DRAFT Minutes of the Radiation Protection Advisory Committee (RPAC) Meeting
Combination Virtual / In Person Meeting
October 19, 2023

Meeting called to order at 9:06 a.m.

Members in Attendance:

Margaret Blackwood
Steven King
John Keklak
Ian Irvin
Anthony Montagnese
Marian Wolford
Todd Mobley
Nathaniel Burden
Aaron Fisher

Members Absent:

Janice Wirth
Summer Kaplan
Victor Rizzo

DEP Staff in Attendance:

John Chippo
Benjamin Seiber
Bryan Werner
Dennis Ferguson
Alyssa Oskin
High Garst
Victoria Parker
David Gaisior
Christopher Heckert
Nicholas Pistory
Robert Lewis
Jennifer Minnick
Kenneth Hoffman
Maria Coons
Stephanie Banning
Kristina Hoffman
Josh Myers
Lisa Funk
Dwight Shearer
Ryan Bankert
Denise Bleiler

Guests in Attendance:

Lara Renz Paciello
Caroline Paterno
Nyasha Maforo

Introduction: Adoption of Agenda; Approval of Minutes:

Minutes: The minutes from the April 27, 2023 meeting were approved and the agenda for this meeting was adopted.

Open Floor:

No members of the public registered to provide public comment. The new Executive Director of the Citizens Advisory Council introduced himself. He previously worked as an attorney for the Nuclear Regulatory Commission (NRC). An RPAC member introduced their guest, Nyasha Maforo, who is a Diagnostic Medical Physics Resident at the University of Pennsylvania located in Philadelphia and completing a two-week rotation at Lancaster General Hospital. Our Decommissioning and Environmental Surveillance Manager for the Bureau of Radiation Protection (BRP) stated that in the last six months he had the opportunity to participate in 2 different tabletop exercises concerning the theft of a cesium-sourced blood irradiator from a medical facility. The goal of this program is to remove cesium-137 blood irradiators. While he was there, he communicated with the federal agency, and they asked us to get the message out to as many users of cesium-137 blood irradiators as possible. It is our hope that at the next RPAC meeting we will have a representative here to talk more about this topic. The program is offering to users of cesium-137 blood irradiators the opportunity for a paid at full cost of removal and disposal of their current irradiators and also will pay up to 50% of the cost of installation and purchasing an X-ray-compatible blood irradiation system. An RPAC member stated that cesium-137 blood irradiators have been removed in the Pittsburgh area and the transition went smoothly. An RPAC member wanted to add that Lancaster General Hospital used this government program for decommissioning a gamma knife; however, he did not know if the program would cover the same total cost for gamma knives as it did for cesium-137 blood irradiators.

Program Updates:

Bureau Director Shearer provided an overview of current Department of Environmental Protection (DEP) initiatives. Under the current administration, processing and granting permits has become a priority, with a new rapid response team being formed to handle permits. BRP does not have a backlog on permit applications. DEP is pushing for greater usage of electronic permit applications, fee collections, inventory, etc. However, BRP is waiting until the program has expanded, problems are worked out, and IT can assist us in the changeover. RAM licenses will never be available online due to confidentiality issues. An RPAC member asked if the new electronic submission process will be exclusively electronic or if checks could also be accepted. Bureau Director Shearer responded that while he could not guarantee one way or the other, he couldn't imagine that the new system wouldn't also accept checks.

<u>Decommissioning & Environmental Surveillance:</u> Their largest project is currently Three Mile Island's decommissioning of Unit 2, the unit that had the nuclear accident in 1979. Currently, the decommissioning is in Phase 1, where 1% of material that wasn't removed after the nuclear accident is now being removed. The material in question either got lodged, fused, or otherwise imbedded in the reactor room. Some of the things they were working on are enlarging the equipment hatch so they can get into the Unit and running drones and robots to help calculate radiation doses. The goal is to be able to alter Unit 2's condition so that it can be decommissioned like a typical unit within the next 3-4 years. Unit 1's fuel is in storage. When

nuclear power plants defuel it takes approximately 60 years to decommission. Under the previous administration, the Department of Energy was directed to investigate a final storage site for the storage and disposal of spent nuclear fuel. This project will most likely not be completed for 15-20 years due to a lack of funding.

Nuclear Safety & Emergency Response: The PA Radiological Assistance Program team has been discontinued and letters of termination have been mailed. A three-year assessment was conducted on fees collected from nuclear power plants in the state. After review, the fees will be increased by 30% followed by a 9-year flat rate so BRP can continue to be solely funded through fees and not through the General Fund. The utilities operating the nuclear plants encouraged BRP to push for a gradual increase of several percent per year be added into the Radiation Protection Act, so to avoid huge increases in future years. A $2 million project to electronically monitor radiation at the nuclear power plants has been terminated. IT and the product manufacturers were unable to get the hardware and software to work together, so the project is being shut down. It is believed that $1.5 million can be recovered from this project after litigation. An RPAC member asked if the nuclear power plants would continue to be monitored for radiation. Terminating this project does not leave the plants unmonitored as BRP coordinates with local cities, counties, PEMA, and the respective utility company to monitor any incidents and other radioactive releases at each station. Additionally, BRP is looking into drone technology to fill in any gaps in air, water, and ground testing.

