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

March 14, 2022

ALL AGREEMENT STATES, CONNECTICUT, AND INDIANA

NOTIFICATION OF ISSUANCE OF ALPHA TAU ALPHA DART™ MANUAL BRACHYTHERAPY LICENSING GUIDANCE (STC-22-016)

Purpose: To inform the Agreement States, Connecticut, and Indiana that the U.S. Nuclear Regulatory Commission (NRC) issued the Alpha Tau Alpha DaRT™ Manual Brachytherapy Licensing Guidance.

Background: Alpha Tau Medical, Inc. Model Alpha DaRT™ series device was conditionally approved by the U.S. Food and Drug Administration in Investigational Device Exemption number G180076, dated May 10, 2018. Alpha DaRT™ are manual brachytherapy sources, with many unique properties that merit radiation safety considerations other than those required by Title 10 of the *Code of Federal Regulations* (10 CFR) Part 35, Subpart F, "Manual Brachytherapy." These unique properties include the recoil release of radon-220 (Rn-220), an alpha emitting noble gas, from the radium-224 (Ra-224) source. As a result, use of Alpha DaRT™ manual brachytherapy sources is regulated under 10 CFR 35.1000, "Other Medical Uses of Byproduct Material or Radiation from Byproduct Material."

Enclosure 1 provides the final 10 CFR 35.1000 licensing guidance for Alpha DaRT™. This guidance lists an approved set of regulations and licensing conditions specific to the Alpha DaRT™. This guidance should be used in concurrence with NUREG-1556, Volume 9, Revision 3, "Consolidated Guidance About Material Licenses: Program-Specific Guidance about Medical Use Licenses," which provides overall licensing guidance for all medical uses of byproduct material. Enclosure 2 provides a supporting technical analysis table which includes a list of 10 CFR Part 35 regulations and conditions the NRC has deemed acceptable for the use of Alpha DaRT™. However, as stated in the licensing guidance, applicants may submit alternative list of regulations and specific conditions to be reviewed on a case-by-case basis.

The attached licensing guidance will be posted on NRC's public Web site (https://www.nrc.gov/materials/miau/med-use-toolkit/emerg-licensed-med-tech.html).

If you have any questions regarding this correspondence, please contact me at 301-415-3340 or the individual named below:

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Signed by Anderson, Brian
on 03/14/22

Brian C. Anderson, Chief
State Agreement Liaison Programs Branch
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Enclosures:
1. Alpha Tau Alpha DaRT™ Manual Brachytherapy Licensing Guidance
2. Consolidated Technical Analysis

STC-22- 016 STC letter Notification of Issuance of Alpha Tau Alpha Dart Manual Brachytherapy Licensing Guidance DATE March 14, 2022

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Alpha Tau Alpha DaRT™ Manual Brachytherapy Licensing Guidance

March 10, 2022

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1 10 CFR 35.1000 Use

Alpha DaRT™ (Diffusing Alpha-emitters Radiation Therapy) are manual brachytherapy sources, with many unique properties that merit radiation safety considerations other than those required by Title 10 of the *Code of Federal Regulations* (CFR) Part 35, Subpart F, "Manual Brachytherapy." These unique properties include the release of radon-220 (Rn-220), an alpha emitting noble gas from the radium-224 (Ra-224) source, in tissue. As a result, Alpha DaRT™ is regulated under 10 CFR 35.1000, "Other medical uses of byproduct material or radiation from byproduct material."[1]

2 Device Description

The Alpha DaRT™ device is a source and applicator designed for manual brachytherapy. The Alpha DaRT™ source are Ra-224 seeds, which are implanted into the tumor using an Alpha DaRT™ applicator according to a pre-determined plan. Inside the tumor, the Ra-224 decays by alpha emission and the seeds release Rn-220 by recoil. Rn-220 is a noble gas and will diffuse in the extra- and intra-cellular space near the seed, occasionally entering and leaving the porous network of tumor blood vessels. Irradiation of tissue continues through beta and alpha emissions throughout the remainder of the decay chain. The seeds are made of a stainless steel with layer of Ra-224 affixed to the surface of the tube.

