FINAL

ENVIRONMENTAL ASSESSMENT

and

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

COOPERATIVE GYPSY MOTH ERADICATION PROJECT
KING COUNTY
WASHINGTON

April 18, 2013

Prepared by
Washington State Department of Agriculture
Plant Protection Division

In cooperation with
United States Department of Agriculture
Animal and Plant Health Inspection Service
Plant Protection and Quarantine

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TABLE OF CONTENTS

I.0 PURPOSE AND NEED FOR ACTION..... 5

1.1 Proposed Action..... 5

1.1.1 Need for Action 5

1.2 Related Documents. 6

1.3 Decisions to be Made 7

1.4 Authorizing Laws and/or Policies 8

1.4.1 State Authorizing Laws..... 8
1.4.2 Federal Authorizing Laws..... 8
1.4.3 Environmental Laws and Other Regulations 8

2.0 TREATMENT ALTERNATIVES..... 8

2.1 Treatment Alternatives Considered 8

2.1.1 No action
2.1.2 Bacillus thuringiensis var kurstaki (Btk)..... 8
2.1.3 Difubenzuron (Dimilin®)……8
2.1.4 Gypsy Moth Virus (Gypcheck®)..... 9
2.1.5 Mass trapping 9
2.1.6 Mating disruption 9
2.1.7 Sterile insect technology 9

2.2 Alternatives Considered and Eliminated 9

2.3 Preferred Treatment Alternative..... 9

3.0 AFFECTED ENVIRONMENT 10

3.1 Site Description..... 10

3.2 Threatened, Endangered, and Sensitive Species..... 11

4.0 ENVIRONMENTAL CONSEQUENSES..... 12

4.1 No Action Alternative 12

4.2 Preferred Treatment Alternative..... 12

4.2.1 Human Health and Safety 12
4.2.2 Non-Target Organisms..... 15

5.0 LIST OF PREPARERS 16

6.0. LIST OF AGENCIES AND PERSONS CONSULTED..... 17

7.0 APPENDICES 18

A. References

B. Treatment Site Maps

C. Public Involvement and Issues

D. Monitoring

E. Product Labels and Material Safety Data Sheets

F. Letters

G. Finding of No Significant Impact (FONSI)

I. PURPOSE AND NEED FOR ACTION

1.1 Proposed Action

The WSDA, in cooperation with USDA-APHIS and other appropriate Federal, State and local agencies, proposes to take action to eradicate an isolated infestation of European gypsy moth in King County, Washington. The action will be designed to give the project the best chance for achieving the goal of eradicating the gypsy moth infestation while minimizing risks to human health as well as minimizing detrimental environmental consequences. This action will be taken in order to prevent the establishment and spread of this pest insect and thereby avoid the adverse economic, social, and ecological effects associated with large-scale gypsy moth infestations. The proposed treatment area is in the cities of Tukwila and Renton (Tukwila and Renton are neighboring cities).

25 adult male gypsy moths were caught in the Tukwila area during WSDA's summer trapping program in 2012. Follow-up inspections in the area of the catches revealed alternate gypsy moth life stages (several pupal cases and 11 egg masses) indicating the existence of a reproducing population.

After evaluating treatment options available in the USDA 1995 FEIS and 2012 FSEIS, WSDA proposes three to five applications of the insecticide Btk to 10.5 acres of vegetation at the core of the infestation and a single aerial application of disparlure, a mating disruptant to the surrounding 181 acres. The Btk applications will target early instar larvae shortly after egg hatch in April and May. The disparlure application, which disrupts adult gypsy moth mating behavior, will be conducted just prior to adult emergence (early July).

1.1.1 Need for Action

Since its accidental release in the United States in 1869, the European strain of gypsy moth has spread throughout New England and areas to the north, south and west. It has become established in all or parts of 19 states, the District of Columbia, and parts of Canada. It continues to spread to uninfested areas. The gypsy moth has caused dramatic economic, social, and ecological impacts throughout the infested area (USDA, 2012, vol. II, chapter 1, p. 2-3).

Strategies described in the FEIS and FSEIS (see section 1.2 for explanation of FEIS and FSEIS) depend upon the infestation status of the area: generally infested, transition, or uninfested. The three strategies of suppression, eradication, and slow the spread -- or their absence – are included in the six alternatives described in the FEIS. The sixth alternative is the preferred alternative presented in the FEIS. The sixth alternative is comprised of all three strategies.

Based on the infestation status of "no established population", Washington State's strategy in 2013 will be eradication.

Treatments available for eradication projects include: (the biological insecticides) Bacillus thuringiensis var. kurstaki (Btk) and the gypsy moth nucleopolyhedrosis virus (Gypchek); a chemical insecticide (diflubenzuron); and treatments employing mass trapping, mating disruption, and sterile insect release techniques. A detailed description of these treatment options and the decision making process can be found in Section 2 of this EA.

The European strain of the gypsy moth has been found every year in Washington State since 1974 with the exceptions of 1976 and 1977. The European gypsy moth is usually introduced to Washington State by people visiting or relocating from the infested area of eastern North America. For more than 30 years, WSDA has successfully detected new introductions of European strain of gypsy moth and successfully eradicated all reproducing populations.

1.2 Related Documents

In 1995, the USDA Forest Service and APHIS issued a final environmental impact statement, "Gypsy Moth Management in the United States: a cooperative approach", (hereinafter referred to as FEIS), which describes and analyzes methods of gypsy moth control available for use in USDA cooperative programs. In 2012 the USDA Forest Service and APHIS issued a supplement to the 1995 FEIS (hereinafter referred to as FSEIS)

This Environmental Assessment (EA) is tiered to the FEIS and the FSEIS in accordance with the Council on Environmental Quality regulations for implementing the National Environmental Policy Act of 1969 (NEPA) (40 CFR 1502.20 and 40 CFR 1508.28). This EA provides the basic background information necessary for the site-specific analysis of the potential environmental effects of WSDA's proposed 2013 Cooperative Gypsy Moth Eradication Project. The FEIS, FSEIS, and this site-specific EA jointly constitute the environmental analysis and documentation required under NEPA.

Copies of the FEIS, FSEIS, and the EA are available for review at:

Washington State Library
6880 Capitol Blvd. S
Tumwater, WA 98501

and

USDA, APHIS, PPQ
APHIS Library, 1st floor
4700 River Road
Riverdale, MD 20737

and

USDA, APHIS, PPQ
33400 9th Ave. S., Suite 200
Federal Way, WA 98003

Additional environmental analysis and documentation has been prepared to satisfy Washington State requirements under Chapter 43.21 (c) of the Revised Code of Washington (State Environmental Policy Act or SEPA), and Chapter 197-11 of the Washington Administrative Code (SEPA rules).

Copies of the SEPA documentation are available for review at:

Washington State Library
6880 Capitol Blvd. S
Tumwater, WA 98501

and

Washington State Department of Agriculture
www.agr.wa.gov

1.3 Decisions to be Made

There are three significant decisions which must be made as a part of evaluating a gypsy moth control action.

The first decision to be made is whether to propose a gypsy moth control project (the absence of a control project is a no-action alternative). The second decision to be made is whether or not tiering this environmental assessment to the USDA 2012 FSEIS is appropriate. The third decision to be made is what tools are being proposed for the project area.

1.4 Authorizing Laws and/or Policies

1.4.1 State Authorizing Laws

WSDA has authority under Chapter 17.24 of the Revised Code of Washington, Insect Pests and Plant Diseases, to eradicate or control insect pests that may endanger the agricultural and horticultural industries in the state of Washington.

1.4.2 Federal Authorizing Laws

The USDA is responsible for management activities related to the gypsy moth for the Federal government. Two USDA agencies, the Forest Service and APHIS share this responsibility. Agency authorities are found in 7 CFR 2.8(a)(36) and 7 CFR 2.6(a)(38).

1.4.3 Environmental Laws and Other Regulations

Many environmental laws, authorities and Executive Orders of the President influence how actions to manage pests, including the gypsy moth, are implemented at the site-specific level. Such laws include the National Environmental Policy Act; the Washington State Environmental Policy Act; the Federal Insecticide, Fungicide, and Rodenticide Act; the Clean Water Act and the Endangered Species Act.

