



**Occidental Chemical Corporation OxyChem**

A Subsidiary of Occidental Petroleum Corporation



January 6, 2010

Mr. Jose Macatangay  
United States Nuclear Regulatory Commission  
2443 Warrenville Road  
Suite 210  
Lisle, Illinois 60532

**Fed Ex Number: 7982 7770 5793**

Control # 318583

**SUBJECT: REQUEST TO MODIFY LICENSE #21-1771-01 TO ALLOW NON-ROUTINE MAINTENANCE**

Dear Mr. Macatangay:

This letter is a follow up to our phone conversation on 01/04/2010 and the fax sent by you dated 12/31/2009. Following are my responses to your 11 questions included in your faxed document.

- 1) Non Routine Maintenance by our crafts personnel could include: Installation, alignment, relocation or removal from service the devices containing sealed sources. Essentially the same as "mounting" operations discussed in Section 8.10.8. These activities would only take place once the shutter is closed and locked out on the sealed source.

Installation, dismantling, replacement, removal or disposal of the sealed source itself shall only be performed by persons specifically licensed by the Commission or an Agreement State to perform such services.

- 2) Performing non-routine maintenance as it relates to radiation safety, (closing and opening shutters, ensuring shutters are locked during movement of gauges, surveying the gauges after installation, overseeing any emergency situations, etc.) would be performed by the RSO (myself), or a trained designee. I have included in Attachment A my training certificate.

A trained designee would be trained by the RSO on the following.

- Site Radiation and Sealed Source Programs
- Radiation Fundamentals including principles of ionizing radiation, effects of shielding and distance, exposure limits and biological effects
- Radiation Source Lock and Tag out Procedures
- Sealed Source Emergency Procedures
- Site Standard on Control of Radiation Hazards

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- Procedures for temporary or permanent removal of sealed source gauges
- Procedures for radiation surveys
- Field visit of fixed gauge locations, shutter operation, sign and label requirements

At the time this work is to be completed, and only after the source shutter has been closed and locked out and the gauge has been surveyed and verified to exhibit  $< 5.0$  MR/hr at a distance of one foot, a craftsperson would be assigned to perform the manual handling and physical installation or removal of a gauge only.

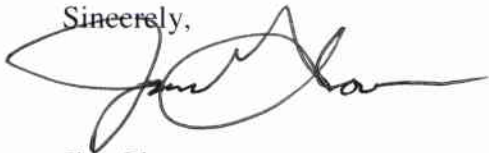
Before this craftsperson would be allowed to handle the gauge they will be trained by the RSO or his designee on Radiation Fundamentals including principles of ionizing radiation, effects of shielding and distance, biological effect of ionizing radiation, review of emergency procedures. In addition, a physical verification of the lock out of the source shutter and a satisfactory survey reading at the gauge are required before work can begin..

- 3) The installation or removal of the type of sealed source gauges in use at the Ludington site normally require no more than one-half hour of assistance from a craftsperson. Once the units are in place they normally require very little if any attention, would seldom be moved, and they do not require attendance. Additionally, devices are locked out before any non-routine maintenance is performed and surveyed to verify radiation readings are below 5.0 mR/hr at a one foot distance. The craftsperson would only handle or be exposed to sources with locked shutters and would not have a potential to be exposed to higher dose rates. The average radiation survey readings for these locked devices has been  $\sim 3.0$  mR/hr at contact and  $\sim 1.5$  mR/hr at a one foot distance with very minimal time spent around the devices. Generally no more than 4 installations and removals (2 each) would be conducted over the course of a year. At this frequency the maximum potential dose for one craftsperson would be (4 installations/removals per year \* 0.5 hours/installation \* 3 mR/hr = **6 mrem/yr**). In this conservative approach, the total annual exposure for this activity would still be about  $1/1000^{\text{th}}$  of the allowable annual limit. It is therefore extremely unlikely that an employee would approach a one year radiation dose in excess of 10% of the allowable limits. Under these exposure conditions, the use of personnel monitoring devices appears to be unnecessary.
- 4) Radiation surveys using one of our hand held radiation meters are performed within one foot of the source before and after the lock out of the source to verify the shutter has closed and the radiation levels are below 5 mR/hr This survey is repeated before the device is put back into operation.
- 5) Only those individuals who are authorized by our license shall perform any task associated with non-routine maintenance operations.
- 6) We will always follow the manufacturer's instructions and recommendations that cover any non-routine maintenance operations that we perform.

