UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DRAFT LICENSING GUIDANCE FOR SUPERFICIAL MANUAL BRACHYTHERAPY CIVADERM DEVICE

Purpose: To provide the Advisory Committee of Medical Uses of Isotopes an opportunity to comment on the additional licensing guidance for a new manual brachytherapy device known as Civaderm.

Background: On September 20, 2019, CivaTech Oncology Inc. received 510(k) clearance for Civaderm from the U.S. Food and Drug Administration for use as a superficial temporary brachytherapy source. Civaderm is a sealed palladium-103 (Pd-103) planar brachytherapy source inside a polymer shell. The source has both a hot and cold side. The cold side is made utilizing a thick gold layer placed inside the polymer shell and serves as a radio-opaque shell. Due to the proposed use of superficial application of a brachytherapy source, the U.S. Nuclear Regulatory Commission (NRC) staff received questions and carefully reviewed the safety aspects of the medical use of the Civaderm to determine if it should be licensed under Title 10 of the *Code of Federal Regulations* (10 CFR) Part 35, Subpart F, "Manual Brachytherapy" or 10 CFR Part 35, Subpart K, "Other Medical uses of Byproduct Material or Radiation From Byproduct Material."

Following its evaluation, the NRC staff recommended that Civaderm be licensed under 10 CFR 35, Subpart F, "Manual Brachytherapy" to the NRC/Organization of Agreement States (OAS) Standing Committee of Emerging Medical Technologies. The staff made this recommendation as it found the use of Civaderm is addressed in regulations contained in 10 CFR 35, Subpart F and has radiation safety concerns similar to other temporary brachytherapy devices used in manual brachytherapy as shown in the attached table. The standing committee agreed with the staff's recommendation and determined Civaderm should be licensed under 10 CFR 35.400. In accordance with 10 CFR 35.400, the Pd-103 sources must be listed on a Sealed Source and Device Registry (SSDR) for manual brachytherapy and used in accordance with the radiation safety conditions and limitations described in that SSDR or in research under an active Investigational Device Exemption as described in 10 CFR 35.400(b).

As Civaderm will be licensed under Subpart F, NUREG-1556, Volume 9, "Consolidated Guidance About Materials Licenses: Program-Specific Guidance About Medical Use Licenses," provides the necessary guidance for licensing. However, the Standing Committee recommended NRC staff provide additional guidance for patient release considerations as Civaderm is affixed superficially. The manufacturer states the Civaderm sources can be affixed to a patient's skin by a variety of means, such as staples, glue, tape, sutures, or cast. As application is superficial, there is a higher potential for the source to become dislodged from a patient than with previous brachytherapy therapies. The NRC staff identified several focus areas with regards to the licensing and oversight of Civaderm sources and has drafted additional guidance to address potential concerns and ensure controls in these key areas. The draft

guidance for your review and comment is provided below. Once finalized, we will provide this guidance to the NRC regions and the Agreement States.

Draft Licensing Guidance

Procedures for Administration

If a Civaderm source becomes loose or dislodged, it is likely the administration would not go in accordance with the written directive and result in a medical event as defined in 10 CFR 35.3045, "Reports and notification of a medical event." In accordance with 10 CFR 35.41, "Procedures for administration requiring a written directive", licensees must develop, implement, and maintain written procedures to provide high confidence that each administration is in accordance with the written directive. This written procedure must contain necessary affixation processes to ensure the source will not become loose or dislodged from the patient under normal conditions to ensure high confidence the procedure will be in accordance with the written directive. In addition, licensees must have written procedures to determine if a medical event has occurred in accordance with 10 CFR 35.41. If a patient is released in accordance with 10 CFR 35.75 while treatment is ongoing, these procedures need to include how a licensee will determine if the source moved or became dislodged to determine if a medical event occurred. If the NRC becomes aware of future developments related to the production, distribution, or medical use of the Civaderm that may negatively impact radiation safety, the NRC staff will revisit this licensing decision for any additional actions.