2.0 TREATMENT ALTERNATIVES

2.1 Treatment Alternatives Considered

WSDA is proposing to conduct an Integrated Pest Management (IPM) program to eradicate gypsy moth in Washington State. Evidence of an isolated reproducing population of European gypsy moth in Washington is a “trigger” to evaluate eradication options. Integrated Pest Management involves selecting those options and techniques that give the best chance of meeting the project goal of eradication. The FSEIS contains a range of alternatives from which WSDA has selected an IPM strategy. The treatment alternatives detailed in the FEIS and FSEIS include:

2.1.1 No action

2.1.2 *Bacillus thuringiensis var kurstaki* (Btk). This is a biological insecticide containing the bacterium Btk. The insecticide is effective primarily against caterpillars of many species of moths and butterflies.

2.1.3 Diflubenzuron (Dimilin®). This is an insect growth regulator that interferes with the growth of some immature insects.

2.1.4 Gypsy moth virus (Gypcheck®). This is a nucleopolyhedrosis virus which occurs naturally and is specific to GM. Gypcheck is an insecticide product made from the GM nucleopolyhedrosis virus.

2.1.5 Mass trapping. This treatment consists of large numbers of pheromone traps used to attract the male GM and prevent them from mating with females, thereby causing a population reduction. The density of traps in this treatment option is nine or more traps per acre.

2.1.6 Mating disruption. This treatment consists of applying tiny plastic flakes or beads containing disparlure, a synthetic GM sex pheromone. The pheromone confuses male moths and, thus, prevents them from locating and mating with females.

2.1.7 Sterile insect technology. This treatment consists of an aerial release of a large number of sterile male GMs. This reduces the chance that female moths will mate with fertile males. The result is progressively fewer and fewer fertile egg masses being produced, and eventual elimination of the population.

2.2 Alternatives Considered and Eliminated

The following treatment options were considered and not selected due to environmental or efficacy concerns. The no action alternative was dismissed in this case due to the high number of adults trapped in a single location and the discovery of alternate life stages (egg masses and pupal cases) in the area. Diflubenzuron is an insect growth regulator that has adverse impacts on a broader range of nontarget species than Btk. While Btk primarily impacts moths and butterflies, diflubenzuron can kill many other insects in addition to moths and butterfly caterpillars. Its use may adversely affect other insect populations and, therefore, it was not selected. GM virus (Gypcheck) is very host-specific but is not widely available in the market; it is still somewhat experimental for eradication programs and, therefore, was not selected. Mass trapping has been used with some success to eradicate isolated populations, but at other times has failed. It is best employed following larval pesticide treatments in small, isolated low-level populations. Sterile insect releases have been approved but have rarely, if ever, been used in eradication efforts.

2.3 Preferred Treatment Alternative

The WSDA/USDA-APHIS gypsy moth eradication strategy proposed for 2013 includes the use of the biological insecticide Btk (treatment alternative 2.1.2) and the application disparlure, a gypsy moth mating disruptant (treatment option 2.1.6). This IPM strategy will give the project the best chance to achieve the goal of eradicating the gypsy moth infestation while minimizing risks to human health and minimizing detrimental environmental consequences.

3.0 AFFECTED ENVIRONMENT

3.1 SITE DESCRIPTION (see Appendix 7.2 for maps)

(Renton, WA 7.5 minute quadrangle, S23 T23N R4E)

- King County, Washington

- Approximately 181 acres

- Zoning

  Tukwila:
  LDR – Low Density Residential
  MDR – Medium Density Residential
  HDR – High Density Residential
  RCM – Regional Commercial Mixed Use

  Renton:
  IM – Industrial Medium
  IH – Industrial Heavy

- Proposed Area
  The proposed 181 acre site is in urbanized King county. The land use is a mixture of light industrial, commercial, recreational, residential, and green space. The 10.5 acre core site consists of an extended stay motel and an office building.

- Vegetation
  There is a large (approx 40 acres) greenbelt on the west edge of the site. The greenbelt consists primarily of deciduous trees. Canopy coverage in the greenbelt is approximately 90% and tree height is generally in excess of 50 feet.

  The remainder of the site is a mix of conifer and deciduous trees and shrubs with canopy coverage 15-20%, tree height is variable with deciduous trees in excess of 50 feet.

- Critical/Sensitive Areas
  The Green River runs through the proposed treatment site, there is a small pond and two unnamed wetlands in the proposed treatment area. WSDA will be working under NPDES permit #WA0039047 issued by the Department of Ecology to WSDA for the purpose of invasive moth control. The permit, titled “Invasive Moth Control National Pollutant Discharge Elimination System Waste Discharge Permit”, authorizes discharge

of insecticides into surface waters of the state of Washington that are consistent with the terms and conditions of this permit for the purpose of invasive moth control.

There is an area of steep slope (+45%) in the greenbelt area. (See topography map in Appendix B). The Tukwila sensitive areas map identifies a portion of this steep slope area as “very high landslide potential”.

- Catch History
  25 European Gypsy Moths were caught in the area during the 2012 summer trapping survey.

- Alternate Life Stages
  Several pupal cases were found in the area during the fall of 2012.
  Eleven egg mass were found in the area during the fall of 2012.

3.2 Threatened, Endangered, and Sensitive Species

As required by Section 7 of the Endangered Species Act of 1973, the USDA has conferred with both the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). No listed, designated, proposed, or candidate species occur at or near the proposed treatment site. USDA-APHIS has determined that the proposed eradication project will have no effect on any listed, designated, proposed, or candidate species or their critical habitat.

In addition, the WSDA has consulted with the Washington State Department of Fish and Wildlife (WDFW) and the Washington State Department of Natural Resources (DNR). These agencies provided maps or other data intended to aide in the identification of habitats of concern and the presence of listed, proposed, candidate, threatened or endangered species. The information provided by WDFW Priority Habitats and Species Program did not identify any state listed threatened or endangered species at or near this site. The Green River runs through the proposed site. WDFW lists the presence of priority anadromous fish including coho salmon, sockeye salmon, pink salmon, fall Chinook, fall chum, winter steelhead, summer steelhead, and bull trout. Resident cutthroat is the priority resident fish presence listed by WDFW for the Green River.

The information provided by WDFW from their lepidopteran database found no butterfly species of concern in the immediate area or within a 5-mile radius of the area to be treated with Btk.

A review of the DNR Washington Natural Heritage Program database found no records for rare plants or high quality native ecosystems in the vicinity of the treatment site.

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 No Action Alternative

The gypsy moth is able to survive and reproduce in Washington State, as evidenced by numerous past isolated infestations. The current infestation, if left unchecked, could spread across a large area. The ecological and human health risk assessment for gypsy moth, should become established, is detailed in the 2012 USDA FSEIS, vol. IV, appendix L. (USDA Forest Service 2004)

Trees in forests and orchards, and residential and municipal shade trees and landscape plantings would be damaged and killed. Recreational and aesthetic values associated with trees and forested land would be diminished. Species composition of the vegetation on forested land could change, affecting the quantity and variety of food available for wildlife.

Water quality could be adversely affected in a number of ways including: 1) increased siltation from rapid runoff of rainfall from defoliated areas; 2) increases in water temperature as it flows through areas made shadeless; and 3) nutrient overloading from the deposition of large quantities of caterpillar droppings.

The pesticide load in the environment would likely increase in quantity, variety, and net detrimental environmental impact as home and business owners respond to ever-increasing numbers of gypsy moth caterpillars, the damage they cause, and the nuisance they represent.

Human health effects associated with the presence of large numbers of gypsy moth caterpillars have been reported, including rashes and welts typical of allergic reactions, and respiratory complaints. These effects have been attributed to the irritating nature of the bristles found on the caterpillars. In some instances the reactions have been severe enough to require medical attention (Allen et, al., 1991), (Tuthill, et al., 1984), (Aber, et al., 1982), (Beaucher and Farnham, 1982), (Shama, et al., 1982).

Agricultural, horticultural and forestry enterprises are dependent upon markets beyond the borders of Washington State. Washington must be able to comply with the plant pest and disease regulations of the Federal government, other states, and international markets. The establishment and spread of the gypsy moth in Washington State would result in the imposition of quarantines .The levels of production and value of plant products would be adversely affected.

