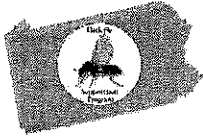




**pennsylvania**

DEPARTMENT OF ENVIRONMENTAL PROTECTION



**2015 CONTRACT SPECIFICATIONS  
PENNSYLVANIA BLACK FLY SUPPRESSION PROGRAM  
LOWER OHIO RIVER BASIN**

**I. SCOPE OF WORK:**

The Pennsylvania Department of Environmental Protection (DEP), Office of Water Management, Vector Management, requires a contractor to provide aerial application of *Bacillus thuringiensis israelensis* (Bti) to designated black fly larval production areas of the Lower Ohio River Basin waterways in Pennsylvania.

The DEP will provide all Bti required for this contract. The contractor shall furnish all water, properly certified spray aircraft, accredited pilots, ground support personnel, and all accessory vehicles and equipment required for transporting and loading spray materials into spray aircraft. The contractor agrees to perform the spraying operation in a quality, safe and professional manner. An accurate and uniform application of Bti, to specified sites on designated waterways, is essential to achieve the desired effects of black fly larval suppression.

Only bids utilizing helicopters will be accepted. Any bid submitted with the intention of using fixed-wing aircraft will not be accepted. In order to submit a bid, you must first register at: <https://www.pasupplierportal.state.pa.us>

Detailed maps of the treatment sites are available for inspection by prospective bidders during regular work hours. Please contact the Office of Water Management, Vector Management at (717) 346-8244 to schedule an appointment and confirm the availability of maps. Copies are not available for distribution or removal from the office.

Any questions regarding technical aspects of the Specifications shall be directed to Doug Orr or Andy Kyle in Vector Management at (717) 346-8244. Questions regarding bidding or contracting procedures shall be directed to Yolanda Waters at (717) 783-4885 or William McDade at (717) 783-9937 in the Division of Contracts, Procurement and Bonding. Bid opportunity information is available at: <http://www.emarketplace.state.pa.us>

## II. CONTRACTOR QUALIFICATIONS:

Contractor must be a Fixed-Base Operator (FBO), or a firm that is currently certified as a commercial aircraft operator, with office, maintenance facilities, owned or leased aircraft, employees, qualified pilots and mechanics. Contractor must have tools, equipment and spare parts for the make and type of all aircraft described in the Specifications. Contractor must be Federal Aviation Administration (FAA) certified, and, if a Pennsylvania FBO or firm, hold a Commercial Operator's Certificate, as issued by the PA Department of Transportation, Bureau of Aviation. The contractor must qualify under Federal Aviation Regulations (FAR) Part 137, have a certificate of waiver under FAR Part 91.313e, and be certified for agricultural aircraft operations.

Contractor is solely responsible for the contract, even if a subcontractor is providing part of the equipment and personnel.

## III. CONTRACT TASKS:

**A. Area to be Treated** - The DEP, in cooperation with county governments, proposes to have treated by aerial spraying, portions of the Kiskiminetas/Conemaugh and Youghiogheny River systems. Maps show the geographic locations of the four (4) waterways requiring treatment. The exact number of treatment sites fluctuates, depending on stream flow. Treatment sites may be added during low-flow conditions and fewer sites may be treated during high-flow conditions. Specific information about this contract area is found in **SECTION IV. PROGRAM REQUIREMENTS**. The exact location of treatment sites may also change based on the location and size of larval black fly populations. Certain waterways or sections of waterways may be added or deleted entirely from scheduled treatments, based on the results of larval monitoring, and if so determined by DEP personnel.

The DEP reserves the right to require aerial treatments on additional rivers and streams within the contract area, on an as-needed basis, based on the presence of black fly pest species populations in waterways located in participating and non-participating counties. Treatment operations on new waterways, within the area, will be negotiated and mutually-agreed upon by the DEP and contractor, prior to the onset of those activities. Contractor shall be paid at the contract unit price bid for any such work.

**B. Estimated Time Schedule** - The Program will begin after April 20 and continue no later than August 31 each year. Typical treatment seasons will begin in mid to late April and end sometime in August. Each treatment area could receive five (5) to ten (10) applications during any single year of this contract. The starting date and the timing of each application is weather-dependent. Larval populations, weather, water temperature and stream flow will be monitored to determine application

timing. The starting date could be earlier or later than that provided in **SECTION IV. PROGRAM REQUIREMENTS.**

A five (5)-day advance notice will be given to the contractor prior to the annual start of the Program. The timing between applications, on an individual waterway, will range from seven (7) to twenty-one (21) days, with the average expected to be ten (10) to fourteen (14) days. The DEP will make every effort to maintain schedules so that entire treatment area or major sections of a treatment area will be treated in one (1) to two (2) days. However, larval populations, weather conditions and waterway conditions strongly influence the timing and locations of treatments. The DEP shall have the right to set the specific date and hours of performance, with full authority to temporarily suspend operations at any time when, in its opinion, weather, entomological or other conditions are not favorable for spray operations. The DEP will determine the timing of each application. Aircraft are free to do other work between treatments.

#### **IV. PROGRAM REQUIREMENTS:**

##### **A. General Requirements:**

1. **Experimental Spraying:** The DEP may request a contractor to conduct a small amount of experimental spraying. This would be done to gain knowledge and experience with a new product or formulation to evaluate its potential. Payment for this work will be based upon the current per gallon rate.
2. **Media Events:** The DEP may request a contractor to be available for public information/media events. This would be done to increase public awareness of the Program. In such cases, no additional compensation will be provided. No more than two (2) events shall be scheduled during a calendar year.
3. ***Bacillus thuringiensis var. israelensis* (Bti):** Bti shall be the only larvacide used on this contract. The contractor shall be provided all Bti used on this contract. See **SECTION IX. SPRAY MATERIAL:**, for specific Bti spray product information.
4. **Application Methodology:** All pilots must visually inspect each site by conducting an observational flight prior to any product application to verify site location, identify all flight hazards and prevent accidental sprayings. Bti shall be sprayed directly into the water from an altitude low enough to deliver the required volume of Bti to the water surface. The aircraft speed at treatment sites is expected to be below forty-five (45) mph and the aircraft shall fly at approximately three (3) meters above the water surface. Higher and lower speeds may be required. The objective is to spray back and forth across the waterway, applying multiple swaths of equal

proportion, to produce a wide band of Bti drifting through the treatment zone of the stream. When stream flow is low and less material is applied per site, it may be necessary to reduce the number of swaths. The DEP shall specify the volume of material to be applied and the number of passes, at each site, for each application. The correct volume of Bti is dependent upon the discharge of the waterway, as well as existing water quality on the date of application. Excessive waterway discharges, at any site, may cause postponement of the application until the water has receded to a treatable level. During periods of low stream flows, the DEP shall require water to be added to the Bti to provide sufficient volume to permit proper applications and adequate exposure time.

5. **Verification That Project Coordinator Received Spray Notice From DEP:** The DEP shall provide **thirty-six (36) hours** advance notice for the contractor to report for spraying, prior to each treatment. The contractor's Project Coordinator, or a designated substitute, must always be available for contact by phone, text or email daily, including evenings, weekends and holidays so the DEP's Program Coordinator can meet the thirty-six (36)-hour notification requirement or provide updated spray information for a scheduled spray event. It is the responsibility of the contractor's Project Coordinator to respond to all correspondence from a DEP Program Coordinator within **one (1) hour** of the initial message, verifying receipt of the request for information pertaining to aerial operations. This documentation will allow the DEP Program Coordinator to proceed with notifications and other arrangements for the scheduled spray event.
  