Radon: The Radon division is joining with Commonwealth Media to produce radio spots and other advertisements to secure for Radon Action Month which is in January. Staff turnover in the Policy and Communications departments has slowed the development of this initiative, but these positions are being filled and the project should be moving forward. An RPAC member proposed that the Governor could sign a radon awareness declaration for Radon Action Month. Plans to coordinate and create a declaration for the Governor to sign are going forward.

IMPEP: The NRC will be coming in the first week of February to review Pennsylvania's Agreement State Program. The NRC reviews our program every 5 years. BRP should continue to score satisfactory results of our review. Satisfactory is the highest possible outcome. We will update you on our results at the next RPAC meeting.

Review of Nuclear Material Events Database (NMED) and Medical Reportable Events (MRE):

There were eight NMED events since the last RPAC meeting. Five were medical events, two events involved stolen gauges but were later recovered, and one event was an inability to retract a radiography source. An RPAC member asked why one was considered a medical event. The event involved a patient who was prescribed to receive 98 cs-131 brachytherapy seeds, was pre-planned to receive 107 by volume and was believed to have received that amount until 37 seeds were found remaining in the machine. This RPAC member questioned whether this was a medical event because in his experience a pre-planned amount was not necessarily always what the attending medical personnel would decide to use.

There were four MRE events since the last RPAC meeting. One involved a patient receiving treatment to the wrong area. Another event was that the lateral shift was omitted in treatment due to a misalignment to the AP marks and treatment was delivered with the isocenter laterally shifted from the intended target. One event was due to a treatment that could not be completed due to equipment failure. The last event involved a patient receiving the wrong treatment plan.

CBCT QMP Performance Evaluation Discussion:

The PA Dental Association has released an information sheet concerning the regulations governing Cone-Beam Computed Tomography (CBCT) machines. These sheets were sent to dental offices that have this unit. The information sheet is being distributed by BRP inspectors. In the previous meeting discussions on how businesses could convince Qualified Medical Physicists (QMP) to travel to more rural areas for a one-hour test. An RPAC member commented that he was contacted by several consulting physicists and none of them had been contacted by any of the more rural dental offices. The issue could be that the dental offices don't know who to contact and not that physicists are unwilling to travel. A BRP staff member inquired about the progress of the letter to manufactures concerning the inclusion of phantoms. BRP personnel confirmed that the letters had been mailed. They also asked about the possibility of using a Qualified Expert (QE) to inspect the CBCT machines. BRP personnel confirmed that QEs were not eligible to inspect CBCT machines at this time.

Approximately one-third of all dentists in PA have the CBCT unit. Some dental offices still do not have phantoms. The question was raised to the committee as to whether they were comfortable with CBCT scanners not being serviced by a QMP. Several committee members voiced support for that proposal citing a lack of awareness in the dental community and limited number of available QMPs. Could BRP inspectors deviate from regulation and soften requirements for requiring a QMP to test CBCT machines. A BRP field inspector stated that the biggest issue is the lack of information and awareness of the regulations, and that including the informational sheet has been helpful. An RPAC member stated that the Pennsylvania Dental Association was putting together a form with contact information for QMPs, but it isn't completed yet.

Bureau Director Shearer stated that it was difficult to apply pressure against manufacturers that have a global presence and that makes it difficult to get the message out on the testing requirements to new purchasers. He then proposed that allowing BRP regional managers and inspectors to use their judgement when inspecting the CBCT unit. If allowed, inspectors could take that opportunity to educate the owners of CBCT units while not punishing them for being unaware of the testing requirements. An RPAC member argued that phantoms cannot be solely relied on for accurate testing since the test equipment is the CBCT unit itself. QMPs use specialized external equipment to test the CBCT units that most normal field service engineers do not have. A BRP staff member asked why we require an annual test for these units in a dental office and recommended that instead of requiring a yearly test, have the QMP's scatter survey of

the machine 30 days after it goes into operation. Another BRP staff member asked for clarification on the regulation governing CBCT testing, Section 221.64 of DEP's regulations states the test can be performed by a QMP or QE. The definition of a radiation QE is someone who has the knowledge and training to measure ionizing radiation, to evaluate safety techniques, and advise on protection needs. If a service provider for the machine meets that criteria it should then be acceptable for them to do the testing. An RPAC member suggested that PA DEP reach out to New Jersey's DEP concerning its experience with this issue.