4.2 Preferred Treatment Alternative

4.2.1 Human Health and Safety

a. Bacillus thuringiensis var. (kurstaki) (Btk)

The use of Btk for the eradication of isolated gypsy moth infestations is expected to have no adverse impact on human health or the environment. Various strains of Bacillus thuringiensis (B.t.) are a naturally occurring bacterial component of soils worldwide. Modern aqueous formulations of Btk used in gypsy moth control projects contain no organic solvents and have an excellent safety record associated with their use in gypsy moth suppression and eradication projects. An exemption from the requirement of a tolerance has been established for residues of Btk in or on all raw agricultural commodities. This exemption stipulates that manufacturers of Btk test each lot for pathogenicity and vertebrate toxicity. See Appendix E for each Sample Label and MSDS.

A detailed discussion of the human health effects of Btk may be found in the 2004 USDA Forest Service Btk risk assessment. (USDA, 2004)

Due to advances in scientific knowledge, the law requires that pesticides which were first registered before November 1, 1984 be reregistered to ensure that they meet today's more stringent standards. In March of 1998 the United States Environmental Protection Agency came out with a Reregistration Eligibility Decision (EPA, 1998) in which they concluded:

> Based on the reviews of the generic data for the active ingredient *Bacillus thuringiensis*, the Agency has sufficient information on the health effects of *Bacillus thuringiensis* and on its potential for causing adverse effects in fish and wildlife and the environment. The Agency has determined that *Bacillus thuringiensis* products, manufactured, labeled and used as specified in this Reregistration Eligibility Decision, will not pose unreasonable risks or adverse effects to humans or the environment. Therefore, the Agency concludes that products containing *Bacillus thuringiensis* for all uses are eligible for reregistration (EPA, 1998).

In the spring of 1999, Foray 48B was applied by aircraft to 52 square miles of Southern Vancouver Island to combat an infestation of European gypsy moth. Approximately 80,000 residents lived in the spray zones. The Capital Health Region coordinated a human health study of possible short-term health effects. The resulting report (Capital Health Region, 1999) concluded:

> The results of this project did not show a relationship between aerial spraying of Foray 48B and short-term human health effects. Although some people self-reported health problems that they attributed to the spray program, the research and surveillance methods used in this project did not detect any change in health status that could be linked to the spray program. Our results showed that many of the health complaints people reported during the spray were as common in people before the spray as they were shortly after the spray. This conclusion is consistent with those of previous studies of the possible health effects of Btk- based pesticide spray programs.

Exposure to Btk spray resulting from its use as proposed in this gypsy moth eradication project is unlikely to cause significant human health effects. However, it is good practice to minimize exposure to any insecticide. One of the conclusions reached in the Oregon study by Green, et al. (1990), was that, "the level of risk for Btk and other existing or future microbial pesticides in immunocompromised hosts deserves further study."

b. Bond Max

Bond Max may be used during ground-based treatments as an adjuvant with the insecticide. Bond Max is a non-ionic spreader-sticker which acts as an adjuvant when mixed with insecticides. Bond Max is not an eye or primary skin irritant per the Federal Hazardous Substances Labeling Act. In the unlikely event that over exposure were to occur, local irritation might be possible, especially in sensitive individuals. Systemic toxic effects are unlikely. See Appendix E for a Sample Label and MSDS.

c. Disparlure and Micro-Tac

Disparlure is a naturally occurring insect pheromone used to disrupt mating of gypsy moths by confusing male moths. Disparlure is also used as an attractant in traps. Insect pheromones are generally considered nontoxic to mammals (Jacobson 1976) and, as with disparlure, application rates are of insect pheromones are generally very low. Maximum label rate for Disrupt II® (Disparlure formulation, Hercon Environmental Company) is 30 grams a.i.(active ingredient) per acre. See Appendix E for a Sample Label and MSDS.

WSDA toxicologist reviewed the Confidential Statement of Formulation for Disrupt II and Micro-Tac. See Appendix F for details of that review.

A detailed discussion of the human health effects of disparlure may be found in the 2004 USDA Forest Service Disparlure and Disrupt II formulation risk assessment. (USDA, 2004)

d. General Precautions

The WSDA will take the following additional steps to assist the public in avoiding or reducing exposure to the spray material:

1. The Pesticide Sensitive Individuals database, maintained by the Pesticide Management Division of the WSDA, will be checked for people living in or near the proposed treatment area who require advance notification.

2. The WSDA will offer a toll-free telephone line with information regarding scheduled treatment days.

3. The WSDA will provide notification calls the day before scheduled applications to any resident in the proposed treatment area requesting them.

4. During ground treatments WSDA on-site spray block monitors will notify residents before the actual application to their property.

5. During ground treatments WSDA on-site spray block monitors will notify bicyclists, joggers and other pedestrians that they are approaching the treatment area.

6. Information will be provided to residents of the treatment area about how to avoid or reduce exposure to the spray material.

4.2.2 Non-Target Organisms

1. Bacillus thuringiensis var. (kurstaki) (Btk)

a. Animals

A detailed discussion of the ecological effects of Btk on non-target organisms may be found in the 1995 FSEIS vol. II, chapter 4, pp. 52-55, and in vol. IV, chapter 5, pp. 5-10.

As used in gypsy moth eradication projects, Btk has not been shown to adversely affect fish, birds, mammals, or most non-target insects, including honey bees (USDA, 1995, vol. II, chapter 4, pp. 54-55). It is expected that Btk may kill other lepidopteran larvae (leaf-eating caterpillars) if they are present in project areas when treatments occur. In turn, animals dependent on caterpillars as food theoretically may be affected. However, reductions in native caterpillar populations are expected to be temporary due to the brief residual effectiveness of Btk deposits on foliage (4 to 10 days), the high reproductive capacity of most lepidoptera, and recolonization from adjacent untreated areas (USDA, 1995, vol. II, chapter 4, pp. 54-55). The small size of the proposed treatment areas should aid in the recolonization process.

A study conducted in Oregon in connection with gypsy moth control programs in 1986 and 1987 found reduced numbers of caterpillars immediately following Btk treatments and reduced species diversity. This study also found that recovery in numbers of non-target caterpillars began the same season, but that recovery of species diversity lagged behind (Miller, 1990).

Two studies examined the indirect effect of Btk on the reproductive success of insectivorous birds through a possible reduction in food supply. The studies reported no significant differences between treated and untreated areas in numbers of eggs hatched or in nestling growth and development. When caterpillars weren't available, the birds switched to other available prey (Gaddis, 1987), (Gaddis and Corkran, 1986).

There is no evidence of significant adverse impacts of Btk on aquatic organisms. In a study conducted on a benthic stream community there was no evidence that addition of Btk to stream mesocosms created adverse effects for these communities even at greater than 100 times expected exposure rates (Richardson and Perrin, 1994).

b. Plants

Btk is non-toxic to plants. Btk is sensitive to meteorological effects once it has been applied to plant surfaces. Btk is readily removed from plant surfaces by rain and is rapidly degraded by sunlight (USDA, 1995, vol. IV, chapter 7, pp. 15). The use of Bond Max with ground-based equipment will help slow the removal and degradation of Btk by both rain and sunlight.

Changes in soil productivity and fertility due to Btk are not likely. Btk persists for a relatively short time, B.t. is known to occur naturally in soils worldwide, and applications of insecticides containing B.t. do not appear to increase levels of B.t. in soil (USDA, 1995, vol. I, p. 19). For more information about the fate of Btk in the soil refer to 1995 FEIS, vol. 4, chapter 7, p. 16.

c. Threatened, Endangered, and Sensitive Species

No threatened, endangered, or sensitive species are known to be in or near the proposed treatment sites. In reference to the species listed in the Affected Environment section of this EA, all occur well outside of the proposed treatment sites. Therefore, it is not anticipated that the proposed use of Btk would adversely affect these named species.

2. Bond Max

Bond Max may be used during ground-based treatments as an adjuvant with the insecticide. Bond Max is a non-ionic spreader-sticker which acts as an adjuvant when mixed with insecticides. There is no anticipated impact to non-targets.

3. Disparlure

Disparlure is a species specific pheromone and disrupts mating behavior in gypsy moth only. Given the low toxicity of disparlure based on acute toxicity studies, it is unlikely that exposure to disparlure will result in the development of serious adverse effects in terrestrial and aquatic species. Regarding effects on terrestrial invertebrates, it is not likely that disparlure would disrupt mating of other species of moths that are native to North America (USDA Forest Service 2004)

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USDA APHIS Environmental Services; Riverdale, MD

National Marine Fisheries Service for review of the proposed treatment area for the presence of sensitive species or habitats.