6. **Starting Time:** The DEP will make every effort to begin spray operations, as early as possible, on each spray day. Start times are to be determined by the DEP's Program Coordinator. Times may vary between 6:30 AM and 8:30 AM, and may even begin at a later time, if mutually-agreed upon between the contractor and DEP Program Coordinator. The contractor is responsible for having the aircraft and support vehicle(s) on-site and ready to begin spray operations according to the Program Coordinator's indicated start time. Environmental factors, mechanical breakdowns or acts of God may result in delays to the start time, but the contractor is responsible for contacting the DEP Program Coordinator within **one-half (½) hour** of the appointed start time, if a delay occurs.
  
7. **In Charge On-Site:** On-site spray decisions are the responsibility of the DEP Program Coordinator. If the pilot deems conditions are unsafe to fly, operations will be shut-down until conditions improve and both pilot and the DEP Program Coordinator agree to

resume operations. The DEP Program Coordinator has full authority to shut-down spray operations for various reasons including, but not limited to, weather, quality of applications or safety. Aerial treatments will cease until the Coordinator releases the aircraft to resume spray operations.

8. **Surveillance Flights:** Without charge to the DEP, the contractor must make available a total of (not to exceed) 2.5 hours of aircraft time, annually, for reconnaissance and surveillance. Each flight will be calculated from takeoff to landing and in fifteen (15)-minute intervals. This time will generally be scheduled to coincide with a scheduled treatment and at a time acceptable to both the contractor and the DEP.
9. **Accidental Sprayings:** When an initial investigation by the DEP determines that an actual incident occurred, the contractor must provide an on-site representative to investigate and respond to citizen complaints and concerns within twenty-four (24) hours. The contractor shall provide the DEP with a complete written report of all facts from the accidental spraying within five (5) days of the incident, to ensure that all citizen concerns are addressed and to prevent similar accidental spraying incidents in the future.

**B. Specific Requirements:**

Program Coordinator: Stacey Greenwald

Location: Kiskiminetas/Conemaugh River, Loyalhanna Creek and Youghiogheny River (See table and map below.)

Participating Counties: Armstrong, Indiana, Westmoreland, Fayette, and Cambria

Estimated Starting Date: April 28 each year

Helicopters Required: The minimum acceptable size is one (1) ship from Category B or Category C. See **SECTION V. GENERAL REQUIREMENTS FOR ALL AIRCRAFT** for helicopter categories. It is suggested, and may be required by the DEP Program Coordinator, that the aircraft specified and provided for this contract must be capable of carrying a load equal to at least one (1) treatment site, on the largest waterway being treated by that aircraft, on that spray date.

Service Trucks Required: One (1) truck per aircraft, which must carry sufficient water for mixing, as-needed.

Estimated Bti Quantities: Estimated quantities are based on applications sprayed from April to August

Surveillance Flights: Two and one-half (2½) hours maximum each year

### Lower Ohio River Basin

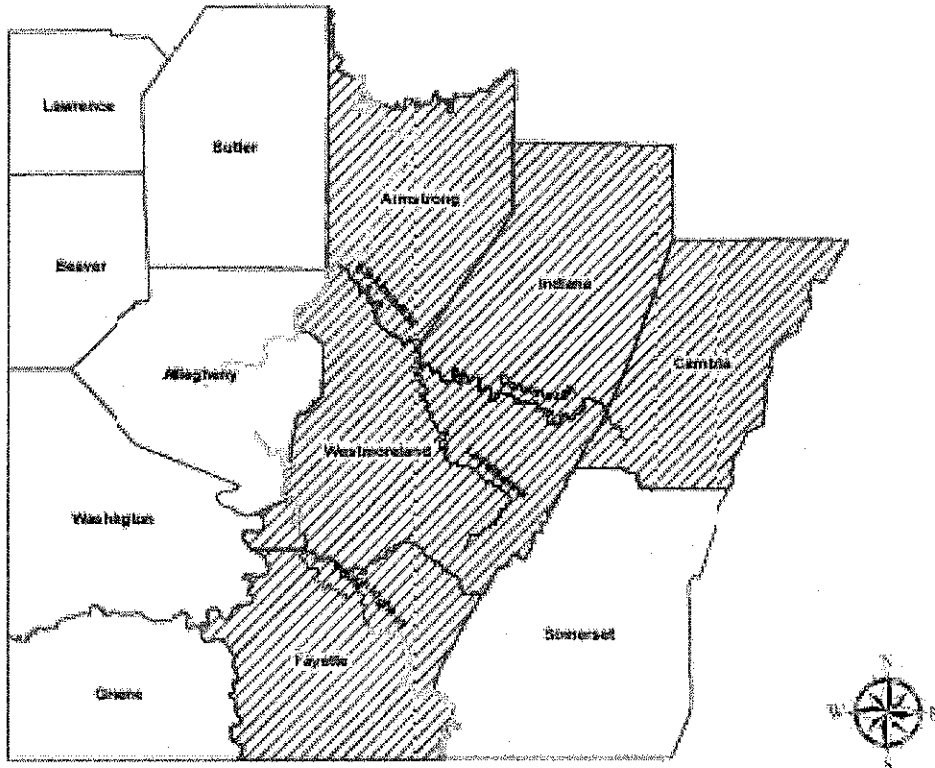
2012-2014 Number of Sites, Treatments and Gallons By Waterway								
Waterway	# of Regular Spray Sites	Average Number of Treatments Per Year	Average Gallons Per Treatment	Average Gallons Per Year	Total Gallons Last 3 Years	Maximum Treatment Gallons	Minimum Treatment Gallons	General Treatment Area
Kiskiminetas River	32	6	81	564	1,693	174	32	Mouth to Saltsburg
Conemaugh River	27	6	58	347	1,040	153	29	Saltsburg to Johnstown
Youghiogheny River	31	6	121	688	2,064	168	63	Buena Vista to Connellsville
Loyalhanna Creek	20	3	9	9	26	12	6	Saltsburg to Ligonier
<b>TOTAL</b>	<b>110</b>	<b>21</b>	<b>269</b>	<b>1,608</b>	<b>4,823</b>	<b>507</b>	<b>130</b>	<b>Lower Ohio R. Basin</b>

This area (110 possible regular-flow sites) requires an average 269 gallons of Bti per application, with a range of five (5) to seven (7) treatments per waterway each season. See table above for more details. Additional spray sites may be added during low-flow conditions. Fewer sites may be treated during high-flow conditions. The Maximum and Minimum Treatment Columns, above, indicate the highest and lowest treatment in gallons of Bti over a three (3)-year period, on a given waterway, on a given day. It should not be assumed that any of these occurred on the same date.

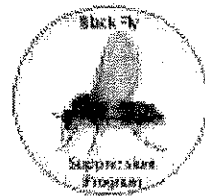
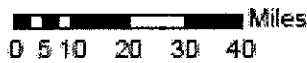
There were twenty-six (26) hours and forty (40) minutes of rotor hours recorded in the Lower Ohio River Basin during the 2014 spray season.

