From: Lyle Wong [mailto:lwongpi@yahoo.com]
Sent: Wednesday, May 09, 2012 1:38 PM
To: Vasquez, Michael
Cc: Michael Kohn; Kevin Landis; Russell Stein
Subject: NRC Inspection/Findings - Pool Installation Paina Hawaii at Kunia, Oahu

Dear Mr. Vasquez:

From recent discussions, it is our understanding that two potential violations of the Paina Hawaii NRC License, No. 53-29296-01 were identified in the NRC inspection of the pool installation in Kunia between April 23 – 27, 2012.

On-site Leak test of the pool:
The post-shipment leak test of the pool was conducted on April 24, 2012 by contractor, Mr. Edward DeMello, after installation of the pool on-site. The pool was filled to near capacity volume (to within two feet of the surge tank opening, approximately 5,300 gallons) with tap water for the leak test. For the inspection of the pool, a camera was lowered by cable into the pool annulus to the bottom of the pool. Mr. DeMello observed no accumulation of water in the annulus of the pool or any evidence of pool compromise or leakage. The leak test procedure was undertaken from one side of the tank. It is suggested that an observation should have been made from all four sides of the tank. This was not a license requirement, nor was this considered necessary by CHL Systems nor Gray*Star, Inc. as a requirement for assessing the integrity of the pool post shipment. The companies believe that any damage (i.e., leakage) due to shipping and/or handling on site would have been identifiable on any/all sides since all channels on the bottom of the pool are interconnected. See attached photograph of pool bottom.
As a final check, the pool was inspected by me on Saturday, April 28, 2012 after the annulus of the pool was filled with concrete. The pool showed no evidence of leakage. The foundation of the pool was dry and water level in the pool showed no perceptible decrease from the original filling. The sides of the tank were also dry. Photographs of the pool and foundation were taken for documentation to file.

Filling of the Annulus with Concrete:
The annulus of the pool was filled with concrete on April 25, 2012. This work was supervised by contractor, Mr. Edward DeMello. Concrete was added to the annulus of pool from one side of the pool, then from the opposing side of pool. It

is suggested that this is a potential violation of the Paina Hawaii License (condition 22F of the Material License) that specifies in a letter date stamped September 7, 2006 that the concrete pour for the pool foundation will be from one side of the pool foundation in the hole to allow the flowing concrete to displace water and air beneath the pool tank to the opposite side of the pool tank. For the concrete pour into the annulus of the pool, the pour occurred from one side of the tank, then from the opposite end of the tank. It is suggested that the concrete pour into the annulus should have been solely from one end until the concrete pooled and began accumulating on the opposite end of the pool to assure removal of all air in the annulus space on the bottom of the pool. It is further suggested that void spaces in the annulus could compromise the integrity of the pool when in operation with Cobalt - 60. CHL Systems will be on site in several weeks to assist with the installation of Phase II components of the Genesis II irradiator. Paina Hawaii will contract CHL Systems to inspect the bottom of the pool and to advise on remediation measures that may be required should testing suggest the presence of voids in the pool annulus.

In reference to the above, the Paina Hawaii Material License (Item 22 f) for installation of a Genesis II underwater irradiator at 192 Palekona Street, Honolulu, Hawaii (Island of Oahu) along Lagoon Drive anticipated the need to make a wet pour for the pool concrete foundation because of the high water table at the location. The pool excavation in Kunia in Central Oahu, was entirely dry (i.e., no free standing water) in heavily compacted soil. The four feet thick concrete (4,000 lbs/sq) foundation for the pool in Kunia was leveled to a tolerance of less than 1/16 inches across the pad surface for the support of the pool in a true vertical position per specifications (CHL Systems). Due to the geological conditions at the Kunia site, the installation procedures differed from that of the Lagoon Drive site. In hindsight, a formal document should have been prepared to define and illustrate how the installation differed from that outlined in License Condition 22F.

In light of the above concerns, the following Action Summary is provided:

1. CHL Systems will inspect the installation of the pool prior to assembling the rest of the unit.
2. CHL Systems will further inspect the scratches observed after shipping and repair if necessary.
3. CHL Systems will inspect for any lifting damage and repair if necessary.

4. CHL will inspect/test for air voids in the floor portion of the annulus and remediate if necessary.
5. The Radiation Safety Committee will meet to approve all inspections, repairs and remediations as described above.
6. If any of the above require significant action, Paina Hawaii (RSO) will notify NRC prior to taking such action.
7. NRC will be notified when the above inspections/tests are scheduled so that they have the opportunity to be present.
8. NRC will be notified of all test results.
9. All findings and test results will be documented accordingly.

A conference call with NRC is requested to review each of the above issues and the proposed Action Summary.

Lyle Wong, RSO
Paina Hawaii