SECTION C – SPECIFICATIONS FOR HWA TREATMENT

DIVISION 100 - GENERAL SPECIFICATIONS

110 - Scope of Contract

The purpose of this contract is to perform insecticide treatments on hemlock trees in order to ensure their ability to survive infestation by the hemlock woolly adelgid (HWA). The contract areas are located in developed recreation, administrative, and conservation areas on the Allegheny National Forest.

The Contractor will be required to treat:

A. Hemlock trees with one or more of the following application methods: Soil Injection or Drench (imidacloprid), Soil Tablets (imidacloprid) i.e. CoreTect® or equivalent, Basal Spray (dinotefuran) i.e. Safari 20 SG® or equivalent, Basal Spray (imidacloprid and dinotefuran) or Stem Injection (imidacloprid)

Contractor shall furnish all labor, materials, equipment, tools, transportation, supervision, supplies, insecticide, and related supplies required to treat hemlock trees. (Section 140).

The Government will furnish no materials, labor, or equipment unless specifically identified in the Government-Furnished Property (GFP) clause (Section 130).

120 - Description and Location

The contract areas are located on the Allegheny National Forest in Elk, Forest, McKean, and Warren Counties, PA (see attached map).

Specific site locations, tree diameters, number of trees, and treatment methods will be provided in each delivery order. The terrain is gentle to moderate with occasionally very steep ravine slopes. Hazards include (but are not limited to) bee stings, snake bites, overhead hazards, and limited exposure to insecticide or insecticidal solution.

130 - Government-Furnished Property (GFP)

The Government shall deliver to the Contractor the following listed material, supplies, and property (hereinafter referred to as "Government-Furnished Property" or simply “GFP”) at the place and time specified below. The Contractor shall be liable for all loss or damage of such delivered GFP until completion and final acceptance of work required under this contract. If the Government fails to make timely delivery of such GFP suitable for its intended use, and upon written request from the Contractor, the Contracting Officer shall make an equitable adjustment of contract delivery or performance dates or contract price, or both, pursuant to the "Changes" clause of the General Provisions of this contract.

The Forest Service will provide cardboard signs for public posting at the treatment sites indicating the treatment dates.

140 - Contractor-Furnished Items (CFI)

All insecticide and application equipment will be furnished by the Contractor. During transport, insecticide and application equipment must be secured to prevent tipping or excess jarring and must be carried in a part of the vehicle totally isolated from people, food, or clothing.

Contractor must have a vehicle spill kit, consisting of the items listed on the attached EMERGENCY SPILL PLAN, in their vehicle at all times while insecticide is being loaded, transported, or used.

Contractor must have and properly use the appropriate personal protective equipment (PPE) as detailed by the insecticide labels.

150 - License Requirements

Contractor will comply with Pennsylvania state regulations for licensing of commercial pesticide applicators. At all times while the Contractor is applying pesticides, at least one applicator certified by the appropriate state(s) in the appropriate category will be on-site. Proof of Pennsylvania Category 5 Forest Pest Control Certification will be provided to the COR at the pre-work conference.

Contractor will be responsible for full compliance with all applicable provisions of the EPA Agricultural Worker Protection Standard (WPS), 40 CFR Part 170.

160 - Access

Access guidelines will be provided by the Contracting Officer's Representative (COR). During times when recreation sites are open and being used, the Contractor will coordinate treatment times with the COR.

DIVISION 200 - TECHNICAL SPECIFICATIONS FOR HEMLOCK TREATMENTS

210 - Work to be Performed

For all Areas, the Contractor shall properly treat the designated trees with insecticide as directed by the COR in accordance with these specifications.

211 – Application Timing

Weather, soil condition and insect activity influence optimum treatment timing for prescribed systemic insecticides identified within.

Stem injections and soil injection treatments shall be conducted during periods when the soils are not frozen nor excessively wet or dry, after trees have leafed out, or as specified on insecticide labels.

Basal bark sprays shall be conducted when trees are actively translocating. Basal bark sprays shall not be applied to wet bark, if rain is expected within 12 hours, or within 12 hours after rain.

Spring (Mar-Jun) and Fall (Oct-Dec) are ideal application periods, provided temperatures are above freezing during application.

The government reserves the right to suspend treatments should tree or weather conditions become such that deferring treatments is in the best interest of the Government.