The applicator comprises two major components:

1. a needle or catheter, in the form of a Kapton tube, with the Alpha DaRT™ seeds placed in it. The Alpha DaRT™ seeds are stringed on a biocompatible suture and loaded inside a rigid needle or flexible catheter and sealed inside with glycerin; and
2. a stylet (plunger) inserted into the needle cannula (or catheter), reaching the back end of the Alpha DaRT™ seeds. During administration, the strung seeds are pushed through the glycerin into the tumor volume via the plunger.

In addition, there are two auxiliary components of the applicator:

1. a protective cap is attached to the needle or catheter to prevent inadvertent damage during transportation; and
2. a safety screw, which secures the needle and the stylet firmly together.

More information about the device can be found in its Sealed Source and Device Registry, MA-1426-D-101-S. The Alpha DaRT™ series device was conditionally approved by the U.S. Food and Drug Administration in Investigational Device Exemption number G180076, dated May 10, 2018, for temporary implant therapy.

[1] 10 CFR 35.1000 is designated as Compatibility Category D. Agreement States are not required to adopt these regulations for purposes of compatibility but are not prohibited from adopting Compatibility Category D regulations if they so choose. If Agreement States choose to adopt this licensing guidance, references to 10 CFR should be changed to the equivalent Agreement State regulations.

3 Licensing Guidance

The license conditions listed in this document provide applicants with the acceptable means in satisfying the requirements for a license for the use of Alpha DaRT™. This information is not intended to be the only means of satisfying the requirements. The applicant must submit the information required to meet 10 CFR 30.33, “General requirements for issuance of specific licenses,” and 35.12, “Application for license, amendment, and renewal”, as described below. The applicant should submit additional information and commitments requested below or may, unless the information is specifically required by regulation, submit alternative information and commitments for review by the U.S. Nuclear Regulatory Commission (NRC) staff to make a licensing determination. The commitments incorporated into the license-by-license condition will be reviewed during routine inspections. If an applicant commits to the guidance provided below, the applicant must follow commitments described with the use of the word “should.” This guidance may be revised as additional experience is gained regarding the medical use of Alpha DaRT™.

Applicants should also refer to NUREG-1556, Volume 9, Revision 3, “Consolidated Guidance About Material Licenses: Program-Specific Guidance about Medical Use Licenses,” as it provides overall licensing guidance for all medical uses of byproduct material, including applicable model procedures for audits, occupational dose monitoring program and surveys. Guidance specific for the use of Alpha DaRT™ under 10 CFR 35.1000, “Other medical uses of byproduct material or radiation from byproduct material” are contained herein.

4 Requirements not Specific to 10 CFR 35.1000 Use

Applicants must commit to meet the general requirements in 10 CFR Part 35, Subpart A—"General Information;” Subpart B—“General Administrative Requirements;” Subpart C—"General Technical Requirements;” Subpart L—“Records;” and Subpart M—“Reports,” except as specified in this guidance. Additionally, applicants must meet applicable requirements of 10 CFR Part 19, “Notices, Instructions and Reports to Workers: Inspection and Investigations;” Part 20, “Standards for Protection Against Radiation;” and Part 30, “Rules of General Applicability to Domestic Licensing of byproduct material.” The enclosed consolidated technical analysis table provides guidance on applicable requirements.

5 Specific Licensing Guidance for Alpha DaRT™

5.1 Radionuclides, Form, Possession Limits, and Purpose of Use

Pursuant to 10 CFR 35.12(c), the applicant must identify the radionuclide, chemical/physical form, requested maximum possession limit, and purpose of use. The information in the table below provides the suggested format for completing Item 5 (Radioactive Material) and Item 6 (Purpose of Use) on the NRC Form 313, “Application for Materials License.”

Radionuclides (NRC Form 313 Item 5a)	Radium-224 permitted by 10 CFR 35.1000
Chemical/Physical Form (NRC Form 313 Item 5b)	Sealed sources (Manufacturer Alpha Tau Medical, Inc., Model No. _____)
Maximum Possession Limit (NRC Form 313 Item 5c)	___ mCi
Purpose of Use (NRC Form 313 Item 6)	Diffusing alpha emitting brachytherapy procedure permitted by 10 CFR 35.1000.