US Fish and Wildlife Service for review of the proposed treatment area for the presence of sensitive species or habitats

Washington State Department of Health, Barbara Morrissey, for review of the proposed treatment with regard to human health concerns

Seattle/King County Health Department, Sharon Hopkins, for review of the proposed treatment with regard to human health concerns

Washington State Department of Natural Resources, Natural Heritage Program, for review of the proposed treatment area for the presence of sensitive species or habitats

Washington State Department of Fish and Wildlife, Ms. Lori Guggenmos, for review of the proposed treatment area for the presence of sensitive species or habitats

Washington State Department of Fish and Wildlife, Ms. Ann Potter, for review of the proposed treatment area for the presence of sensitive lepidopteran species

Washington Department of Ecology for NPDES and SEPA review

City of Tukwila

City of Renton

Hercon Environmental Company, Mr. David Schumacher, for product information

WSDA Natural Resource Assessment Section, Mr. George Tuttle, toxicologist, for product review

7.0 APPENDICES

A. References

B. Treatment Site Maps

C. Public Involvement and Issues

D. Monitoring

E. Product Labels & Material Safety Data Sheets

F. Letters

G. Finding of No Significant Impact (FONSI)

APPENDIX A

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USDA Forest Service. 2004. Control/Eradication Agents for the Gypsy Moth – Human Health and Ecological Risk Assessment for *Bacillus thuringiensis* var. *kurstaki* (*B.t.k.)*

USDA Forest Service. 2004. Control/Eradication Agents for the Gypsy Moth – Human Health and Ecological Risk Assessment for Disparlure and Disrupt II formulation.

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APPENDIX B

TREATMENT SITE MAPS

Gypsy Moth Proposed Eradication Boundaries, Tukwila 2013

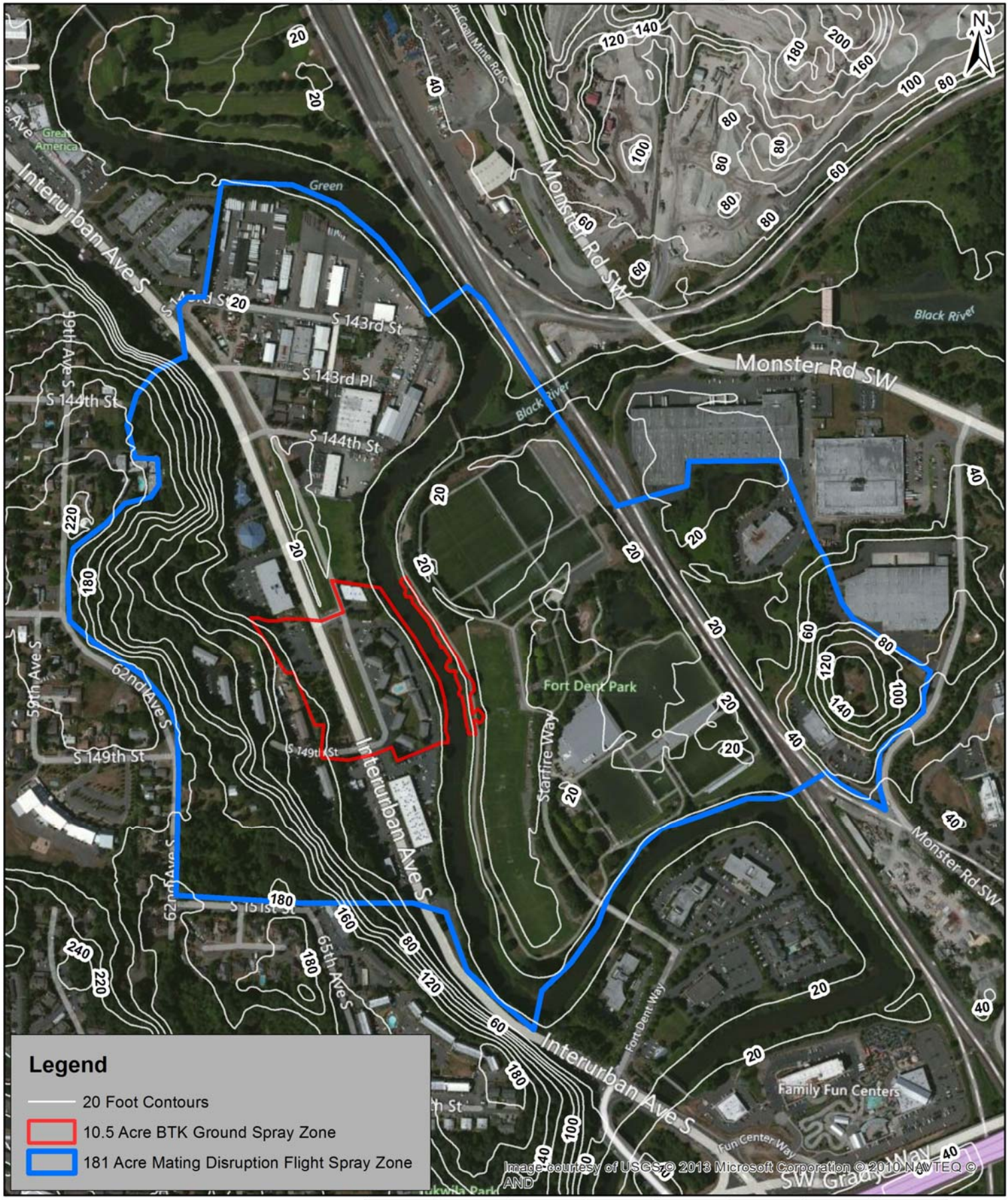
This data is provided on an 'AS IS', 'AS AVAILABLE' and 'WITH ALL FAULTS' basis. The content of this map and data are from many sources and are NOT warranted to be complete, accurate or current. All critical information should be independently verified. WSDA and its officials and employees assume no responsibility or legal liability for the accuracy, completeness, reliability, timeliness, or usefulness of any of the information.

0 0.125 0.25 0.5 Miles

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Cartography by: Landon Udo ; 2/19/2013

Tukwila Proposed Gypsy Moth Eradication, Topographic Map 2013



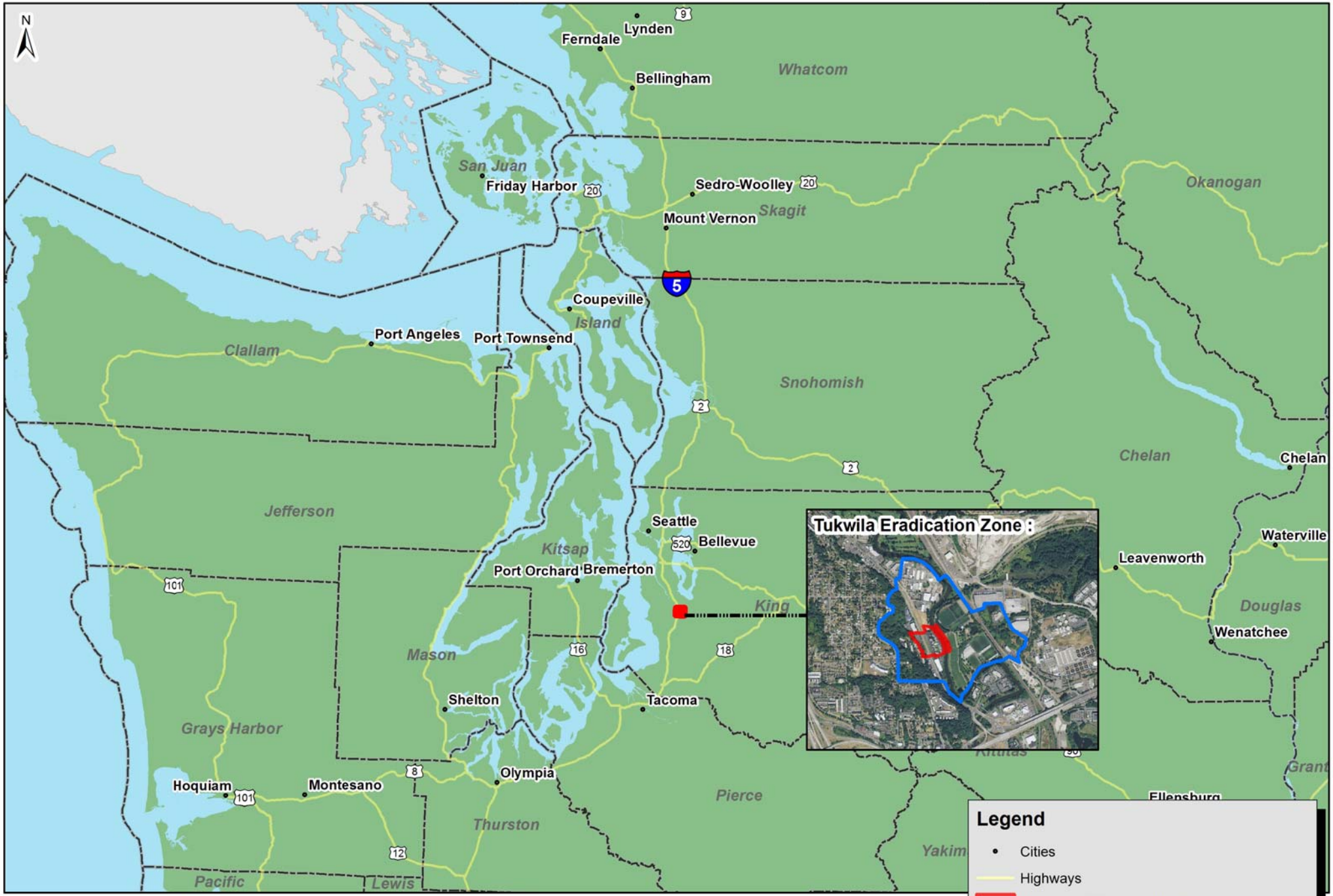
This data is provided on an 'AS IS', 'AS AVAILABLE' and 'WITH ALL FAULTS' basis. The content of this map and data are from many sources and are NOT warranted to be complete, accurate or current. All critical information should be independently verified. WSDA and its officials and employees assume no responsibility or legal liability for the accuracy, completeness, reliability, timeliness, or usefulness of any of the information.