An RPAC member argued that the phantom isn't a guaranteed method of inspecting the machine because her office has two CBCT units with phantoms; but they were never trained on how to perform the test. She theorized that other dental offices are in the same situation. An RPAC member suggested that before the committee consider allowing service engineers to perform the tests that the committee reach out to junior physicists that are under the auspices of certified consultants. Those groups should be contacted about the possibility of sending junior physicists to check the machine since they would cost less and if they were trained and monitored by a QE. A BRP staff member commented that CBCT units release dosages that are on par with less regulated machines. An RPAC member stated that while the machine's low-dose setting is on par with other devices, the high-dose setting is not, and is commonly used by operators. An RPAC member proposed that the committee further investigate the matter, but in the interim, allow field service engineers to serve as QEs for the purpose of servicing CBCT units.

Bureau Director Shearer noted that DEP could explore drafting a package of changes on the regulations concerning CBCT machines since they have not been reviewed for approximately 7 years. In the interim, every office that sends an application or renewal form that has CBCT marked will receive BRP's fact sheet on CBCT. When the committee goes through and addresses the issues in the "parking lot," DEP will present this package for approval. While any lists of QMPs made by BRP would not be official and wouldn't show favoritism toward any provider, it would be better to direct interested parties to lists created by the Health Physics Society or the American Association of Physicists in Medicine. The committee agreed to allow DEP to begin drafting a cleanup of the regulations for CBCT machines.

<u>Nominations of New Members and Certificates of Acknowledgment from their Nominating Bodies:</u>

Mr. Chippo reminded members he needs the nomination letters from each member's board before the end of October so members can be renewed before the end of December. Presently, one member will be retiring soon, and another member will be sending Mr. Chippo a new candidate suggestion to replace himself. The committee is looking for at least two more members to join the committee. We had someone apply, but that application was lost in the system and we requested they resubmit the application and to please also send everything to Mr. Chippo. The committee prefers to find a veterinarian and someone who works in a smaller institution or someone in the industrial field. Mr. King will reach out to a Radiation Safety Officer to help assist finding a veterinarian as a possible new member.

RAM Regulation Parking Board Discussion:

Changes need to be made to current RAM regulations to address compatibility with NRC's regulations when they open back up. Section 224.23 of DEP's regulations, related to decayed storage for sealed sources, currently allows for 300 days, which is less restrictive than the NRC's regulation allowing 120 days which BRP currently enforces. Several minor charts for exempt quantities will also be codified to match NRC's regulations. Regulations concerning medical X-rays will also be opening soon which will require a lot of updates. An RPAC member asked when regulations on Accelerators, particularly the Linear Accelerator (LINAC) would be opening back up. Mr. Chippo said while LINAC was not due to be opened again soon, if something needed changed and updated then it could be done. This RPAC member stated there is new technology and recent developments in western PA that have led their colleagues requesting this regulation be opened for comment.

Open Floor:

An RPAC member discussed that a recent study conducted by the American Academy of Oral and Maxillofacial Radiology is recommending that no shielding at all be worn during radiological examinations due to negligible risk. BRP stated it has not required lead aprons to be worn during dental X-ray procedures. Since lead aprons are not required or recommended for dental procedures, the Pennsylvania Dental Association has been discussing a statewide lead apron collection, but we did not want to move forward until we had approval or guidance from DEP. The NCRP report states that thyroid shielding shall be provided for patients when it does not interfere with the examination. This seems to conflict with the recommendation from The American Academy of Radiology and the NCRP report. An RPAC member stated they were presenting to the American Association of Physicists in Medicine and will be recommending to eliminate shielding. It has been more historically focused on gonadal shielding and pregnant women, but it does also extend to dental X-rays because of the use of certain collimated beams and most of the radiation (thyroid) is due to internal shielding, not necessarily because the thyroid is being exposed. This discussion is necessary since everyone has used shielding for 50 years or more. Much of the modern X-ray equipment uses automatic exposure control and if the lead shielding is not placed correctly, it could expose the patient to additional radiation. Our recommendation to staff is if a patient feels more comfortable having a lead shield, we can discuss it with them and if they want one, we will not deny it. However, we are going to ensure our staff place that lead shield properly so it will not increase radiation exposure. Another RPAC member opposed the removal of shielding from dental X-rays due to the possible exposure of the thyroid to radiation.

An RPAC member inquired if the public can provide feedback and comments to the NRC when they come for the IMPEP inspection. They had been hearing from various colleagues in Eastern PA that BRP inspections had moved to complete compliance inspections and away from performance-based inspections. As an example, inspections of large programs were taking two

weeks with seven to eight inspectors onsite. The inspections were overly detailed, the questions asked were repetitive, and were using a lot of personnel time. Bureau Director Shearer responded that there were two new regional managers, new section chiefs, and plans to hire a new program manager soon. Shearer expressed complete confidence in the ability of the regions to do a complete and thorough job with their inspections. Some facilities have as many as thirty locations, some of these facilities are in remote locations, requiring additional planning to inspect. During that time, the inspection remains open, creating the illusion that the inspection is taking two weeks, when it is only taking a few days.

The meeting was adjourned at 11:34 a.m.

The RPAC meeting dates for next years' meetings will be held April 17, 2024, and October 16, 2024. The meeting format will be determined but most likely will again be a combination of virtual and in person.