5.2 Training and Experience

Licensees must have at least one Authorized User (AU) and Radiation Safety Officer (RSO) for Alpha DaRT™ before the source can be added to the license. NRC staff has determined the following training and experience (T&E) criteria is appropriate to authorize AUs and RSOs for Alpha DaRT™. Applicants must submit documentation showing this criterion is met, but the applicant may submit alternative T&E commitments to be reviewed on a case-by-case basis by NRC staff. The alternative T&E commitments should include an explanation of why the applicant believes the alternative T&E commitments demonstrate that the individuals are qualified to be an AU.

5.2.1 Authorized Users (AU)

NRC has determined that individuals meeting the AU T&E criteria A and B, provided below, can be authorized for the use of Alpha DaRT™.

A.

1. Is identified as an AU for medical use in 10 CFR 35.1000 for Alpha DaRT™ or 10 CFR 35.400, “Use of sources for manual brachytherapy;” or
2. Meets the T&E requirements of 10 CFR 35.490, “Training for use of manual brachytherapy sources,” including a written attestation when necessary.

And

B.

Has successfully completed training in delivery, safety procedures, and clinical use for Alpha DaRT™. This training may be provided by either the vendor for new users or by receiving training supervised by an AU authorized for Alpha DaRT™. Safety procedures and clinical use training should include preparing, implanting, and removing the seeds; using administrative controls to prevent a medical event; and using procedures to minimize the risk of and monitor for contamination and to ensure proper decontamination. The individual has a written attestation that the AU has satisfactorily completed these requirements and is able to independently fulfill the radiation safety-related duties as an AU for use of Alpha DaRT™ brachytherapy.

5.2.2 Radiation Safety Officer (RSO)

The RSO must have training as specified in 10 CFR 35.50, “Training for Radiation Safety Officer and Associate Radiation Safety Officer,” including training in radiation safety, regulatory issues, and emergency procedures for Alpha DaRT™. This training requirement may be satisfied by completing training that is supervised by an RSO, an Associate RSO, or AU authorized for Alpha DaRT, as appropriate. In addition, RSO’s should be aware of all license conditions and procedures specific to the individual license.

6. License Conditions

The applicant shall commit to follow all applicable requirements in 10 CFR Part 35 for brachytherapy sources and manual brachytherapy use and shall commit to the following licensing commitments. The table contained in the appendix provides more details on applicable 10 CFR Part 35 requirements.

6.1 Procedures for Administration

The licensee must have procedures for administration requiring a written directive as specified in 10 CFR 35.41, “Procedures for administrations requiring a written directive,” specifically to ensure high confidence that the patient’s or human research subject’s identity is verified before each administration and each administration is in accordance with the written directive. In addition to requirements in 10 CFR 35.41, licensees shall commit to include verification that seeds are fully contained within the patient’s body during treatment to avoid significant daughter products leakage and contamination. In addition, licensees shall commit to evaluating the location of the seeds prior to removal to determine if the seeds moved during treatment to determine if a medical event occurred. Similar to 10 CFR 35.2041, “Records for procedures for administrations requiring a written directive,” licensees shall retain a copy of these procedures for the duration of the license. See NUREG-1556, Volume 9, Revision 3, Section 8.10.13, “Procedures for Administration when a Written Directive is Required,” and NUREG-1556, Volume 9, Revision 3, Appendix S for more information.

6.2 Medical Event Reporting

Licensees are required to report medical events in accordance with 10 CFR 35.3045, “Medical event reporting” with the exceptions listed below.

- Licensees will not be required to report a medical event caused by a leaking source in accordance with 10 CFR 35.3045(a)(1)(ii)(e) or 10 CFR 35.3045 (2)(iii)(D) as Alpha DaRT™ seeds are not a sealed source.
- Licensee shall commit to report any event in which the seed is implanted directly into a location discontinuous from the treatment site, as documented in the post-implantation portion of the written directive. As stated above, total source strength only needs to include Ra-224 activity.
- Licensees shall commit to report any discovered event where the dose to the skin or an organ or tissue other than the treatment site that exceeds by 0.5 Sv (50 rem) or more the expected dose to that site from the procedure if the administration had been given in accordance with the written directive prepared or revised before administration; and 50 percent or more the expected dose to that site from the procedure if the administration had been given in accordance with the written directive prepared or revised before administration.