Patient Release Considerations

Regulations in 10 CFR 35.75 permit licensees to authorize the release of any individual from its control who has been administered unsealed byproduct material or implants containing byproduct material if the total effective dose equivalent (TEDE) to any other individual from exposure to the released individual is not likely to exceed 5 millisieverts (mSv) (0.5 rem). As members of the public could be exposed to the hot side of the source, it is possible that public dose limits could be exceeded if the source becomes loose. Therefore, licensees must ensure that the Civaderm sources are affixed to the patient so that they are highly unlikely to become loose or dislodged. Patients must not be released from the licensed facility if it is possible that the Civaderm sources could become loose or dislodged from the patient under normal conditions.

As described in 10 CFR 20.1003, public dose limits[1] in 10 CFR Part 20 do not apply to exposure to individuals released under 10 CFR 35.75. However, public dose limits would apply if the source becomes dislodged or separated from the patient, as Part 20 does not exclude exposure from sources which are no longer affixed to a patient. If there is a potential for a source to become dislodged under unique situations, licensees must have preventative measures in place to ensure these public dose limits are not exceeded. Preventative measures include providing licensees with a shielded container to place the source if it becomes dislodged. In addition, licensees should provide patients emergency contact information with 24-hour a day coverage and instructions to contact the licensee immediately if a source becomes loose or after the source is secured if it becomes dislodged. If a licensee discovers a member of the public

1 Public dose limits in Part 20 are provided in 10 CFR 20.1301, "Dose limits for individual members of the public" and are 0.1 rem in a year and 0.002 mrem in any one hour.

exceeds the public dose limits in 10 CFR 20.1301 due to exposure from a source no longer affixed to a released patient, licensees must report the event in accordance with 10 CFR 20.2203, “Reports of exposures, radiation levels, and concentrations of radioactive material exceeding the constraints or limits.”

Source Accountability

Licensees must maintain accountability at all times for Civaderm brachytherapy sources in storage or use in accordance with 10 CFR 35.406, “Brachytherapy sources accountability”. In addition, licensees must also maintain records of Civaderm source accountability, in accordance with 10 CFR 35.2406, “Records of brachytherapy source accountability.” Specifically, the records of source accountability for temporary implants should include the location of use. For Civaderm sources used on an outpatient basis, locations of use should include the patient’s residence or locations where the patient will spend a significant period of time (i.e., work place).

If a licensee is unable to retrieve the source from the patient following treatment for whatever reason such as the source fell off or the patient does not return, the source would be considered lost or missing. Regulations in 10 CFR 20.2201, “Reports of theft or loss of licensed material,” require a licensee report any lost, stolen, or missing source. For Pd-103, if the activity of the aggregated activity of the source is over 100 mCi, the licensee would need to make an immediate telephone report accordance with 10 CFR 20.2201(a)(1)(i). If the aggregated activity is over 10 mCi, the licensee would need to make a 30 day telephone report in accordance with 10 CFR 20.2201(a)(1)(ii). The licensee shall also provide a written report within 30 days of making the telephone report, in accordance with 10 CFR 20.2201(b). The written report shall contain a description of the licensed material involved, including kind, quantity, and chemical and physical form; a description of the circumstances under which the loss or theft occurred; a statement of disposition, or probable disposition, of the licensed material involved; exposures of individuals to radiation, circumstances under which the exposures occurred, and the possible total effective dose equivalent to persons in unrestricted areas; actions that have been taken, or will be taken, to recover the material; and procedures or measures that have been, or will be, adopted to ensure against a recurrence of the loss or theft of licensed material.

Discussion: We appreciate your review and comments of this draft licensing guidance. The draft licensing guidance is also being transmitted to the Organization of Agreement States and the NRC regions for review and comment at the same time. Following resolution of comments, the NRC staff intends to issue this licensing guidance on the NRC’s medical toolkit website as well as send them to the Agreement States and regions. Note comments of an editorial nature will be considered; however, the draft text may undergo additional technical editing and formatting by the NRC prior to publication.