212 – Application Methodology

Trees to be treated will be designated by a site map, by verbal instructions from the COR, by flagging, paint, metal tags, or by a written tree-by-tree site description.

If the trees to be treated are at a campground or other frequently used recreation area, the Contractor may treat infested trees only after coordination with the COR as to appropriate treatment times.

After treatment, each tree will be flagged with a short length of flagging on a branch above Contractor’s head. The Contractor shall keep a written list of each tree treated and its corresponding tag number and diameter and provide this list to the COR.

Soil Drench and Soil Injection

This method is for treating all trees so designated in this contract. Imidacloprid (i.e. Merit 75 WSP®, Bandit 2F or equivalent) insecticide will be used.

Contractor will be responsible for mixing the insecticidal solution on the job site and shall follow all mixing instructions on the label.

Before beginning any treatment, the Contractor shall calibrate the application equipment using water to determine how many ounces of solution are delivered.

After determining diameter at breast height (dbh) for the target tree, the Contractor will derive the number of ounces of solution to be applied – i.e. drenched or injected – based on the Application Options for Optimal Imidacloprid Dose for Eastern Hemlock outlined in the Application Dosage Rates and Label Limits (Section 213).

Before applying the insecticidal solution, the Contractor shall brush away the top layer of organic material (the "duff" layer) in the immediate area where soil drench and soil injections are being applied. Once the solution has been absorbed by the soil, the top organic layer shall be replaced.

- Soil drench – Apply the imidacloprid suspension to the soil within 18 inches of the hemlock trunk. Pour the solution evenly around the base of the tree. Do not pour the suspension all in one location. Do not pour the suspension on the hemlock trunk.
- Soil Injection – A basal application to the soil has proven to be very efficient. Inject the soil around the tree with solution using a Soil Injector. The point of injection shall be within 1 foot of the tree's trunk and 2 to 4 inches beneath the soil surface. If roots are closer to the surface, insert injector more shallowly so treatment is delivered at or above the root level. For each tree, the injector will be used at several points around the tree to evenly space the required amount of solution into the soil around the tree.

Soil Tablet

This method is for treating all trees so designated in this contract. Imidacloprid tablets (CoreTect® or equivalent) tablets will be used.

After determining diameter at breast height (dbh) for the target tree, the Contractor will derive the number of pellets to be applied based on the Application Options for Optimal Imidacloprid Dose for Eastern Hemlock outlined in the Application Dosage Rates and Label Limits (Section 213).

Tablets shall be placed into the soil at several, evenly spaced points around the tree, 2 to 5 inches beneath the soil surface and within 6 to 24 inches of the tree's trunk. Following application, tablets shall be covered with soil. If roots are closer to the surface, reduce treatment depth to ensure application is delivered at or above the root level.

Basal Spray

This method is for treating all trees so designated in this contract. Dinotefuran (i.e. Safari ® or equivalent) insecticide will be used. The Contractor will be responsible for mixing the insecticidal solution on the job site and shall follow all mixing instructions on the label.

The Contractor shall, before beginning any treatment, calibrate the spray equipment using water to determine how many ounces of solution are delivered.

The Contractor will spray designated trees with solution using low volume sprayer – i.e. 10 to 20 psi. The point of spray will be on the tree's trunk & root flare between the soil surface and 4 to 5 feet above the soil surface.

After determining each tree's diameter at breast height (dbh), the Contractor will derive the number of ounces of solution to basal spray as directed by the product label. For each tree, the sprayer will be used to distribute the spray uniformly over the entire circumference of the tree trunk and root flare. Bark shall be wet just to the point of saturation and run off.

Stem Injection

This method is for treating as designated trees in this contract. Imidacloprid (Merit 75 WSP®, Bandit 2F or equivalent) insecticide will be used.

The Contractor will be responsible for mixing the insecticidal solution on the job site and shall follow all label directions for mixing of insecticide.

The Contractor shall, before beginning any treatment, calibrate the stem injector using water to determine how many ounces of solution are delivered.

Stem injections must use low pressure (less than 40 psi) and "micro-injection" techniques (Arbor jet IMA-jet/Tree IV system, Rainbow Tree M3 Infuser or equivalent). The Contractor will inject the stems of the designated trees with solution. The point of injection will be roughly 18 inches of the bottom of the tree, spaced 6 inches apart and 5/8 to 1 5/8 inches in depth.