6.4 Labeling

Labeling requirements in 10 CFR 35.69, “Labeling of vials and syringes,” are not required for Alpha DaRT™ seeds. The seeds are not a radioactive drug. Licensees shall commit to keep the applicator in the labeled container (i.e., sterilized bag) provided by the manufacturer until the applicator is needed for use or conditions in 10 CFR 35.92, “Decay-in-storage” are met, if the applicator is not used and remains at the licensee facility.

6.5 Surveys

In addition to area surveys required by 10 CFR Part 20 and 10 CFR 35.70, “Surveys of ambient radiation exposure rate,” a licensee shall commit to survey with a radiation detection survey instrument the area where Alpha DaRT™ seeds were prepared for use or administered after each administration. Both ambient radiation and contamination surveys should be performed. Similar to 10 CFR 35.2070, “Records of surveys for ambient radiation exposure rate,” licensees shall retain a record of the surveys after each administration for 3 years. The record must include the date of the survey, the results of the survey, the instrument used to make the survey, and the name of the individual who performed the survey. See NUREG-1556, Volume 9, Revision 3, Section 8.10.12, “Area Surveys,” Appendix K, “General Radiation Monitoring Instrument Specifications and Survey Instrument Calibration Program,” and Appendix R, “Model Procedures for Area Surveys” for more information regarding ambient radiation and contamination surveys.

6.7 Calibration

As Alpha DaRT™ is a brachytherapy device, licensees do not need to determine unsealed byproduct activity in accordance with 10 CFR 35.63, “Determination of dosages of unsealed byproduct material for medical use.” Licensees shall commit to following 10 CFR 35.432, “Calibration measurements of brachytherapy sources,” and 10 CFR 35.2432, “Records of calibration measurements of brachytherapy sources,” for calibration and recordkeeping. In accordance with 10 CFR 35.432, licensees may use measurements provided by the source manufacturer.

6.8 Contamination Control

In addition to safety precautions required in 10 CFR 35.415, the licensee shall commit to placing all unsealed seeds that are not in use and contaminated waste in a sealed container. So that a licensee can immediately place a damaged device or unused seeds in case of an emergency to reduce contamination, licensees shall commit to having a sealed container available where sources are being prepared and used. The licensees shall use a sealed container tested by the manufacturer or licensee to ensure the container prevents Rn-220 leakage. Licensees can dispose of waste in accordance with 10 CFR 35.92, “Decay-in-storage,” or other appropriate methods allowed in 10 CFR Part 20.

6.9 Radiation Protection Program Changes

As this guidance may be revised as additional experience is gained regarding the medical use of Alpha DaRT™, an applicant initially applying for authorization for the medical use of Alpha DaRT™ may request to incorporate into its license a radiation protection program revisions process similar to 10 CFR 35.26. Such a change process can allow some future changes to radiation safety programs without a license amendment provided that the change process requires the following conditions to be met for revisions to the radiation safety program:

1. the revision is in compliance with the regulations; and
2. the revision is based upon NRC's current 10 CFR 35.1000 use guidance for Alpha DaRT™ posted on the NRC's Medical Uses Licensee Toolkit Web site; and
3. the revision has been reviewed and approved by the licensee's RSO and licensee's management; and
4. the affected individuals are instructed on the revised program before the change is implemented; and
5. the licensee will retain a record of each change for five years; and
6. the record will include a copy of the appropriate website guidance, the old procedure, the new procedure, the effective date of the change, and the signature of the licensee management that reviewed and approved the change.

7. Notes to Licensees

7.1 Change in Physical Conditions of Use

If the physical conditions of use differ from those reported in the sealed source and device registry, a limited specific medical use licensee shall request an amendment for the new conditions and a broad scope licensee shall perform its own engineering and radiation safety evaluation addressing those differences.