During the past three (3) years, a total of 4,823 gallons of Bti was applied to the rivers and creeks in the Lower Ohio River Basin for a yearly average of 1,608 gallons. Total annual gallons may substantially decrease or increase, if spray seasons are shortened or lengthened due to changes in available funding, weather conditions, river flows or biological factors.

# 2015 Black Fly Suppression Program Lower Ohio River Basin



- Treated Stream
- - - Untreated Stream Area
- ▨ Participating County



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V. **GENERAL REQUIREMENTS FOR ALL AIRCRAFT:**

A. **Helicopter Categories:** The following table defines the helicopter categories used in SECTION IV. PROGRAM REQUIREMENTS:

Category	Minimum Horsepower	Spray Loads (Gallons)	Examples
B	400	60 - 100	Bell 206B, Bell OH-58, Bell 47/Soloy, Hiller/Soloy 12E, Hughes 500C
C	600 - 800	120 - 140	Bell 206L, Lama

Listing of an aircraft type (i.e. Bell 206, Hughes 500, etc.) is for illustrative purposes, only. Experience has shown that individual aircraft may not be routinely capable of carrying the specified loads outlined above, for that aircraft type. Minimal operational load (in gallons of water) shall be verified and shall be used for acceptance of a specific aircraft, in a given category. The DEP reserves the right to permanently reduce the category rating of an individual aircraft when, in its opinion, the aircraft has routinely shown that it is incapable of carrying the minimum operational load. Each aircraft, regardless of size, is required to have space for one (1) passenger.

B. **Licenses:** All aircraft must be properly licensed under FAR Part 137 of the Federal Aviation Administration. Further, the contractor must comply with all regulations under this provision including, but not limited to, required approvals, certificates and annual inspections.

C. **Horsepower:** All aircraft must be turbine-powered with a minimum of 400 horsepower.

D. **Engine:**

1. Each aircraft engine shall be in first class operating condition. Engine and airframe logs must be presented at time of inspection.
2. Each engine must have a minimum of fifty (50) operating hours.
3. Each engine must have operated a minimum of fifteen (15) flight hours, in two (2) months, prior to the beginning of the Project.
4. No aircraft shall be accepted for this Project with engine or component time within 100 hours of the maximum recommended by the manufacturer.



5. **Observer/Navigator Capacity:** All aircraft must have sufficient space and seating capacity to transport a minimum of one (1) DEP employee as a navigator or reconnaissance observer. The DEP reserves the right to have an employee accompany the pilot and aircraft as a navigator or observer on all flights. Refusal by the contractor to transport a DEP employee when requested, unless spray load size, weather conditions or mechanical issues prevent safely carrying passengers, shall result in application of penalties, as specified in **Section XIII.F. Insufficient Insurance/Observers-Navigators**. Contractor personnel that refuse to transport DEP employees will be ineligible for all future contract work.
6. **Pilot Capacity:** The DEP Program Coordinator has the right to refuse a co-pilot, whose sole purpose is to receive in-flight training during spray operations. The additional weight of a co-pilot cannot reduce the carrying capacity of the ship and slow the completion of the project.
7. **Totalizer, Flow Meter/Spray Timer:** The contractor must be able to accurately deliver the volume of material specified to each site. This may be accomplished by providing an accurate totalizer, or a combination flow meter and timer, or by limiting the maximum number of sites to two (2) per load. Each aircraft utilizing a totalizer must have the appropriate calibration code for the Bti product being used. In addition, each aircraft must be equipped with a digital timer that is activated automatically when the spray switch is operated. The timer must be capable of an accurate measurement of the cumulative spray time in minutes and tenths or minutes or seconds. Hour meters are not acceptable. This meter is to aid the pilot in accurately splitting a load between two (2) or more sites, and to monitor flow rate during the Program.
8. **Condition:** All aircraft shall be clean both inside and outside and shall fully comply with FAA directives and specifications and to any pertinent laws and regulations of the State. The aircraft windshields or bubble shall be kept clean.
9. **Aircraft Refueling:**
  - a. The contractor must provide aircraft fuel at each loading site. The fuel tank must be equipped with a pump to transfer the fuel through a hose and nozzle for refuel while the engine is running and/or the rotor is spinning.
  - b. Refueling from hand-held containers shall be permitted only in emergency situations and then only during a complete shut-down. A minimum of twenty (20) minutes

reserve fuel, over the amount needed for the planned round trip, shall be required for each flight.

10. **Non-Spraying Flights:** The contractor provides flights to and from the project area, as well as any necessary reconnaissance flights over the spray areas. A DEP representative may be available for a reconnaissance flight to help the pilot become familiar with the spray sites to review applications.
11. **Aircraft Review:** The DEP shall review the contractor's aircraft information to determine if the equipment provided meets the contract Specifications. Performance tests, if necessary, shall be conducted at a location mutually-agreed upon between DEP and the contractor. The contractor shall be responsible for all expenses regarding operation of the aircraft and for the pilot's time during these tests. The DEP may request this review be held thirty (30) days prior to the start of spraying.
12. **Aircraft Spray Systems:**
  - a. **Tanks:** Leak-proof, corrosion-resistant tanks, with exterior filler openings, shall be utilized. The location and size of the tanks shall not impair air-worthiness by overloading or displacing the center of gravity beyond acceptable limits. Filler openings or necks shall be large enough to prevent surging during filling. Tanks must be vented to the outside of the fuselage.
  - b. **Emergency Dump System:** All aircraft must be equipped with an emergency jettisonable load dumping system or emergency non-leaking dump valves, of sufficient capacity, adequately vented to dump the load, which is installed to prevent blowback into the fuselage. In no case shall the ratio between load in gallons, carried to the area of dump valves in square inches, be greater than 7.65 to 1. Exposed valve control linkage must be protected to prevent unintentional opening of the valve in any manner. The control lever must be substantially mounted in the cockpit within easy reach of the pilot when he is properly wearing a shoulder harness.
  - c. **Pumping System:** The pumping system must be securely attached and capable of maintaining the pressure required to insure the even distribution of the insecticide. All plumbing and pumps should be large enough to handle flow rates from six (6) to sixty (60) gallons per minute. All parts shall be chemically-resistant to the spray materials being used.

- d. **Pressure Gauge:** An accurate spray pressure gauge shall be located in a place that is visible to the pilot for easy reading/viewing.
- e. **Shutoff:** To avoid contamination of areas not scheduled for treatment, the entire spray system must be leak-proof and have a positive shutoff mechanism capable of eliminating dripping from the boom ports.
- f. **Clean System:** All aircraft spray systems and tanks must be cleaned of all foreign material and flushed with water, prior to the start of this spray operation. During the spray Program, it may be necessary to flush the spray system with water daily or when the operation is delayed because of high winds, rain or increasing waterway flows, or similar events.
- g. **Strainer:** An in-line strainer is not required. If provided, any in-line strainers must be no finer than fifty (50) mesh.
- h. **Spray Boom:** All aircraft shall be equipped with an approved standard wet boom system of the type commonly used for aerial application of liquids.
- i. **Nozzles:** Nozzles are not required; the applications will be made with open ports to reduce fines. The ports should be positioned to angle downward to reduce shearing during application. Each aircraft must be equipped with enough shut-offs, blanks or plugs to reduce the number of operating nozzles down to one (1). The required flow rate per minute will range from sixty (60) to six (6) gallons per minute.
- j. **Aircraft Information Form:** The contractor is responsible for providing the certification of this section by submitting an Aircraft Information Form for each aircraft to the DEP by **April 15** of each contract year. Any aircraft added to this contract during the operational season must have the certification of this section submitted seven (7) days prior to participation in the contract.