0 0.125 0.25 0.5 Miles

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Cartography by: Landon Udo ; 3/7/2013

Tukwila Proposed Gypsy Moth Eradication Zone Vicinity, 2013



This data is provided on an 'AS IS', 'AS AVAILABLE' and 'WITH ALL FAULTS' basis. The content of this map and data are from many sources and are NOT warranted to be complete, accurate or current. All critical information should be independently verified. WSDA and its officials and employees assume no responsibility or legal liability for the accuracy, completeness, reliability, timeliness, or usefulness of any of the information.

0 30 60 Miles

Cartography by: Landon Udo
3/8/2013

Coordinate System: NAD 1983 StatePlane Washington South FIPS 4602 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

APPENDIX C

PUBLIC INVOLVEMENT AND ISSUES

A. Public Notification and Involvement

WSDA conducts on-the-ground inspections in early fall 2012. Washington State Department of Agriculture (WSDA) employees searched for egg masses and other evidence of gypsy moth activity where multiple moth catches had been made in summer 2012. During these inspections, WDSA representatives had the opportunity to interact with many local residents and businesses to explain the purpose and value of WSDA's gypsy moth program.

WSDA delivers letters to locally elected officials in Tukwila and Renton on December 20, 2012. Officials receiving letters included the state senator and two state representatives from the 11th legislative district, members of the King County Council, and mayor and city council members of Tukwila and Renton. The letters stated:

1. A reproducing population of gypsy moth has been detected in the city of Tukwila and WSDA is proposing an eradication effort in an area that includes properties in both Tukwila and Renton.
2. WSDA is proposing a two-step response to the detected gypsy moth population. The first is a ground based application of a biological insecticide *Bacillus thuringiensis* var. *kurstaki (Btk)* to 10.5 acres at the core of the infestation in the spring of 2013. The second is an aerial application of disparlure, a pheromone used to disrupt mating behavior, to be applied to the surrounding 181 acres in the summer of 2013.
3. WSDA will soon begin a public information campaign to inform local residents and community leaders of the infestation and proposed treatment.

WSDA delivers letters to residents and businesses in or near the proposed treatment zones on December 21, 2012. The letters stated:

1. A reproducing population of gypsy moth exists in your neighborhood.
2. WSDA is proposing a series of treatments of a biological insecticide, *Bacillus thuringiensis* var. *kurstaki*, beginning in April or May to eradicate the destructive pest.
3. You are invited to an open house (details were contained in the letter) to learn more about the proposed treatment.
4. Please call WSDA's toll-free hotline (1-800-443-6684) or visit the WSDA web site at www.agr.wa.gov, click on gypsy moth, for more information.

Enclosed with the letter were a gypsy moth fact sheet and a map of the proposed treatment site.

WSDA dispatches news release to local media January 15, 2013: The news release announced the proposal to treat a 181-acre site in Tukwila and Renton in the spring and summer of 2013. Also included in the news release was the proposed treatment strategy and products to be used, the time frame of treatments, WSDA's compliance with environmental review policy, and announcement of a community open house to take place in early February. Readers were encouraged to call the agency's toll-free hotline or visit the WSDA gypsy moth website for more information.

WSDA dispatches news release to local media February 4, 2013: The news release announced the details of a public open house to be held in February of 2013. The open house is scheduled for February 19th at Tukwila Elementary School and individuals are invited to drop in anytime between 6:30 p.m. and 8:00 p.m. to speak with subject matter experts and to view displays on WSDA's gypsy moth program.

WSDA dispatches an email to stakeholders and local elected officials on February 5, 2013: The email stated that a community open house would be held in Tukwila on February 19th to:

1. Discuss strategies and treatments for addressing gypsy moth infestation in Washington.
2. Discuss why eradication is the strategy selected to respond to infestations in Washington.
3. Discuss the process used by WSDA to evaluate and propose a treatment.
4. Inform the public of the opportunity to comment on the SEPA and NEPA documents.

WSDA holds community open house in Tukwila on February 19, 2013: The open house was held at Tukwila Elementary School. Subject matter experts from WSDA and Seattle/King County Department of Health were present to provide information and answer questions. Attendees were able to visit five different stations at the open house: 1) Trapping data; 2) Proposed treatment zone; 3)Technical reference table; 4) Human Health issues; 5) 12-minute DVD presentation

WSDA emphasized several major points at open houses:

1. Destructiveness of the gypsy moth.
2. How the pest gets to Washington.
3. How the pest damages the environment and the economy.
4. Results of WSDA's summer trapping program.
5. Evidence supporting the eradication proposal.
6. Boundaries of the proposed treatment zone.
7. Proven safety record of the products proposed for use.
8. The two environmental documents made available for public review and comment for an eradication proposal.
9. The opportunity residents have to comment on the environmental

documents.

10. Treatments available to control gypsy moths.
11. Why eradication is the best strategy for Washington.
12. Failure of early attempts in the late 1800s, 1900s to eradicate the moth.
13. Where 89 treatments have been conducted in Washington.
14. The process WSDA follows when deciding whether or not to conduct a treatment.

Attendees also received a packet to take home with them containing the following handouts:

1. Why the gypsy moth is one of the worst pests ever brought into the U.S.
2. How the gypsy moth damages the environment
3. Purpose of gypsy moth open houses
4. Background data on the pesticide commonly used in eradication treatments
5. Washington State Department of Health fact sheet
6. Map of the proposed treatment zone
7. Map showing the spread of the gypsy moth in U.S. from 1900 to 2000
8. Photos of America's first major gypsy moth outbreak in 1889
9. Where 89 gypsy moth eradication treatments have been conducted in Washington since 1979
10. Advantages and disadvantages of six treatments available to WSDA to control gypsy moths
11. The eight steps WSDA goes through in deciding to conduct an eradication treatment
12. Why eradication is the best of four basic strategies for Washington

Environmental review documents available for public comment. This EA and the State Environmental Policy Act (SEPA) review documents will be made available for a 30-day public comment period. Notice of availability will be advertised in local and regional newspapers. Documents will be distributed to stakeholders, made available at local libraries, and posted on the WSDA and USDA websites.