7.2 Written Directives

The licensee must complete a written directive in accordance with 10 CFR 35.40, "Written directives." When total source strength is required to be recorded on the written directive, only Ra-224 activity needs to be included. The licensee shall retain a copy of the written directive in accordance with 10 CFR 35.2040, "Records of written directives."

7.3 Patient Release

The licensee should develop procedures that describe measures taken to ensure that radiation emissions from each patient or human research subject permits their release in accordance with 10 CFR 35.75, "Release of individuals containing unsealed byproduct material or implants containing byproduct material." Licensees should note temporary use affixed by sutures that protrude outside of the body have a potential to become dislodged or allow for gaseous release. Patients should not be released from the licensed facility if it is likely that the seed or seal will become dislodged under normal conditions and potentially cause public dose limits to be exceeded. If there is a potential for a seed or seal to become dislodged under unique situations, licensees must have preventative measures in place to ensure public dose limits are not exceeded. Licensees must report lost sources in accordance with 10 CFR 20.2201, "Reports of theft or loss of licensed material" if a seed becomes dislodged lost and is not

recovered or if temporary implants issued to a patient are not returned to the licensee. Additional guidance for release of patients or human research subjects following administration of radioactive materials may be found in Regulatory Guide 8.39, "Release of Patients Administered Radioactive Materials."

7.4 Sealed Source and Device Registry

In accordance with 10 CFR 35.400, licensees may use Alpha DaRT™ sources for manual brachytherapy uses that are not explicitly listed in the sealed source and device registry. However, the sources must be used in accordance with the radiation safety conditions and limitations described in the sealed source and device registry. As the applicators for the Alpha DaRT™ are specific for radiation safety as they are designed to minimize contamination, licensees should only use the applicators as described in the sealed source and device registry for administration.

7.5 Brachytherapy Source Accountability

Licensees shall maintain accountability at all times for all brachytherapy sources in storage or use in accordance with 10 CFR 35.406, "Brachytherapy sources accountability." In addition, licensees shall maintain records of brachytherapy sources accountability in accordance with 10 CFR 35.2406, "Records of brachytherapy source accountability." Licensees should document the location the patient plans to reside. Licensees should also have patient contact information and provide the patient with instructions on actions to take if source is dislodged during treatment.

8. Notes to Regulators

8.1 Inspection Frequency

Licenses authorizing Alpha DaRT™ should be inspected every two years. Per Enclosure 1 to Inspection Manual Chapter 2800, "Materials Inspection Program" licenses authorizing emerging technology under 10 CFR 35.1000 are assigned a Priority 2 inspection code.

8.2 Program Code

The NRC regions should use program code 02240.

9. Paperwork Reduction Act Statement

This licensing guidance provides voluntary guidance for implementing the mandatory information collections in 10 CFR Parts 30 and 35 that are subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et. seq.). These information collections were approved by the Office of Management and Budget (OMB), approval numbers 3150-0017 and 3150-0010. Send comments regarding this information collection to the Information Services Branch (T6-A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0017, 3150-0010), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street, NW Washington, DC 20503;
e-mail: oira_submission@omb.eop.gov.

10. Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

Appendix

Consolidated Technical Analysis

The following table provides a list of 10 CFR Part 35 regulations and conditions the NRC has determined are applicable for use of Alpha DaRT. Licensees shall comply with all regulations which address use of Alpha DaRT. The table also provides specific conditions which the NRC has determined are necessary for the medical use of Alpha DaRT. In addition, the table lists where licensees and applicants can find additional guidance. Applicants may submit alternative list of regulations and specific conditions to be reviewed on a case-by-case basis by NRC staff.

Section	Description	Use Addressed in Regulation	Guidance	Alpha DaRT Guidance Section	Comment
35.1	Purpose and scope	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2	Definitions	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.5	Maintenance of records	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.6	Provisions for the protection of human research subjects	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.7	FDA, other Federal, and State requirements	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.8	Information collection requirements: OMB approval	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other		

35.10	Implementation	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.11	License required	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.12	Application for license, amendment, or renewal	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.13	License amendments	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.14	Notifications	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.15	Exemptions regarding Type A specific licenses of broad scope	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐ Alpha DaRT ☐Other		
35.18	License issuance	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.19	Specific exemptions	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
Subpart B – General Administrative Requirements					
35.24	Authority and responsibilities for the radiation protection program	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.26	Radiation protection program changes	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	6.9	The Alpha DaRT licensing guidance maybe revised as the industry gains more experience more about the technology.