## VI. ELECTRONIC FACILITIES FOR AIRCRAFT EQUIPMENT:

- A. **Electronic Tracking, Guidance and Recording GPS/GIS System:** According the manufacturer's specifications and FAA regulations, all spray aircraft must have installed a GPS-based Electronic Tracking, Guidance and Recording System (ETGARS), such as AGNAV, SATLOC, or equivalent. The contractor must provide all equipment, materials,

computers, printers, personnel, and services required for the system to be used. The ETGARS must be capable of accurately guiding the aircraft, while flying at typical flight and application altitude required in this contract. The ETGARS must be capable of updating current spray aircraft position at a rate of five (5) times per second during flight. The system must also provide precision GPS guidance with pilot-selected cross-track error readout, adjustable down to one (1) foot. The system must be capable of differentially correcting the GPS signal for the complete contract area and maintaining that correction for at least ninety percent (90%) of the spray operations. Primary differential correction is to be provided by satellite. A portable differential station, U.S. Coast Guard, or satellite may provide differential correction. As part of our review or inspection, complete operation manuals must be available in each aircraft.

**B. On-Board Computer:** The ETGARS must have an on-board computer with the following features or capabilities:

1. An independent, readily visible, cockpit-mounted monitor which is mounted in the aircraft in a location that will allow the pilot to view the screen with direct or peripheral vision without looking down.
2. Software designed for parallel offset in increments equal to the assigned swath width of the application aircraft or formation of aircraft.
3. Moving, real-time position display of the spray aircraft.
4. Graphics that show the polygon representing the treatment area, the treatment area number, and the number of gallons of insecticide to be applied to the treatment area.
5. Shaded, moving swath indicator graphic that shows spray coverage proportional to the actual effective swath.
6. An effective indicator showing booms on/off.
7. The capability of assigning any effective swath width value.

**C. In-Flight Features:** The ETGARS must have the following features available for use in-flight:

1. A course-deviation indicator (CDI) or a course-deviation light bar must be installed in the aircraft in a location that will allow the pilot to view the indicator with direct or peripheral vision without looking down.

2. An easy-to-operate, user-friendly, pilot's control keypad with swath advance and decrement function.
  3. A display that indicates whether the aircraft is either in or out of the treatment area.
  4. A visual and/or audible warning to alert pilot when he/she is about to enter or exit the current treatment area polygon.
  5. A method to display nested polygons in order to indicate sensitive or the "no-spray" area near treatment sites.
  6. A method to select application patterns, either racetrack or back-to-back. A warning method to indicate GPS or differential correction failure.
  7. A navigational feature that allows the aircraft to return to a selected point before or after spray shutdown.
  8. A method to record flow rates of spray system and total gallons applied per site.
  9. A display of cross-track error.
  10. A method to partition a spray site, on-the-fly, in order to change treatment direction.
  11. The capacity to end log files, rename, and/or start new log files in flight.
- D. **Polygon Input:** The ETGARS must be capable of receiving polygons (treatment area) data input from the following sources:
1. ArcGIS compatible files (shape files, DBF, text, etc.)
  2. Coordinate entry via a keyboard for use with treatment area changes, only.
  3. On-the-fly marking of polygon corners.
- E. **Data Handling:** The system must be capable of storing and utilizing the following polygon data:
1. Hard drive storage and in-flight retrieval by keypad of at least one hundred fifty (150) treatment area polygons of up to fifty (50) points each.

2. Linkage of treatment area polygons enabling the treatment of multiple areas on the same flight line.
3. Intra-polygon exclusions of sensitive areas.
4. In-flight ability to reset grid direction.
5. Preloaded reference waypoints for A-B line construction.
6. On-the-fly creation of A-B line.

F. **Flight Log Data:** The following flight log data specifications and records are required.

1. Disk storage capacity sufficient to record eight (8) continuous hours of flight log data.
2. Flight log data recorded at a minimum rate of one-(1)-time per-second intervals.
3. Post-flight access to flight log data in a file format compatible with Earth Science Research Institute's (ESRI) ArcGIS (i.e., shape file) within twenty-four (24) hours of the completion of treatment.

Except in cases of ETGARS system mechanical problems that are reported immediately to DEP staff on-site, other technical problems which are not the fault of contractor, or failure to submit flight logs in specified format and time period for any portion of a treatment operation, will result in payment being withheld for work performed, as specified in **SECTION XIII. LIQUIDATED DAMAGES FOR FAILURE TO PERFORM.**

4. Full flight log data record must include spray date, contract area, pilot name, aircraft number, flight path, flight speed, time, cross-track error, treatment application on/off indication, latitude and longitude with GPS differential correction status, altitude, gallons per application, and system flow rate.
5. The DEP uses Albers, meters, spheroid, NAD 83 projection.
6. The ETGARS system must be capable of providing all data listed in the following example table:

Date: \_\_\_\_\_  
 Contract Area: \_\_\_\_\_  
 Pilot: \_\_\_\_\_  
 Aircraft: \_\_\_\_\_

ID	Latitude	Longitude	Altitude	Speed	Spray On/Off	Flow Rate	Date/Time
1							
2							
3							
4							

**VII. SUPPORT EQUIPMENT REQUIREMENTS:**

**A. Field Truck:**

1. Field truck shall be equipped for transporting and dispensing Bti, water and aircraft fuel for each aircraft. Truck and trailer combinations are acceptable when they meet or exceed all requirements of the Pennsylvania Department of Transportation (PENNDOT) and the United States Department of Transportation (US DOT).
2. The truck must be equipped with a re-circulation system or a form of agitation to ensure product mixing. The return line should be below the surface of the mixture in the tank. This system must be designed to produce a swirling action that will effectively mix and agitate. Inlet lines should direct the material parallel to the curved internal surface of the tank. Any large internal tank baffles that restrict the agitation in any portion of the tank are not acceptable. Additional mechanical agitation is also acceptable, if approved by the Bti manufacturer. The Bti must be completely recirculated (turned over) while loading field trucks.

**B. Tanks:**

1. All tanks used must be leak-proof and corrosion-resistant. Filler openings and air vents must be adequate to prevent surging during filling.
2. All tanks must be equipped with properly-fitting covers or hatch plates and kept closed except when filling or circulating to reduce contamination.
3. All tanks must be thoroughly cleaned and free of rust, residues, and particulate matter such as grit and sand. All tanks will be inspected before being filled with insecticide or water.
4. All tanks used for bulk storage of insecticide must have visual calibration markings, or a dipstick calibrated at twenty-five (25) gallon, or finer, intervals for use as a double check to the meters.

5. All tanks must be provided with security to prevent tampering or contamination of spray products.

**C Pumps:**

1. The pump used for circulation, mixing and loading must produce a sufficient flow rate in order to fill the aircraft it supplies, in a maximum of three (3) minutes, without producing high pressures.
2. The pump used for drafting the undiluted insecticide from a thirty (30)-gallon drum must be capable of repeatedly emptying a drum in less than three (3) minutes.
3. The same pump may be used for these two (2) purposes provided all other requirements are met.
4. No high-pressure piston pumps and no hand pumps will be permitted.
5. Separate pumps must be provided for Bti and water.