B. Issues and Concerns

- Among the questions attendees asked at the open house were the following:

  Q: "When will the treatments be administered?" Answer: April/May for Btk treatment and early July for disparlure application.
  Q: "What kind of damage does the gypsy moth do?" Answer: The gypsy moth causes extensive defoliation. The person was then shown photos of damaged vegetation and encouraged to watch the 12-minute DVD.
  Q: "Why not us disparlure only? Don't you want to find out if disparlure alone (without a core application of Btk) is an effective eradication tool?" Answer:

Disparlure alone has not proven to be an effective eradication tool in areas of high gypsy moth density. The high number of catches (10) in the core area and the high number of egg masses (11) discovered there suggest a density capable of reproduction in spite of a disparlure application.
Q: "Has there been any opposition to the treatment?" Answer: None to date. WSDA will continue to conduct an aggressive public information campaign to ensure the public receives timely, accurate information and supports our proposal.
Q: "Will you spray if it's raining?" Answer: No. If steady rain is falling or forecast, we will postpone the treatment and wait for more favorable weather.

APPENDIX D

MONITORING

During the treatment operation, a WSDA or USDA monitor will observe mixing and application of the spray material to ensure compliance with all federal, state, and local laws and regulations.

The treatment site will be intensively monitored in the summers of 2013, 2014, and 2015 using pheromone-baited traps to determine the effectiveness of the treatment, assist in the eradication and delimit any residual populations of gypsy moths. The results of this monitoring will dictate the need for future action.

APPENDIX E

PRODUCT LABELS and MATERIAL SAFETY DATA SHEETS

HERCON®
DISRUPT® II
GYPSY MOTH MATING DISRUPTANT
Population Suppressant

HERCON® DISRUPT® II Gypsy Moth is a controlled-release pheromone formulation designed to lower incidence of gypsy moth, *Lymantria dispar*, mating by disrupting normal male flight orientation to females. This reduction in mating will help suppress the larval (caterpillar) population that causes damage by feeding on the leaves of hardwoods and evergreens.

ACTIVE INGREDIENTS:

(Z)-7,8-epoxy-2-methyloctadecane.....	17.9 %*
OTHER INGREDIENTS	82.1 %
TOTAL	100.0 %

CONTENTS:

MINIMUM NET WEIGHT: KG[lb]*

* 8.5 kg [18.7 lb] of product will treat 50 acres at 30.4 g A.I./acre

KEEP OUT OF REACH OF CHILDREN
C A U T I O N

Read Directions and Precautionary Statements Before Use

FIRST AID:

IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything t o an unconscious person.

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor immediately for treatment advice.

IF ON SKIN:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor immediately for treatment advice.

IF INHALED:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.
- Call a poison control center or doctor immediately for further treatment advice.

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time (NPIC Web site: www.npic.orst.edu). After 4:30 pm call your poison control center at 1-800-222-1222.

PRECAUTIONARY STATEMENTS
Hazards to Humans and Domestic Animals

CAUTION: Harmful if swallowed or absorbed through skin. Avoid contact with skin, eyes and mouth. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco products or using the toilet. Applicators and other handlers must wear long-sleeved shirt and long pants, waterproof gloves and shoes plus socks.

ENVIRONMENTAL HAZARDS: For terrestrial uses: Do not apply directly to water or to areas where surface water is present nor to intertidal areas below the mean high water mark, except under forest canopy. Do not contaminate water when disposing of equipment washwaters or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Apply this product up to two weeks before adult gypsy moth emergence. Depending on the gypsy moth population densities apply 30 gm (170 gm (6 oz) of product), 15 gm (85 gm (3 oz) of product) or 6 gm (34 gm (1.2 oz) of product) of active ingredient per application per acre. Apply 15 gm and 6 gm of active ingredient in low density gypsy moth populations. Consult your state or local authorities for determining gypsy moth population levels in your area. **To ensure proper rate and method of application, make application by or under the supervision of qualified a person.**

Apply a second application if adult gypsy moth emergence is extended or delayed, otherwise one application lasts the entire season. Use an inert sticker material with DISRUPT II to hold flakes on treated foliage or plant parts. The Hercon applicator is specifically designed to mix the proper amount of DISRUPT II flakes and inert sticker at the time of application. Use in areas such as forest; residential, municipal and shade tree area, recreational area such as campgrounds, golf courses, parks and parkways; ornamental, shade tree plantings; shelter belts and rights of way and other easements.

STORAGE AND DISPOSAL:

Do not contaminate water, food, or feed by storage and disposal.

PESICIDE STORAGE: Store in sealed containers in a cool dry place.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

CONTAINER DISPOSAL*:* . Plastic Bags: Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then offer for recycling if available, or dispose of bag in a sanitary landfill or by incineration or, if allowed by state or local authorities, by burning. If burned stay out of smoke. Metal Containers: [outside packaging] Non-refillable container. Do not reuse or refill this container. Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and or dispose of in a sanitary landfill, or by other procedures approved by state and local authorities

WARRANTY AND DISCLAIMER STATEMENT

To the fullest extent permitted by law, Hercon Environmental warrants that this material conforms to the chemical description on the label. Manufacturer neither makes, nor authorizes any agent or representative to make any other warranty of fitness or of merchantability, guarantee or representation, expressed or implied concerning this material. Manufacturer's maximum liability for breach of this warranty shall not exceed the purchase price of this product. Buyer and user acknowledge and assume all risks and liabilities resulting from the handling, storage and use of this material not in conformance with the label.

Made in the USA by:

Aberdeen Road Company d/b/a HERCON ENVIRONMENTAL
P.O. Box 435 Emigsville, PA 17318-0435 **EPA Est. No. 8730-PA-01**
EPA Reg. No. 8730-55 Questions? Call 1-866-4-HERCON

® HERCON, BIO-FLAKE and DISRUPT are registered trademarks of Aberdeen Road Company, REV 081009

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT AND COMPANY INFORMATION

PRODUCT NAME: HERCON® DISRUPT® II Gypsy Moth Mating Disruptant
Target Insect: Gypsy Moth, Lymantria dispar
Pheromone Dispenser for Use as a Mating Disruptant,
MSDS Number: 100306, 100306kg **Date:** Sept 24, 2009
COMPANY: ABERDEEN ROAD COMPANY d/b/a HERCON ENVIRONMENTAL
P.O. Box 435
Aberdeen Road
Emigsville, PA 17318
For an emergency or more information call 717-764-1192 or the National Pesticide Information, 800-858-7378

****

SECTION II. HAZARDOUS MATERIAL IDENTIFICATION SYSTEM

HEALTH = 1, FLAMMABILITY = 0, REACTIVITY = 0

****

SECTION III. COMPOSITION AND INFORMATION ON INGREDIENTS

ACTIVE
COMMON NAME*: Racemic Disparlure*
CHEMICAL NAME: (7*R,8S) cis 7,8-epoxy-2-methyloctadecane*
CHEMICAL FAMILY of active ingredient*: Insect Pheromone*
C.A.S. NUMBER: *35898-62-5*
FORMULA: *$C_{19}H_{38}O$*
CONSTRUCTION: Laminated PVC controlled release dispenser 1/32" X 3/32" to be aerially applied with an appropriate sticker ***EPA Reg. No. 8730-55***

****

SECTION IV. PHYSICAL PROPERTIES

BULK DENSITY: *N/A*
SPECIFIC GRAVITY/25^{0}C: *N/A*
MELTING POINT: *300^{0}F*
BOILING POINT: *N/A*
FREEZING PT: *N/A*
pH: *N/A*
PERCENT VOLATILE by volume: *None specified*
ODOR DESCRIPTION: *Mild*
VAPOR DENSITY (AIR = 1): *N/A*
VAPOR PRESSURE (20^{0}C, mm HG): *Not determined*
SOLUBILITY IN WATER: *Insoluble*

****

SECTION V. PRODUCT HAZARD INFORMATION

PERCENT ACTIVE IN PRODUCT: *17.9%*
OCCUPATIONAL EXPOSURE LIMITS: *Not established*
HEALTH/TOXICITY INFORMATION: *Toxicological properties of the active ingredient have been investigated: Oral LD50 (rat) >34,000 mg kg. Dermal LD50 (rat) >2,025 mg/kg. Use appropriate procedures to prevent direct contact with skin or eyes and prevent inhalation. No significant toxicity is expected*
EFFECTS OF OVEREXPOSURE: *None reported*

EMERGENCY AND FIRST AID PROCEDURES: ***IF SWALLOWED****: Have person sip a glass of water if able to swallow, Do not induce vomiting unless told by a poison control center or doctor.* ***IF IN EYES****: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after 5 minutes then continue rinsing.* ***IF ON***