- 7) Sealed sources shall always have shields (shutters) closed and be locked out during any non-routine maintenance activities and radiation doses to members of the public shall be maintained within the regulatory limits and ALARA.
- 8) If non-routine maintenance activities involve permanent or temporarily removing devices containing sealed sources from service, such devices shall be under constant surveillance or locked in our storage area to prevent unauthorized removal or access. Our plant site utilizes 24 hour security personnel, a fenced perimeter, and surveillance cameras to secure the site.
- 9) During any non-routine maintenance activities the work area shall be barricaded as appropriate to prevent unauthorized personnel from entering the area. Additional radiation warning signs/tags shall posted at the barricade.
- 10) If any non-routine maintenance activities include utilization of replacement parts or other materials e.g., lubricants that are non-manufacturer/non-distributor supplied, other than those specified or recommended by the manufacturer or distributor, shall be evaluated before use to ensure that they do not degrade the engineering safety analysis performed and accepted as part of the device registration.
- 11) Any time non-routine maintenance activities include installing or reinstalling a device containing a sealed source, we will follow the manufacturers instructions and recommendations and prior to the device being used it shall be verified to be in good integrity and functioning properly, e.g., shutter operation checked, radiation levels surveyed, signs and labels in place etc.

Please let me know if you have any further questions or need any additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim Glover', with a stylized, flowing script.

Jim Glover  
Radiation Safety Officer  
Occidental Chemical Corporation  
1600 South Madison Street  
Ludington, Mi 49431  
231-845-4474

Attachment A

# Certificate of Completion

The Dow Chemical Company  
Midland, MI 48674



*This is to certify that*

**Jim Glover**

*Successfully completed the following course work for RSO training  
on October 27<sup>th</sup>-29<sup>th</sup>*

*2008*

## Dow Radiation Safety Officer Training Course Topics Covered:

- Radiation Fundamentals
- Radiation Monitoring
- NRC Regulations
- RSO Responsibilities
- Overview of Sealed Sources
- Emergency Response
- Shipping Regulations
- Radioactive Waste
- Global Dow Resources

A handwritten signature in black ink that reads "James R. Weldy".

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James Weldy, CHP, CIH  
Radiation and Industrial Hygiene Specialist

From: Origin ID: MKGA (231) 845-4474  
 Jim Glover  
 OxyChem  
 1600 South Madison

Ludington, MI 49431



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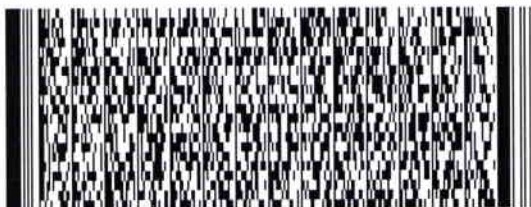
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**Jose Macatangay**  
**US Nuclear Regulatory Commission**  
**2443 WARRENVILLE RD STE 210**

**LISLE, IL 60532**

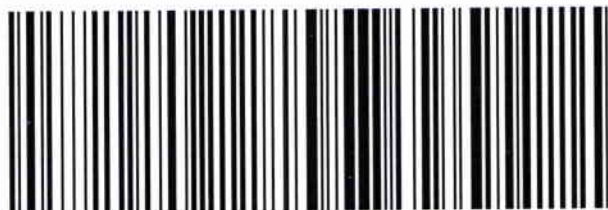
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