**D. Meters:**

1. All meters must be calibrated annually and if they are reconditioned or significantly repaired during the season. This must be accomplished with a current committed Bti spray product by a licensed inspector within thirty (30) days prior to start of the spraying. The meter must be capable of safely handling the flow rate necessary for the aircraft. Copies of service and approval must be provided to the DEP by **April 15** of each spray season, and prior to the use of reconditioned units. The DEP may require a representative on-site during meter calibration.
2. Meters with lighted digital displays that are difficult to see in direct or full sunlight, shall not be acceptable.
3. The meter must be capable of accurately metering only liquid. The meter must be capable of discriminating liquid from air.
4. Separate meters must be provided for Bti and water, except meters calibrated with Bti may be used for water, if volumes are corrected using the differential factor.
5. The contractor must supply and utilize a meter accurately calibrated with Bti to unload, measure and record actual gallons of product delivered in bulk tank shipments from the manufacturer.



**E. Strainers:**

1. An in-line strainer must be located prior to the intake of the meter. This strainer may be on either side of the pump.
2. The strainer elements used to screen the insecticides must be thirty (30) to fifty (50) mesh and fit properly in the strainer housing. Strainer elements of finer than fifty (50) mesh are not permitted.

**F. Radios:**

1. Communications between the ground and air are the responsibility of the contractor. The contractor is responsible for supplying the necessary equipment to provide two (2)-way radio contact between the helicopter and the ground support truck.
2. All aircraft and field trucks must be provided with FCC and FAA-approved ground to air VHF radio communications. Radios must be capable of transmitting frequencies in the 150-160 MHz range and be in proper working order. All equipment must be properly installed and grounded to ensure correct operation. The radios must be capable of being programmed to communicate effectively with radio equipment used by the DEP.
3. The radio on the field truck must have an exterior speaker audible to a distance of one hundred feet (100') feet from the truck.
4. Radios must have a minimum range of ten (10) miles.
5. The pilot must be able to transmit and receive tower and ground control frequencies used by the airports in the contract area. If it is not possible for the pilot to monitor both a control tower and his ground support truck at the same time, the procedure to switch from one (1) to the other must be simple, and require only one (1) hand.
6. Cellular telephones **do not** meet this requirement.

**VIII. CONTRACTOR PERSONNEL REQUIREMENTS:**

**A. Pilots:**

1. The contractor shall provide pilots that are FAA-qualified and certified to operate the aircraft referenced in the Specifications.
2. Every spray pilot must have two (2) seasons of low-level seeding or spraying experience.

3. All spray pilots must meet or exceed the following experience minimums:

<b>Pilot-in-Command</b>	<b>Hours of Flying Time</b>
Total all Aircraft	1,000
Type of Aircraft to be used in Contract	500
Night	10
Typical Terrain	50
In Weight Class to be Flown (light, medium, heavy)	100
Make and Model, Preceding 60 days	20

4. Twenty (20) landings and take-offs at typical altitude, with loads similar to an average spray load.
5. Pilots must have a valid Pennsylvania Department of Agriculture Pesticide Certificate in Category 25 (Aerial Applicator) and meet any other requirements specified by the Pennsylvania Department of Agriculture.
6. Pilots must have either ten (10) hours operational experience with the ETGARS system in the aircraft or have personalized individual training provided by the contractor or ETGARS' manufacturer.
7. The contractor is responsible for providing the certification of this section by submitting a Pilot Information Form for each pilot to the DEP by **April 15** of each contract year. Any pilots added to this contract during the operational season must have the certification of this section submitted **seven (7) days** prior to participation in this contract.

**B. Pilot Responsibility:**

1. When in flight, the pilot is responsible for the safety of the helicopter and personnel at all times. The DEP will not require flying in fog, dense smoke, or in any other adverse condition which a prudent pilot would avoid.
2. It is mutually-understood and agreed upon that the contractor will not be required to land at any site, or treat any site, that an expert pilot would consider unsafe.
3. During the spraying, the pilot is permitted to take a short break between loads, whenever desired.
4. The pilot is responsible for the proper loading of the aircraft. Loading shall be under the pilot's direction and shall be inspected

by the pilot prior to takeoff. The total weight shall not exceed the maximum gross weight specified by the manufacturer, under standard category.

5. The pilot shall compensate for altitude, temperature, landing site conditions, and other adverse flying conditions.
6. It is recommended that the same pilots work the same areas throughout the contract, because being familiar with the treatment site increases project efficiency.
7. All pilots **must conduct an observational flight** over each treatment site prior to conducting any application to verify location of the application site, the existing site conditions and any flight hazards, including the presence of people in or near the water or stream bank.

**C. Ground Support:**

1. The contractor must provide adequately-trained, qualified personnel, in sufficient quantity, to safely drive all necessary support vehicles, operate the equipment used to transfer and mix insecticides, respond to spills and adverse incidents and properly service each aircraft. All personnel provided by the contractor must understand and be fluent in the English language.
2. Contractor staff must be familiar with locations of all loading zones.

**D. Contractor's Project Coordinator:**

1. The contractor must supply a Project Coordinator who will be available to coordinate equipment, materials and personnel to meet the requirements of this contract.
2. The Project Coordinator shall attend all contract briefings provided by the DEP. Only one (1) Project Coordinator is required for any contractor.
3. The Project Coordinator, or a designated substitute, **must** be available for phone, text or email communication daily, including evenings, weekends and holidays.
4. The Project Coordinator shall respond to all verbal or written correspondence from the DEP Program Coordinators within **one (1) hour** of the initial message, so verification of the request or acknowledgement of the provided spray information is documented. This documentation will allow the DEP Program

Coordinator to proceed with notifications and other arrangements for the scheduled spray event.

**IX. SPRAY MATERIAL:**

**A. Bacillus thuringiensis israelensis (Bti):**

1. The DEP shall purchase the required Bti for this contract.
2. Once the contractor loads their field truck with Bti from the DEP's storage totes/barrels, the contractor shall assume full responsibility for its handling, storage, security and transportation.
3. The contractor shall adhere to the product guidelines provided by the manufacturer, post them in a conspicuous place visible to all staff, provide a copy to each of the staff providing ground support, and provide a copy in each support vehicle. **If the DEP determines that the contractor is not abiding by the manufacturer product handling guidelines, spray operations will be suspended until product procedures are corrected.**
4. The contractor shall be responsible for obtaining Bti from the DEP's storage area prior to each spray to insure that sufficient quantity is available for application at the specified starting date and time.
5. The contractor shall be responsible for recording/tracking all Bti obtained from DEP and complete records must be maintained on Product Tracking Forms. The contractor must submit a completed form to DEP following each control operation.
6. Product Tracking Forms shall document: product name, manufacturer, formulation, EPA registration number, lot number, date received, receiver name, metered gallons and number of gallons metered from truck into aircraft.

**B. Mixing Bti and Water:**

1. Typically, no site will be treated with less than three (3) gallons of diluted material. This condition routinely occurs on small waterway treatments. On sites requiring less than three (3) gallons of Bti, sufficient water shall be added to achieve a minimum three-gallon, per site, total volume.
2. The DEP shall determine when dilution is necessary.
3. The contractor shall supply and transport the water used for mixing.

4. The contractor must have a water source approved by the DEP before it may be used.
5. No premixing of materials shall be permitted.
6. Separate systems, including tanks, pumps, hoses, and meters, must be provided for handling Bti and water.