.....Continued

SKIN: *Remove contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.* ***IF INHALED:*** *Move person to fresh air. If person is not breathing call 911 or an ambulance then give artificial respiration, preferably mouth to mouth. In all cases call a poison control center or doctor immediately for further treatment advice. Have the product container or label with you when calling a poison control center or doctor or going for treatment.*

****

SECTION VI. FIRE HAZARD INFORMATION

FLASH POINT: *N/A* FLAMMABLE LIMITS in air: *N/A*
EXTINGUISHING MEDIA: Dry chemical, foam, water fog or spray *Carbon dioxide, foam*
SPECIAL FIRE FIGHTING PROCEDURES: *If involved in fire, use air-supplied equipment. Do not inhale fumes. Wear full protective equipment and NIOSH approved pressure demand, self contained breathing apparatus* UNUSUAL FIRE AND EXPLOSION HAZARDS: *When burned the hazardous decomposition products that will result because of incomplete combustion include carbon monoxide, other unidentified products of hydrocarbon degradation, No_x, low level cyanides and hydrogen chloride.*

****

SECTION VII. REACTIVITY INFORMATION

PRODUCT STABILITY:UNSTABLE_____STABLE_____X_____
HAZARDOUS POLYMERIZATION: May Occur_____May Not Occur_X_____
CONDITIONS TO AVOID: D*o not store near easily ignited chemicals and materials or open flames.* MATERIAL TO AVOID: *Strong oxidizing agents* HAZARDOUS DECOMPOSITION PRODUCTS: *On combustion, the polymeric dispensers may produce CO, CO_2, HCL and CL_2.*

****

SECTION VIII. SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED: *If product has spilled pick up mechanically. Place unpouched product in tightly sealed containers. Keep out of water sources and sewers.*
PESTICIDE DISPOSAL: *Waste resulting from the use of this product may be disposed of onsite or at an approved disposal facility.* **CONTAINER DISPOSAL**: Plastic bag: *Non-refillable container. Do not reuse or refill this container. Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or incinerate or if allowed by state or local authorities, by burning. If burned stay out of smoke.* Cardboard Box *[when used as outside packaging]: Dispose of outside cardboard box in sanitary landfill or by incineration or if allowed by state and local authorities, by burning. If burned stay out of smoke.* Metal drums *[when used as outside packaging] Offer for recycling or reconditioning, or dispose of in sanitary landfill, or by other procedures approved by state and local authorities as long as none of the bags containing product have broken while in the drum. If bags have broken, triple rinse the drum and then offer for resulting or reconditioning, or dispose of in a sanitary landfill.*

****

SECTION IX. PERSONAL PROTECTION INFORMATION

RESPIRATORY PROTECTION: *Usually none required.*
EYE PROTECTION: *Usually none required*
VENTILATION: *Good general ventilation should be sufficient.*
PROTECTIVE GLOVES: *None required but vinyl, latex or rubber gloves recommended for*

.....Continued

continuous handling. OTHER PROTECTIVE EQUIPMENT: *None under normal usage*.

NOTE: *Personal protection information shown above is based upon general nformation as to normal uses and conditions. Where special or unusual uses or conditions exist, it is suggested that the expert assistance of an industrial hygienist or other qualified professional be sought.*

****

SECTION X. HANDLING AND STORAGE PRECAUTIONS

GENERAL PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: *Store in sealed containers in a cool, dry place and away from open flames. To maintain product integrity protect from high temperatures. Keep container closed. Launder contaminated clothing before use. Wear protective equipment described above if exposure conditions warrant. Do not contaminate water sources, food or feed.*

SPECIAL PRECAUTIONARY CONDITIONS: *None.*

****

SECTION XI. TRANSPORTATION DATA

DOT LABEL: *None required, non-hazardous material*.

****

SECTION XII. DISCLAIMER

WARRANTY AND LIMITATION OF DAMAGES

Hercon Environmental warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in accordance with the Directions for Use under normal conditions of use to the extent allowed by state law. Hercon neither makes, not authorizes any agent or representative to make any other warranty of fitness or of merchantability, guarantee or representation, expressed or implied concerning this material except as stated above. This warranty does not extend to the use of this product contrary to the label instructions, or under abnormal use conditions, or under conditions not reasonably foreseeable to Hercon Environmental. If this product is defective, Buyer's exclusive remedy shall be the replacement of the product, or if replacement is impracticable as determined by Hercon, refund of the purchase price. To the extent allowable by law, Hercon's maximum liability for breach of this warranty shall not exceed the purchase price of this product. In no case will Hercon be liable for incidental, consequential or special damages resulting from handling, storage, use, misuse or abuse of this product.

MSDS NUMBER 100306	DATE ISSUED: 17 Sept. 1986 (LZ)
BY: Priscilla MacLean	DATE REVISED: 14 September 2009
TITLE: Product Development Manager	Replaces 19 June 2007

Biological Insecticide

Foray® XG

Flowable Concentrate

For Urban, Home and Garden Use

ACTIVE INGREDIENT:
Bacillus thuringiensis, subsp. *kurstaki*, strain *ABTS-351*, fermentation solids and solubles 17.19%
OTHER INGREDIENTS 82.81%
TOTAL 100.00%

POTENCY: 10,600 Cabbage Looper Units (CLU/mg) of product (equivalent to 48 billion CLU/GAL).

The % active ingredient does not indicate product performance and potency measurements are not federally standardized.

EPA Reg. No. 73049-46
EPA Est. No. 33762-IA-001 List No. 60178

INDEX:

1.0 First Aid
2.0 Precautionary Statements
 2.1 Hazards to Humans and Domestic Animals
 2.2 Personal Protective Equipment (PPE)
 2.3 Non-Agricultural Use Requirements
 2.4 User Safety Recommendations
 2.5 Environmental Hazards
3.0 Directions for Use
4.0 Non-Agricultural Use Requirements
5.0 Application
6.0 Mixing
7.0 Spray Volumes
8.0 General Agricultural Use Instructions
 8.1 Application rates
9.0 Storage and Disposal
10.0 Notice of Warranty

KEEP OUT OF REACH OF CHILDREN
CAUTION

1.0

FIRST AID	
If on skin or clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-877-315-9819 (24 hours) for emergency medical treatment and/or transport emergency information. For all other information, call 1-800-323-9597.

2.0 PRECAUTIONARY STATEMENTS

2.1 HAZARDS TO HUMANS AND DOMESTIC ANIMALS

CAUTION

Causes moderate eye irritation. Avoid contact with skin, eyes, open wounds or clothing. Wash thoroughly with soap and water after handling.

2.2 Personal Protective Equipment (PPE)

Applicators and other handlers must wear:
- Long-sleeved shirt and long pants
- Waterproof gloves
- Shoes plus socks

2.3 Non-Agricultural Use Requirements:

As a general precaution, when exposed to potentially high concentrations of living microbial products such as this, wear a dust particle mask when mixing or applying this product.

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

2.4 User Safety Recommendations

Users should:
- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of the gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

2.5 Environmental Hazards

Do not apply directly to water. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

3.0 DIRECTIONS FOR USE

It is a violation of Federal Law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

CONTINUED

4.0 NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries or greenhouses.

Exposure of unprotected persons can be mitigated by directed spraying. Spray should be allowed to dry undisturbed.

Not for use on plants being grown for sale or other commercial use, or for commercial seed production, or for research purposes. For use on plants intended for aesthetic purposes or climatic modification and being grown in interior plantscapes, ornamental gardens or parks, or on golf courses or lawns and grounds.

Not for use on trees being grown for sale or other commercial use, or for commercial seed production, or for the production of timber or wood products, or for research purposes except wide-area public pest control programs sponsored by government entities, such as mosquito abatement, gypsy moth control, and Mediterranean fruit fly eradication.

Foray XG contains the spores and endotoxin crystals of *Bacillus thuringiensis kurstaki*. Foray XG is a stomach poison and is effective against lepidopterous larvae. After ingestion, larvae stop feeding within hours and die 2-5 days later. Maximum activity is exhibited against early instar larvae. Before use, shake or stir the product. Add some water to the tank mix, pour the required amount of Foray XG into the tank and then add the remaining amount of water to obtain the proper mix ratio. Agitate as necessary to maintain the suspension. Use the diluted mix within 72 hours.