After determining each tree's diameter at breast height (dbh), the Contractor will derive the amount of solution to inject as directed by the product label. For each tree, the injector will be used at several points around the stem of the tree to evenly space the required number of ounces into the soil the trunk of the tree.

213 – Application Dosage Rates and Label Limits

Contractor is responsible for checking dosage rate and current label application limits, completing calculations per acre and keeping track of cumulative dbh treated in each stand. Contractor will not exceed allowable amount of active ingredient per acre as specified on product label.

Optimal Imidacloprid Dose for Eastern Hemlock

		Soil Drench or Basal Spray # of Fluid Ounces		Soil Injection # of injector pumps		Soil Tablets # of Tablets
DBH (in)	A.I. (g)	Water soluble packets	Imidacloprid 2F	Kioritz Injector (1/6 oz per pump)	1-Two Root Injector (1/4 oz per pump)	CoreTect
4	1.3	1.5	1.5	8	5	3
5	1.9	2	2	11	8	4
6	2.5	2.5	2.5	15	10	5
7	3.3	3.5	3.5	20	13	7
8	4.0	4	4	24	16	8
9	4.9	5	5	29	19	10
10	5.7	6	6	34	23	11
11	6.6	7	7	40	26	13
12	7.5	8	8	45	30	15

Optimal Imidacloprid Dose for Eastern Hemlock						
		Soil Drench or Basal Spray # of Fluid Ounces		Soil Injection # of injector pumps		Soil Tablets # of Tablets
DBH (in)	A.I. (g)	Water soluble packets	Imidacloprid 2F	Kioritz Injector (1/6 oz per pump)	1-Two Root Injector (1/4 oz per pump)	CoreTect
13	8.5	9	9	51	34	17
14	9.5	10	10	57	38	19
15	10.5	11	11	63	42	21
16	11.6	12	12	69	46	23
17	12.6	13	13	76	51	25
18	13.7	14	14	82	55	27
19	14.9	15	15	89	59	30
20	16.0	16	16	96	64	32
21	17.2	18	18	103	69	34
22	18.4	19	19	110	73	37
23	19.6	20	20	117	78	39
24	20.8	21	21	125	83	42
25	22.0	22	22	132	88	44
26	23.3	24	24	140	93	47
27	24.6	25	25	147	98	49
28	25.9	26	26	155	103	52
29	27.2	28	28	163	109	54
30	28.5	29	29	171	114	57
31	29.8	30	30	179	119	60
32	31.2	32	32	187	125	62
33	32.5	33	33	195	130	65
34	33.9	34	34	204	136	68
35	35.3	36	36	212	141	71
Maximum per acre		**181 ounces**	**181 ounces**	**1086 pumps**	**724 pumps**	**362 tablets**

Benton, E. P. and R. S. Cowles. 2016. Optimized Insecticide Dosage for Hemlock Woolly Adelgid Control in Hemlock Trees. The University of Georgia Warnell School of Forestry and Natural Resources, Tifton, GA, WSFNR-17-01.

Treatment Method	Chemical Common Name	Label Limit
Soil Drench or Injection	imidacloprid	0.4 pounds A.I. per acre per year -- 256 cumulative DBH inches
Soil Tablets	imidacloprid	0.5 pounds A.I. per acre per year (450 tablets) -- 300 cumulative DBH inches
Basal Spray	dinotefuran	0.54 pounds A.I. per acre per year -- 190 cumulative DBH inches
Stem Injection	imidacloprid	No Limit

214 - Vegetation not to be Treated

A. Any tree not designated by flagging or otherwise designated by COR as described above.
B. Any other trees designated not to be treated by the COR.

215 - Protection of Trees

The Contractor shall use every precaution necessary to prevent spillage of insecticidal solution or insecticide on trees not designated to be treated.

216 - Stream, Lake and Reservoir Pollution Prevention

During the handling, transporting and use of the insecticide, Contractor will use every precaution necessary to prevent pollution of any streams, lakes, reservoirs, or standing water with insecticide, insecticidal solution, or other harmful materials. No soil injection will be done to any stem standing within 100 feet, horizontal distance, of any public or domestic water source.

Insecticide mixing, loading, or cleaning areas in the field will not be located within 200 feet of private land, open water or wells, or other sensitive areas. Mixing and cleaning water must come from a public water supply and be transported in separate labeled containers. Under no circumstances will injectors, containers, or other contaminated materials be washed in any stream, lake or reservoir.