**C. Application:**

1. Prior to application of Bti at each site, the pilot must conduct an observational flight to verify location of the site, the existing site conditions and any flight hazards, including the presence of people in or near the water or stream bank.
2. Weather and safety permitting, application flights must be conducted as close to three (3) meters as possible above the water surface.
3. Application speeds must be as slow as safety permits, preferably less than forty-five (45) mph.
4. Application shall be uniform across treatment sites, with bank to bank coverage.
5. Multiple passes per site may be required by the DEP to increase exposure time for black fly larvae.

**X. OBLIGATIONS OF THE CONTRACTOR:**

**A. General:**

The contractor shall furnish aircraft, operated and maintained on the ground and in the air with personnel and all necessary support equipment to produce a final application, in accordance with the Specifications. The contractor shall comply with all applicable FAA regulations and FAR Part 137.

**B. Pre-work Conference:**

Following award of the contract and prior to initiation of this spray Program, DEP representatives shall meet with the contractor to discuss details and procedures. The date, time and location of this meeting shall be selected by mutual agreement between DEP and contractor. The Project Coordinator, pilots, and ground support personnel **must** attend this meeting to become familiar with Program operations.

C. **Safety:**

The contractor must provide the DEP with a project **Safety Plan** before conducting any treatment operations. The Plan must include procedures and processes for general safety, vehicle travel, safety equipment, aviation safety, treatment operations safety, biological hazards, first aid, pesticide handling, spill procedures, adverse incident procedures and security and emergency contacts. Safety regulations prescribed by the FAA, the Pennsylvania Bureau of Aviation, the manufacturer of the aircraft, the contractor and the DEP shall be observed at all times. The pilot retains the sole responsibility to determine if conditions are safe for operation of the aircraft. However, both the DEP staff and the pilot will make the final determination of the suitability of weather conditions for conducting applications. Decision by either party that weather conditions are unsuitable for safe application will be justification for delaying treatments.

D. **Right-to-Know Law:**

The contractor shall be responsible for compliance with Pennsylvania Right-to-Know Law, 65 P.S. §§67.101-3104.

E. **Accessory Equipment:**

All accessory equipment, including any vehicles necessary for transporting the insecticide from storage or from one (1) operational site to another, shall be the responsibility of the contractor. Accessory equipment supplied by the contractor is defined as any needed hoses, fire extinguishers, metering devices, and similar equipment necessary for mixing the insecticide and loading the spray aircraft, and any other services, equipment and materials that may be needed.

F. **Landing Zones:**

The selection of suitable heliports or airfields shall be the responsibility of the contractor. Obtaining use of a site shall be the sole responsibility of the contractor. The contractor shall be responsible for any damage done to, or within the vicinity of, the work area that is a direct result of operations. The contractor must locate and secure permission for all heliports or airfields prior to the start of the project. The contractor must provide detailed information and descriptions of the loading sites to be utilized by **April 15** of each year to the DEP Program Coordinators and Project Supervisor. Locations of all loading sites must be provided to contractor personnel acting in support during spray events.

G. **Maintenance:**

The contractor shall provide current maintenance on the spray systems, aircraft, mixing and pumping systems, trucks, and all other equipment

used on these contracts. Care should be taken to prevent leakage of fuels and spray material at all times. Required and routine maintenance is to be conducted at times that will not interfere with the spray operation. If FAA-required inspections are due during spray operations, the required mechanics or other personnel are required to be on-site to prevent delays in spray operations. Only emergency repairs shall be performed during scheduled spray hours.

**H. Security:**

All equipment utilized in this contract must be protected to prevent tampering or product contamination. If guard service for the helicopters and/or facilitating equipment is required or desired by the contractor, the contractor shall provide the necessary personnel. If it becomes necessary to move the aircraft from the operational spray site to another location for safety, care shall be exercised to avoid selection of a fog or frost pocket location that could postpone takeoff and delay or cancel the operation for the day.

**I. Field Expenses:**

Costs incurred in the operation and maintenance of all the equipment utilized in this contract shall be the responsibility of the contractor. Expenses incurred by all contract personnel including arrangements for food, lodging and transportation shall be the responsibility of the contractor.

**J. Compliance With Laws:**

The contractor shall be informed of all laws, ordinances, and regulations affecting those engaged or employed in the work, or the equipment and appliances used in the work or the conduct of the work, and of all orders and decrees of bodies or tribunals having jurisdiction or authority over the same. The contractor shall, at all times, observe and comply with, and shall cause its agents to observe and comply with, such existing and future laws, ordinances, regulations, orders, and decrees. In addition, the contractor shall protect the DEP against any claim or liability arising from, or based upon, the violation of any such law, ordinance, regulation, order, or decree, whether by contractor or by contractor's employees. Contractor shall procure all permits and licenses, pay all charges and fees and give all notices necessary and incident to the proper and lawful prosecution of the work. Contractor shall comply with the laws, rules and regulations, now existing or hereafter enacted or adopted by the United States of America or the Commonwealth of Pennsylvania, or any Bureau or Department thereof, regulating the use and operation of aircraft for commercial and all other purposes.

**K. Police and Sanitary Regulations:**

The contractor shall promptly and fully carry-out police and sanitary regulations as described herein, or as may from time-to-time be prescribed by the DEP. Work shall be done, good order shall prevail, and the health of employees, and of the local people using water from the drainage area in which the work is being performed, and of the local communities affected by the operations under the contract, may be conserved and safeguarded.

The contractor shall dismiss any employee from working on the contract who violates this policy or sanitary regulations contained herein, except with the written consent of the DEP. Said employee shall not be utilized again under this contract except with the written consent of the DEP.

**L. Intoxicants/Controlled Substances:**

The contractor shall not permit or suffer the introduction or use of intoxicating liquor or controlled substances of any kind under this contract.

**M. Medical Service:**

The contractor shall make satisfactory arrangements for medical service and for the proper care of employees who become sick on the job and employees who are injured during the course of the work. If ordered by the DEP, contractor shall provide all articles necessary for giving first-aid to the injured. The contractor shall remove any employee from work, whose presence is, in the opinion of the DEP, a danger to the health of others.

**N. Anti-Pollution Measures:**

The contractor shall acquaint himself with the terms of all statutes, rules and regulations dealing with the prevention of environmental pollution and preservation of public natural resources and shall include all costs of complying with the terms of such statutes, rules, and regulations in the unit price bid. In the event that such statutes, rules and regulations are amended, or if new statutes, rules and regulations become effective, which cause the contractor to perform additional work, the DEP will issue a contract amendment. The contract amendment will specify the amount of additional payment, if any, that will be made to the contractor. No payment shall be made for additional work performed without written authorization to do so.

The contractor will also be required to comply with local laws, codes, and regulations that apply to this project. It is the responsibility of the



contractor to determine what, if any, local laws, codes, and regulations are applicable.

## **XI. OBLIGATIONS OF THE DEP:**

### **A. Application Supervision and Monitoring:**

The DEP Black Fly Suppression Program will administer this contract. Doug Orr and Andrew Kyle will be the Project Supervisors. The DEP Program Coordinator, Stacey Greenwald, or a designated employee of the DEP, will work with each helicopter, directing the treatment operation and acting as dispatcher and record-keeper. The Program Coordinator will provide the necessary information to other DEP personnel who are engaged in monitoring and evaluating the operations. The DEP Program Coordinator will provide spray schedules and volumes to the contractor as specified in **SECTION XIII.B Notice of Schedule**.

