubmission to a new amendment request.

Sincerely,

***Lizette Roldán-Otero, Ph.D.***

Health Physicist

U.S. Nuclear Regulatory Commission

1600 E. Lamar Blvd.

Arlington, TX 76011-4511

Office: 817-200-1596

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09 October 2012

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RE: License No. 49-27458-02  
Docket No.: 030-38564  
Control No.: 577906

Dear Ms. Roldan-Otero:

In response to the above correspondence received from your office, we respectfully submit the following:

1. As you requested, "Pursuant to 10 CFR 30.35(g), we shall maintain drawings and records important to decommissioning and transfer these records important to decommissioning and transfer these new records to a new license before licensed activities are transferred, or assign the records to the appropriate NRC Regional office before the license is terminated."
2. It is understood that the NRC prohibits the use of neutron generators in fresh water aquifers unless the licensee requests and receives written permission from the NRC. The ISR industry relies upon the use of neutron generators to verify the presence of uranium ore bodies in the sub-surface, and one requirement of the ISR process is that the ore body is saturated. Therefore the licensee is requesting the use of a neutron generator in fresh water aquifers that hosts potential uranium ore bodies, even though these aquifers are often non-potable sources of groundwater. The NRC requests the consideration of the following points to protect fresh water aquifers, and the licensee submits its responses in quotations for NRC consideration as being adequate for the protection of fresh water aquifers.
  - Obtaining specific knowledge of the borehole conditions from the drilling team or company.
    - "The licensee currently obtains specific knowledge of borehole conditions immediately following their advancement, and commits to continue obtaining specific knowledge about every borehole that a neutron generator is advanced within by the close interaction and communication with the drilling team or company." "The licensee will update the Operating and Emergency Procedures to reflect this commitment."
  - First running a caliper log to show the hole is open or to find problem areas.
    - "The licensee does not run a caliper logging tool, but does run a gamma logging tool down all boreholes." "The licensee commits to always running a non-radioactive tool (gamma logging tool) down all boreholes immediately prior to advancing the neutron generator to ensure the borehole is open and free of problem areas". "The licensee will update the Operating and Emergency Procedures to reflect this commitment."

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- First running a tool without a radioactive source to show it can be freely removed.
    - “The licensee commits to always running a non-radioactive tool (gamma logging tool) down all boreholes immediately prior to advancing the neutron generator to ensure that the neutron generator can be freely removed.” “The licensee will update the Operating and Emergency Procedures to reflect this commitment.”
  - Place a temporary casing in sections of the hole giving problems.
    - “A neutron generator will never be advanced in boreholes that have problem areas as defined by the advancement of a non-radioactive tool (gamma logging tool.” “The licensee will update the Operating and Emergency Procedures to reflect this commitment.”
3. As you requested, “We will provide training of applicable sections of 10 CFR Part 19 and 20 to all logging supervisors and logging assistants.”
  4. As you requested, “We will update our Operating and Emergency Procedures to reflect the training exam passing grade to 80%.”
  5. As you requested , “We will prepare a written agreement with the employing well owner in accordance with 10 CFR 39.15 if we use the tritium neutron generator target source in a well without a surface casing to protect fresh water aquifers.”
  6. As you requested, “We reserve the right to upgrade our survey instruments as necessary.”
  7. As you requested, “Prohibited activities described in Section 8.10.9.3 of NUREG-1556, Vol. 14 (attached) will not be conducted unless approved by the NRC.”
  8. As you requested, “Major decontamination procedures will NOT be performed. Decontamination of the facilities or sealed sources requires special authorization from the NRC or an Agreement State.”
  9. As you requested , “We will only use radioactive markers where each individual marker contains only quantities of licensed material not exceeding the exempt quantities identified in 10 CFR 30.71, Schedule B, as described in Section 8.10.14 of NUREG-1556, Vol.14.”
  10. As you requested, “We will use neutron generator (accelerators) in accordance with the criteria in Section 8.10.15 of NUREG-1556, Vol. 14.”

We hope the information submitted meets with your requirements. Please contact me if you require additional information.

Sincerely, *Michael O. Beshore*

Michael D. Beshore, P.G., MSc.  
Chief Geologist / Radiation Safety Officer