					Licensees should be authorized to make radiation protection program changes to follow future revisions of the guidance. Licensees need to evaluate all aspects of its radiation safety program when adding a new use and make commensurate changes, i.e., area surveys, emergency procedures, radiation safety training, etc.
35.27	Supervision	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.40	Written directives (WDs)	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	7.2	While a new requirement is not necessary, total source strength recorded on the written directive need to only include the Ra-224 activity.
35.41	Procedures for administrations requiring a WD	☒Yes ☒No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	6.1	Requirements in 10 CFR 35.41 can be followed but additional commitments are needed. Due to the potential for leakage outside the patient's body, licensees need to commit to verify that seeds are fully contained without leakage outside the patient's body after administration. In addition, as seeds could be dislodged, licensees shall commit to evaluating the location of the seeds prior to removal for temporary implant brachytherapy to determine if the seeds moved during treatment to determine if a medical event occurred.
35.49	Suppliers for sealed sources or devices for medical use	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.50	Training for Radiation Safety Officer (RSO) and Associate RSO	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT	5.2.2	While a new condition is not necessary, the guidance reminds licensees of the requirement in 10 CFR 35.50(d) which

			☐Other		requires RSOs to have training in the radiation safety, regulatory issues, and emergency procedures for the types of use for which a licensee seeks approval
35.51	Training for an authorized medical physicist (AMP)	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		Use of Alpha DaRT does not require AMP.
35.55	Training for an authorized nuclear pharmacist (ANP)	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		Use of AlphaDaRT does not require ANP.
35.57	Training for experienced RSO, teletherapy or medical physicist, AMP, authorized user, nuclear pharmacist, and ANP	☒Yes ☐No ☐ N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.59	Recentness of training	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
Subpart C – General Technical Requirements					
35.60	Possession, use, and calibration of instruments used to measure the activity of unsealed byproduct material	☐Yes ☒No ☐ N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		As licensees are not required to determine dosages in accordance with 10 CFR 35.63, no additional condition is necessary here. Calibration is described further in the table under 10 CFR 35.432.
35.61	Calibration of survey instruments	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.63	Determination of dosages of unsealed byproduct material for medical use	☐Yes ☒No ☐ N/A	☐1566 Vol 9 ☒Alpha DaRT ☐Other	6.7	As Alpha DaRT is a brachytherapy device, licensees do not need to comply with 10 CFR 35.63.
35.65	Authorization for calibration, transmission, and reference sources	☒Yes ☐No ☐ N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		

35.67	Requirements for possession of sealed sources and brachytherapy sources	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.69	Labeling of vials and syringes	☐Yes ☒No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other	6.4	Alpha DaRT is not a radioactive drug and does not require labeling per 10 CFR 35.69 is not required. Licensees shall commit to label applicators in accordance with the sealed source and device registry.
35.70	Surveys of ambient radiation exposure rate	☐Yes ☒No ☐N/A	☐1566 Vol 9 ☒Alpha DaRT ☐Other	6.5	As Alpha DaRT has a higher potential for contamination, licensees shall commit to performing surveys after every administration, not just once per day. Both ambient radiation and contamination surveys should be performed.
35.75	Release of individuals containing unsealed byproduct material or implants containing byproduct material	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other	7.3	While there are no additional commitments, the guidance gives additional radiation safety items licensees should consider to ensure patient release limits are not exceeded. See Regulatory Guide 8.39, "Release of Patients Administered Radioactive Materials." for more guidance.
35.80	Provision of mobile medical service	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
	Decay-in-storage	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☒Other		
Subpart F – Manual Brachytherapy					
35.400	Use of sources for manual brachytherapy	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	7.4	While there are no additional commitments, additional guidance is given to use the applicators as listed in the Sealed Source and Device registry as the applicators are specific to radiation safety.