### **B. Maps:**

The DEP shall provide topographic maps, or comparable spray maps, with each treatment site marked and labeled. A set of these maps shall be available to each pilot on spray days. No ground markers will be provided at treatment sites. Pilots and DEP personnel may record locations of wires and other flight hazards on maps; however, each pilot shall be responsible for verifying all flight hazards utilizing an observational flight, prior to Bti application, at each individual spray site. The DEP shall not be liable for any mishap, accident, property damage, bodily injury or accidental death, in any form, that occurs as a result of inaccurate or accurate marking of wires and other flight hazards on spray maps.

### **C. Safety:**

DEP personnel shall be required to conduct themselves in a safe manner, especially in the vicinity of the spray aircraft and support equipment.

## **XII. CONTRACT REQUIREMENTS:**

### **A. Contract Bonds:**

No later than fifteen (15) days after notification of contract award, the contractor agrees to furnish to the DEP a Performance Security, in the form of a surety bond or letter of credit, in the amount of twenty percent (20%) of the total bid price, and Labor and Material Payment Security in the form of a surety bond, in the amount of twenty percent (20%) of the total bid price, each in a form acceptable to the DEP. The Performance Security shall be conditioned on the faithful performance of the covenants of this Contract. The Labor and Material Payment Security shall be conditioned for the prompt payment of all material furnished, or labor

supplied or performed, in prosecution of the Contract work. The Performance Security and the Labor and Material Payment Security bond requirements will remain in effect for the entire contract term.

If a contractor is a corporation, each surety bond must be signed by either the contractor President or Vice-President and the Secretary or Treasurer. A Pennsylvania resident agent must also countersign each surety bond.

**B. Insurance:**

The contractor shall not commence work under the contract until all insurance required herein is obtained and has been approved by the DEP. Each certificate or policy, submitted as evidence of such coverage, shall contain a rider that the insurer will notify the DEP, in writing, thirty (30) days prior to cancellation or modification of the policy. All policies shall be issued by insurance companies authorized to conduct such business under the laws of the Commonwealth of Pennsylvania.

The required insurances shall be of the contractual liability type and the named insured parties shall include the Commonwealth of Pennsylvania.

**1. Workmen's Compensation Insurance:**

The contractor shall take out and maintain during the life of the contract, Workmen's Compensation Insurance for all employees working on the project. In lieu of insurance for this liability, the contractor may file with the DEP a certification of exemption from insurance from the Bureau of Workmen's Compensation of the Department of Labor and Industry.

**2. Public Liability, Bodily Injury and Property Damage Insurance:**

The contractor shall take out and maintain for the life of the contract, such Public Liability, Bodily Injury and Property Damage Insurance that shall protect the Commonwealth, the political subdivision(s) where the work is performed, and the contractor from claims for damages or personal injury, including accidental death, as well as from claims for property damage, which may arise in performing the tasks described herein, whether such be by the contractor or by anyone employed by the contractor. The amount of the Bodily Injury and Property Damage Insurance shall be not less than \$1,000,000 per occurrence combined single limit, except that Bodily Injury Insurance for navigator or reconnaissance observer shall not be less than \$500,000 per occurrence, combined single limit.

3. **Automobile Bodily Injury and Property Damage Insurance:**

The contractor shall take out, and maintain for the life of the contract, Automobile Bodily Injury and Property Damage Insurance. The insurance shall protect the Commonwealth, the political subdivision(s) in which the work is performed, and the contractor from claims for damages or personal injury, including accidental death. In addition, the insurance shall provide for protection from claims for property damage which may arise in execution of the contract, whether such damage is done by the contractor or by anyone directly or indirectly employed by the contractor. The amount of the Automobile Bodily Injury and Property Damage Insurance shall be not less than \$1,000,000 per occurrence, combined single limit.

4. **Maintenance of Insurance:**

Whenever the estimated aggregate of losses covered by the Public Liability, Bodily Injury or Property Damage, or Automobile Bodily Damage or Property Damage Insurance equals or exceeds one-half (1/2) of the aggregate policy limit as determined by the DEP, the said policy shall, upon fifteen (15) days' written notice by the DEP, be endorsed to restore the initial policy limit, or be replaced by another policy having the same limit.

5. **Accidents and Claims:**

The contractor will indemnify and hold harmless the Commonwealth, the local political subdivision(s) where the work is performed, and all the officers, agents, and employees of both, from all suits, actions, or claims of any character, name, and description brought for, or on account of, any claims of any injury or damage received or sustained by any person(s) or property, on account of any negligence or fault of the contractor, his agents or employees, in the execution of the contract or from any improper or inferior workmanship or inferior materials used, and the contractor will be required to pay any judgment, with costs, which may be obtained against the DEP or the local political subdivision(s), growing out of such injury or damage.

C. **Deadlines for Required Documentations Following Bid Opening:**

1. Within **fifteen (15) days** of notification, the contractor shall present DEP with the following:
  - a. Contract bonds as identified above.
  - b. Insurance Certificates as identified above.

- c. Completed Aircraft Description Form provided by the DEP, including aircraft make and model, FAA registration number, spray system make, tank capacity, date and evidence of the annual aircraft inspection for each of the contractor's aircraft intended to be used on the project.
  - d. Completed Spray Aircraft Pilot Approval Form provided by the DEP, including the names of pilots, commercial certificate numbers and limitations, if any, flight hours in command as specified, number of seasons of forest or related spraying experience, FAA medical certificate, class and date of examination; a copy of the pesticide application business license and copies of each pilot's pesticide certification.
2. On **April 15** of each year, the contractor shall present DEP with the following:
- a. Updated Aircraft Information Form for each aircraft to be used on each contract.
  - b. Updated Pilot Information Form for each pilot scheduled to work on each contract.
  - c. Loading zone information including the location on a copy of a 7.5 minute topographic map or comparable map, property owners' names and signatures, telephone numbers, and specific information on use restrictions.
  - d. Names, telephone numbers, and email addresses of contractor's Project Coordinator, Pilots, Truck Drivers, Ground Support Staff and Office Personnel.
  - e. Calibration and inspection data/approvals for all meters.

### **XIII. LIQUIDATED DAMAGES FOR FAILURE TO PERFORM:**

- A. **Introduction** - Due to the development of black fly larvae, each application of insecticide must be made timely for the treatment to be successful. Delays caused by the contractor, during the periods of acceptable spray conditions, are costly to the DEP and damaging to the outcome of the Program. The contractor shall apply Bti in the volumes specified and at times and locations specified by the DEP.

If the larvicide fails to provide effective larval control, due to contractor error or negligence, the contractor shall re-treat the area, at no cost to the DEP, or monies shall be deducted before final payment is made, at the

discretion of the DEP. The contractor shall not be liable for assessed damage costs, if the failure to meet the terms of the contract arises out of situations beyond the control of contractor. Such causes may include, but are not limited to, Acts of God or of the public enemy, acts of the Commonwealth in its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather. However, in every case, the failure to perform must go beyond the control, and without the fault or negligence, of the contractor. The following items are considered to be failure to perform acts and subject to monetary compensation.