Violations are punishable under 36 CFR 261.11(c) and are subject to fine of not more than $500.00 or imprisonment for not more than 6 months or both.

217 - Protection of Improvements

The Contractor shall protect all trails, roads, ditches, fences, campsites, picnic sites, horse stalls, interpretive signs, bulletin boards, restrooms and showers, and other improvements in the project area. Access guidelines will be provided by the COR. Any road or trail used by the Contractor that is damaged by their operations shall be promptly repaired by the Contractor.

218 - Protection of Archaeological/Historical Resources

The Contractor, upon the discovery of suspected archaeological or historical materials, shall cease work in the vicinity of such materials and immediately notify the COR.

219 - Final Clean-Up

Before final acceptance all trash, rubbish, and debris generated by Contractor's operation shall be removed from National Forest Land.

220 - Transportation of Insecticides.

Contractor is legally responsible for the safe transportation of insecticides. Contractor shall follow travel routes designated by the COR when transporting insecticides from the public road system to the treatment sites. Transport vehicles shall be parked inside the treatment site in an area designated by the COR. Transportation of chemicals used on this contract shall be in accordance with label instructions and generally approved and accepted procedures for safe transportation of insecticides. The following precautions as a minimum shall be taken by the Contractor to prevent spills, accidents, injury, or theft.

1. Transport insecticides in the cargo compartment of a truck or other vehicle away from the passenger compartment.
2. No personnel shall be permitted to ride in the back of a vehicle with the insecticide.
3. Insecticide shall not be transported in the same compartment with food or clothing.

4. If any insecticide is spilled in or from the vehicle, it shall be cleaned up at once.
5. Maintain insecticides in secure conditions.

221 - Handling and Application of Insecticides.

Personnel handling insecticides shall wear protective clothing and/or equipment as recommended by the insecticide manufacturer.

Insecticides shall not be applied, or equipment cleaned outside of areas designated by COR. Following these rules will make the use of insecticides safer for everyone.

1. Read the safety information on the label.
2. Wear the proper protective clothing.
3. Keep first aid equipment and a supply of clean water readily available, including soap and eye wash equipment meeting OSHA regulations.
4. Do not work alone.
5. Haul only the needed amount of insecticide
6. Keep the container below eye level when pouring to avoid splashing or spilling any insecticide on the face or into the eyes.
7. If insecticides are spilled, stop immediately, wash contaminated area, and remove contaminated clothing.
8. Wash hands after applying insecticides before eating or smoking.

222 - Disposal of Insecticide Containers

All empty containers will be removed from the worksite and disposed of by the Contractor according to the established regulations of the appropriate state where the work occurred.

223 - Spill Protection

Contractor will use every precaution necessary to prevent insecticide spillage in loading, transporting, pouring, and applying the insecticide. Contractor will at all times have available in vehicles transporting insecticide a spill kit consisting of items listed on the attached EMERGENCY SPILL PLAN. If a spill occurs, Contractor will immediately contain the spill, use the absorbent material to absorb it, and seal the material in the polyethylene bags. Every effort shall be made to keep it from contaminating water and other off-site areas. The spill shall be cleaned up as quickly as possible. Appropriate Federal, State, and local officials shall be notified. Insecticide spills shall be handled in accordance with the standard procedures for spill cleanup (40 CFR 117) and the accident plan prepared in the site-specific analysis (mitigation required). The COR shall be notified immediately of any insecticide spill or accident. Contractor will deliver the material in the polyethylene bags to the pick-up point.

224 - Safety

It is the Contractor's responsibility to ensure that the work environment is safe for themselves as well as their employees. If the Contractor feels that a requirement of this contract would place them or their employees in an unsafe environment, then work should stop on that area of work and the Contractor should contact the COR. Work on other areas of the contract that the Contractor does not view as unsafe should continue.

The Contractor is required to follow all applicable OSHA standards while working on the job site. In addition, it is recommended that the successful Contractor utilize appropriate personal protective safety equipment/clothing, which may include, but is not limited to, a hardhat, leg protection, ear protection, eye protection and hand protection, while working in the project area. Contractor is required to keep COR/District posted to current work site.

Signs containing information about specific treatments will be placed along the perimeter of treatment areas where these areas are adjacent to roads, trails, recreation areas administrative sites or any other location where the public can be expected to enter the treatment area. These signs will state what insecticide was used, date of treatment, a short message on how the insecticide works, and contact information. Signs will be posted before treatment and remain for at least 30 days post treatment.