35.404	Surveys after source implant and removal	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.406	Brachytherapy sources accountability	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	7.5	While there is no additional commitments, additional guidance is given on how licensees can maintain accountability and document the location of use.
35.410	Safety instruction	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.415	Safety precautions	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	6.8	In addition to the commitments in 10 CFR 35.415, use of sealed container is necessary for all waste and unsealed sources to control contamination.
35.432	Calibration measurements of brachytherapy sources	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☒Alpha DaRT ☐Other	6.7	As permitted by 10 CFR 35.432, it is expected that licensees will use measurements provided by the source manufacturer instead of making their own calibration measurements. However, as there is a potential that the applicator could leak, licensees shall commit to ensure the integrity of the applicator seal prior to administering seeds to a patient in addition to following 10 CFR 35.432.
35.433	Sr-90 sources for ophthalmic treatments	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.457	Therapy-related computer systems	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.490	Training for use of manual brachytherapy sources	☐Yes ☒No ☐N/A	☐1566 Vol 9 ☒Alpha DaRT ☐Other	5.2	Similar to 10 CFR 35.490 but specific for Alpha DaRT.

35.491	Training for ophthalmic use of Sr-90	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
Subpart L – Records					
35.2024	Records of authority and responsibilities for radiation protection programs	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2026	Records of radiation protection program changes	☐Yes ☒No ☐N/A	☐1566 Vol 9 ☒Alpha DaRT ☐Other	6.9	Records of radiation protection program changes made per the commitment which replaced 10 CFR 35.26 must be kept for 5 years similar to the requirements in 10 CFR 35.2026.
35.2040	Records of WDs	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2041	Records for procedure for administrations requiring a WD	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other	6.1	As a commitment for additional procedures for administration is necessary, licensees must commit to maintain a record of these procedures for the duration of the license similar to the requirement in 10 CFR 35.2041.
35.2060	Records of calibrations of instruments used to measure the activity of unsealed byproduct materials	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2061	Records of radiation survey instrument calibrations	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2063	Records of dosages of unsealed byproduct material for medical use	☐Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		As 10 CFR 35.63 is not required, these records are not applicable for Alpha DaRT.

35.2067	Records of leaks tests and inventory of sealed sources and brachytherapy sources	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2070	Records of surveys for ambient radiation exposure rate	☐Yes ☒No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other	6.5	In addition to 10 CFR 35.2070, licensees should also keep a record in a similar manner as 10 CFR 35.2070 of surveys after each administration.
35.2075	Records of the release of individuals containing unsealed byproduct material or implants containing byproduct material	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other	7.3	See Regulatory Guide 8.39, "Release of Patients Administered Radioactive Materials." for more guidance.
35.2080	Records of mobile medical services	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2092	Records of decay-in-storage	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2204	Records of Mo-99, Sr-82, and Sr-85 concentrations	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2404	Records of surveys after source implant and removal	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.2406	Records of brachytherapy source accountability	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other	7.5	While there is no additional commitments, additional guidance is given on how licensees can maintain accountability and document the location of use.

35.2432	Records of calibration measurements of brachytherapy sources	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other	6.7	
35.2433	Records of decay of Sr-90 sources for ophthalmic treatments	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
Subpart M – Reports					
35.3045	Report and notification of a medical event	☐Yes ☒No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other	6.2	As Alpha DaRT seeds are unsealed brachytherapy sources, not all medical event criteria listed in 10 CFR 35.3045 is applicable. Therefore, use of Alpha DaRT needs unique medical event reporting criteria such as that described in the Alpha DaRT guidance.
35.3047	Report and notification of a dose to an embryo/fetus or a nursing child	☒Yes ☐No ☐N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.3067	Report of a leaking source	☐Yes ☐No ☒ N/A	☒1566 Vol 9 ☐Alpha DaRT ☐Other		
35.3204	Report and notification for an eluate exceeding permissible Mo-99, Sr-82, and Sr-85 concentrations	☐Yes ☐No ☒ N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
Subpart N – Enforcement					
35.4001	Violations	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		
35.4002	Criminal penalties	☒Yes ☐No ☐N/A	☐1566 Vol 9 ☐Alpha DaRT ☐Other		

Appendix

Consolidated Technical Analysis

Additional Considerations		