- B. **Notice of Schedule** - DEP shall provide the contractor the time and location of where to have equipment assembled **five (5) days** prior to the start of the annual spray Program. Following the first application, an advance notice of **thirty-six (36) hours** will be given to report for spraying and another notice again at twenty-four (24). The twenty-four (24)-hour notice shall include number and size of aircraft, estimated gallons of Bti, waterways to be sprayed, starting time, date and locations.
- C. **Failure to Report as Directed** - In the event that the contractor fails to provide appropriate aircraft, pilots, support equipment, personnel, or materials on the day specified, the contractor shall be assessed damages in the amount due at a rate of \$10,000 per day per aircraft scheduled.
- D. **Failure to Replace Inoperable Equipment** - In the event that aircraft, pilots, support equipment, personnel, or materials are on-site, but the equipment becomes inoperable for that day, replacement equipment must be provided. The equipment must be provided in a sufficient time that spraying may be completed in a time period acceptable to the DEP Regional Coordinator. Failure of the contractor to provide this replacement equipment, within the time period acceptable to the DEP Regional Coordinator, will cause damages to be assessed against the contractor in the amount due at a rate of \$1,500 per hour, to a maximum of \$10,000 per day, for each aircraft scheduled. The DEP Program Coordinator shall record the breakdown and delays on the Daily Aircraft Record for that operation.
- E. **Tardiness** - The contractor shall be informed in advance, the time the spray operation will begin and the estimated gallons of Bti and water required, for each day's operations. Prior to the start time, the pilot and ground support personnel shall be at the work site, trucks loaded with the requested volume of Bti and the product thoroughly turned-over, mixed and ready to apply. They are to be set up to load the ship and take-off by start time. In the event that the aircraft, pilots, support equipment, personnel, or materials are not on-site and prepared to begin operations (defined as the departure with the first load when conditions are acceptable for spraying), a tardiness liquidated damage may be assessed against contractor in the amount due the contractor at a rate of \$1,500 per

hour, to a maximum of \$10,000 per day, per aircraft scheduled. The DEP Dispatcher shall record the time of the arrival and the scheduled start time on the Daily Aircraft Record for that operation. Failure to provide the requested volume of Bti at the site, or failure to provide routine or scheduled maintenance, resulting in the spray operations being delayed during the day when conditions are acceptable for spraying, may result in liquidated damages being assessed against the contractor, in the amount due at the rate of \$1,500 per hour, or portion thereof, for the time that the spray operation was delayed.

- F. **Insufficient Insurance for Observers/Navigators** - Failure to have sufficient insurance to cover a DEP employee as a navigator or reconnaissance observer, or refusal to carry a DEP employee when requested (unless spray load size, weather conditions or mechanical issues prevent safely carrying passengers), damages will be assessed against contractor at the rate of \$1,000 per spray day per aircraft. **The DEP reserves the right to have an employee accompany the pilot and aircraft as a navigator or observer on all flights.** Failure to maintain sufficient insurance to meet the requirements contained in **Section XII.2. Public Liability, Bodily Injury and Property Damage Insurance;** shall be considered failure to meet the performance of the contract and the performance bond shall be subject to forfeiture for this reason.
  
- G. **Spills and Dumps** - The contractor must provide trucks for transporting the insecticide, water and fuels. The contractor shall be held liable for any loss and cleanup of materials spilled, dumped, or improperly used or applied during these contracts. The DEP shall be indemnified and held harmless by the contractor in the event of any such spill, dump, improper use or application of fuel, insecticide or water. All spills and dumps must be cleaned-up immediately by the contractor.
  
- H. **Inaccurate Application of Materials** - The contractor shall be required to treat all sites within an acceptable range. Where the contractor fails to apply the appropriate volume requested by the on-site DEP Program Coordinator, the contractor shall not be reimbursed for that site. In cases where excess volume is applied, or incorrect sites are treated, only the required volume and correct sites shall be considered for payment. **Pilots must immediately inform the DEP employee in charge of the spray operation, when an incorrect site is treated, or when an incorrect volume of product is applied.**
  
- I. **Procedure** - Any incident in which the contractor causes a delay, or inaccurate or ineffective application, the reason for the inaccurate or ineffective application will be described in writing by the DEP Program Coordinator and submitted to the Project Supervisor for his records, within three (3) days of the treatment date. A copy of the report will be given to the contractor.

- J. **Submission of ETGARS System Flight Log Data** – Provide post-flight access to flight log data in a file format compatible with Earth Science Research Institute's (ESRI) ArcGIS (i.e., shape file), within forty-eight (48) hours of the completion of treatment.

Failure to submit flight logs, in the specified format and time period, for any portion of a treatment operation, will result in payment being withheld for that portion of the treatment operation.

Except in cases of ETGARS' system mechanical problems, which shall be reported immediately to DEP staff on-site, or other technical problems that are no fault of the contractor, failure to submit flight logs, in specified format and time period for any portion of a treatment operation, will result in payment being withheld for that portion of work that was to be completed. Contractor shall not be paid for such work until flight logs are received and accepted by the DEP.

- K. **Grievances** - In cases where the contractor disagrees with the assessment of liquidated damages, or in interpretation of other sections of these Specifications, an administrative review with the Project Supervisor and other appropriate DEP management and technical personnel will be held within ten (10) days of the request. A written report is to be provided to the contractor, and any other participants, within ten (10) days of the review.

#### **XIV. CONTRACT TERM:**

The contract shall commence upon execution and terminate on March 31, 2016. The contractor agrees to commence work within five (5) days of the Notice to Proceed by the DEP Program Coordinator, at the start of each contract term. The contract may be renewed for up to an additional two (2) consecutive annual terms with a final termination date of March 31, 2018.

With each renewal request, contractor shall provide the DEP at least sixty (60) days' written notice of their desire to renew. If the contract is renewed, the unit prices shall be negotiated and be mutually agreeable between the contractor and DEP.

The Performance Security and the Labor and Material Payment Security requirements will be in effect for the calendar year of the contract. The Performance Security shall be conditioned on the faithful performance of the covenants of this Agreement. The Labor and Material Payment Security shall be conditioned for the prompt payment of all material furnished or labor supplied or performed in prosecution of the contract work.

**XV. BID AWARD:**

The DEP estimates the area will require five (5) to seven (7) treatments at approximately fourteen (14) to twenty (20) day intervals, depending upon black fly populations, weather conditions (i.e., temperature) and waterway levels.

**Estimated Quantities:** The contract quantities herein are estimated only and may increase or decrease depending on the needs of the DEP. Contractor shall be paid at the unit price bid for actual work performed.

**Attachment A, Bid Award** is for informational purposes, only. However, it must be attached as part of your bid submission. Contractor shall include all costs necessary to perform the tasks identified in these Specifications in the unit price bid. This contract will be awarded on the Bid Award Total. Additional costs are not permitted and, if included, will result in your bid being rejected as non-responsive.

**XVI. PAYMENT TERMS:**

Contractor shall be paid upon receipt of invoice at the unit price bid for actual number of gallons of Bti concentrate applied. Contractor shall submit invoices upon completion of each application. Where faulty application makes it necessary to re-spray areas not satisfactorily covered by the contractor, such areas shall be resprayed by the contractor, at no cost to the DEP. The DEP shall be the final judge on completeness of the spray application. There will be no payments made for water.

The DEP shall claim liquidated damages for contract violations at rates identified in Section **XIII. LIQUIDATED DAMAGES FOR FAILURE TO PERFORM** and any such amounts shall be deducted from final payment to contractor.