225 - Record Keeping and Reporting

The Contractor must keep accurate daily records (data sheets) of the dbh (inches) of each tree treated, the amount of chemical (ml or tablets) for each tree, and the cumulative amount of chemical (liters or tablets) at each site as treatments proceed.

Data recorded for treatments applied in any one workday must be provided to the Contracting Officer's Representative (COR) within one week (7 days) following that workday.

After completing all treatments, and prior to receiving payment, the Contractor must provide a digital data set in Microsoft Excel format of all trees treated at each site, including tree number, dbh, dose applied, cost for each tree, and cumulative cost.

SECTION E - INSPECTION AND ACCEPTANCE

INSPECTION OF SERVICES - FIXED PRICE 52.246-4 (AUG 1996)

(a) Definitions. "Services", as used in this clause, includes services performed, workmanship, and material furnished or utilized in the performance of services.

(b) The Contractor shall provide and maintain an inspection system acceptable to the Government covering the services under this contract. Complete records of all inspection work performed by the Contractor shall be maintained and made available to the Government during contract performance and for as long afterwards as the contract requires.

(c) The Government has the right to inspect and test all service called for by the contract, to the extent practicable at all times and places during the term of the contract. The Government shall perform inspections and test in a manner that will not unduly delay the work.

(d) If the Government performs inspections or tests on the premises of the Contractor or a subcontractor, the Contractor shall furnish, and shall require subcontractors to furnish, without additional charge, all reasonable facilities and assistance for the safe and convenient performance of these duties.

(e) If any of the services do not conform with contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount. When defects in services cannot be corrected by re-performance, the Government

  (1) may require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and

  (2) reduce the contract price to reflect the reduced value of the services performed.

(f) If the Contractor fails to promptly perform the services again or to take the necessary action to ensure future performance in conformity with contract requirements, the Government may

(1) by contract or otherwise, perform the services and charge to the Contractor any cost incurred by the Government that is directly related to the performance of such service or
(2) terminate the contract for default.

INSPECTION RECORDS

Contractor shall not be required to maintain an inspection system as stated in Paragraph (b) of Clause 52.246-4, Inspection of Services.

INSPECTION METHODS

In accordance with the Inspection Clause the Government is able to inspect the entire work the Contractor performs, and the Contractor shall be required to rework any areas that are not in conform to the requirement of this contract.

QUALITY ASSURANCE – PERFORMANCE BASED INCENTIVES AND DISINCENTIVES

Statement of Work – Contractor

The Contractor shall perform work in accordance with the specifications contained in this contract.

Quality Assurance - Performance Based Program

Performance based program applies to the Government's inspections for contract compliance. Contract extensions are not eligible for performance-based program unless covered under the Excusable Delays Clause listed in Section I of the contract clauses.

The Government will conduct compliance inspections on a **minimum** of 10% of the areas that Contractor has reported as completed to specifications. Trees will be randomly selected to check compliance in the areas to be inspected by the Government inspector.

These performance-based surveys apply only to initial inspections; areas that have previously been rejected and corrected do not fall into this population.

Disincentive

If a Contractor must be sent back to an Area (that the Contractor has asked for final inspection of) to fix work that was not done to the contract specifications a second time, there will be a 10% deduction from the payment for that Area. With each following return to the Area to fix the work will add-on an extra 5% deduction to the final payment of that Area.

If the Contractor does not meet the time outline in Section F – Deliveries or Performance, there will be a deduction of 5% from the unfinished acres payment. An additional 2% deduction will occur for each additional week so that the required work is not completed.

The uses of negative incentives do not waive any other rights of the Government in dealing with inadequate performance.

SECTION F - DELIVERIES OR PERFORMANCE

TIME OF PERFORMANCE

It is estimated that the work on individual project task orders will begin ***at the earliest September 1, 2026.*** *The* Contractor shall be required to:

a) Set up a pre-work date within 7 days of the start of the contract.

b) Complete 20% of the contract sites within 15 days after issuance of the award
c) Contractor will have to complete 40% of the contract sites within 30 days; and
d) Contractor shall be required to prosecute the work diligently and complete the entire awarded work on each delivery order no later than 45 days after issuance of award

These could be superseded if in direct conflict with any part of Section 211- Application Timing.

Work under the base year delivery order shall be completed no later than 31 August