Ground Application

Use an adequate amount of tank mix to obtain thorough coverage without excessive run off. Use the indicated per acre dosages of Foray XG in up to the following amounts of water:

High-volume hydraulic sprayers	100 gallons
Mist blowers	10 gallons

5.0 APPLICATION

Foray XG may be applied by ground, undiluted or with quantities of water sufficient to provide thorough coverage of plant parts to be protected. The amount of water needed per acre will depend upon crop size, weather, spray equipment, and local experience.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower/treatment coordinator are responsible for considering all of these factors when making decisions.

6.0 MIXING

Shake or stir Foray XG before use. If dilution is desired, fill spray or mixing tank half of the desired water. Begin agitation and pour Foray XG into water while maintaining continuous agitation. Add other spray material (if any) and balance of water. Agitate as necessary to maintain suspension. Do not allow diluted mixture to remain in the tank for more than 72 hours.

To improve weather-fastness of the spray deposits for hard to wet crops, such as cole crops, use a spreader-sticker approved for use on growing crops. Combinations with commonly used spray tank adjuvants are generally not deleterious to Foray XG, if the mix is used promptly. Before mixing in the spray tank, the testing of physical compatibility by mixing all components in a small container in proportionate quantities will identify possible problems. Checking with an adjuvant supplier for advice on spray adjuvants that are compatible with biological pesticides such as Foray XG, will help avoid incompatibilities.

7.0 SPRAY VOLUMES

Ground Application: Use indicated amount of Foray XG in ground equipment with quantities of water sufficient to provide thorough coverage of plant parts to be protected. The amount of water needed per acre will depend upon crop size, weather conditions, spray equipment used and local experience.

8.0 GENERAL AGRICULTURAL USE INSTRUCTIONS

Foray XG is a biological insecticide for the control of lepidopterous larvae. It contains the spores and endotoxin crystals of *Bacillus thuringiensis kurstaki*. Foray XG must be ingested by the larvae to be effective. For consistent control, apply at first sign of newly hatched larvae (1st and 2nd instar larvae). Susceptible larvae that ingest Foray XG cease feeding within a few hours and die within 2-5 days.

Foray XG may be applied up to and on the day of harvest.

For maximum effectiveness follow the instructions listed below:

Monitor to detect early infestations.

Apply Foray XG when eggs start hatching and larvae are small (early instars) and before significant crop damage occurs. Larvae must be actively feeding to be affected.

Repeat applications every 3 to 14 days to maintain control and protect new plant growth. Factors affecting spray interval include rate of plant growth, weather conditions, and reinfestation. Monitor populations of pests and beneficials to determine proper timing of applications.

Under conditions of heavy pest pressures or when large worms are present use the higher rate, shorten the application interval, and/or improve spray coverage to enhance control. When these conditions are present, a contact insecticide can enhance control.

Thorough coverage is essential for optimum performance. Ground applicators equipped with directed drop nozzles can improve coverage.

8.1 Application Rates

Crop	Pests	Rate[1] (oz./1000 ft²)
Forests and Shade Trees, Ornamentals, Shrubs, Sugar Maple Trees, Seed Orchards, Ornamental Fruit, Nut and Citrus Trees[2]	Gypsy Moth & Asian Gypsy Moth, Elm Spanworm	0.5 - 2.5
	Spruce Budworm, Browntail Moth, Douglas Fir Tussock Moth, Coneworm, Buck Moth	0.5 - 1.9
	Tussock Moths, Pine Butterfly, Bagworm, Leafrollers, Tortrix, Mimosa Webworm, Tent Caterpillar, Jackpine Budworm, Blackheaded Budworm, Saddled Prominent, Saddleback Caterpillar, Eastern and Western Hemlock Looper, Orangestriped Oakworm, Satin Moth	0.3 - 1.0
	Redhumped Caterpillars, Spring and Fall Cankerworm, California Oakworm, Fall Webworm	0.25 - 0.5
Fruiting Vegetables such as: Eggplant, Peppers, Tomatoes	Imported Cabbageworm, Diamondback Moth, Green Cloverworm	0.3 - 0.5
	Hornworms	0.15 - 1.0
	Tomato Fruitworm (Heliothis), Variegated Cutworm, Saltmarsh Caterpillar, Loopers	0.5 - 1.0
	Armyworms*	0.5 - 1.8
	European Corn Borer	1.0 - 1.3
Small Fruit and Berries such as: Blackberries, Blueberries, Currants, Raspberries, Strawberries, Cranberries	Gypsy Moth & Asian Gypsy Moth, Blueberry Leafroller, Loopers, Fruittree Leafroller, Grape Berry Moth, Oblique Banded Leafroller, Achema Sphinx Moth (Hornworm)	0.5 - 1.0
	Armyworms*	0.5 - 1.8
Brassica (Cole) Vegetables such as: Broccoli, Brussels Sprouts, Cabbage, Cauliflower, Collards, Kohlrabi	Hornworms	0.15 - 1.0
	Webworms, Loopers, Cutworms, Saltmarsh Caterpillar, Omnivorous Leafroller	0.5 - 1.0
	Diamondback Moth, Imported Cabbageworm, Green Cloverworm	0.3 - 1.0
	Armyworms*	0.5 - 1.8
	European Corn Borer	1.0 - 1.3
Ornamentals, Flowers, Bedding Plants	Armyworms*	0.5 - 1.8
	Azalea Moth, Diamondback Moth, Ello Moth (Hornworm), Io Moth, Loopers, Oleander Moth, Omnivorous Leafroller, Omnivorous Looper, Tobacco Budworm	0.3 - 0.5
Greenhouse and Outdoor Nursery Crops such as: Flowers, Brassica, Fruiting Groups, Herbs, and Leafy Vegetables	Armyworms*	0.5 - 1.8
	Heliothis spp, Loopers	0.3 - 0.5

Special Instructions

* Armyworm Control: Foray XG may be used to control small armyworms (first and second instar) when populations are light and full coverage sprays are applied. Repeat treatment as necessary. If late instar larvae or heavy populations are present, greater control can be achieved by adding a contact insecticide.

(1) Use the higher rates on advanced larval stages or under high density larval populations.

(2) In treating Gypsy Moth and Asian Gypsy Moth infected trees and shrubs in urban, rural, and semi-rural areas, exposure of non-target vegetation including, but not limited to, native and ornamental species and food or feed crops is permitted.

This product can be mixed and used with other pesticides only in accordance with the most restrictive of label limitations and precautions. This product cannot be mixed with any product containing a label prohibition against such mixing. No label dosage rates may be exceeded.

For smaller spray volumes mix the proper number of teaspoons of Foray XG from the following chart to attain the desired rates:

If the rate is:	Add this amount per gallon of mix:
0.15 oz./1000 ft.²	1/2 teaspoon
0.3 oz./1000 ft.²	1 teaspoon
0.5 oz./1000 ft.²	1-1/2 teaspoons
1.0 oz./1000 ft.²	3 teaspoons
1.3 oz./1000 ft.²	4 teaspoons
1.8 oz./1000 ft.²	5-1/2 teaspoons

9.0 STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal of waste.

Pesticide Storage: Store in a cool, dry place. Keep containers tightly closed when not in use. Store in temperatures above freezing and below 32°C (90°F).

Pesticide Disposal: Pesticide waste resulting from the use of this product may be disposed of on site or at an approved waste disposal facility in accordance with federal and local regulations.

Container Disposal: Triple rinse (or equivalent). Then offer for recycling or reconditioning or puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Home Garden Use Disposal Instructions

Securely wrap original container in several layers of newspaper and discard in trash.

10.0 NOTICE OF WARRANTY

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

FORAY® XG

MSDS# BIO-0009C
ISSUED 01/31/05

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATERIAL NAME: Foray® XG
EPA Reg. No.: 73049-46
Code Number: 11046, 12280, 34296
List Number: 60178, 60179, 60180
SYNONYMS:
Biobit® XL
DiPel 48A
Bactospeine XL
Foray 48BA
Foray 48B
MANUFACTURER:
Valent BioSciences Corporation
870 Technology Way, Suite 100
Libertyville, Illinois 60048
EMERGENCY TELEPHONE NUMBERS
Emergency Health or Spill:
Outside the United States: 651-632-6184
Within the United States: 877-315-9819

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT NAME: Bacillus thuringiensis, var. kurstaki
CONCENTRATION: 17.19%
CAS NUMBER: 68038-71-1
OSHA-PEL
8HR TWA: N/L
STEL: N/L
CEILING: N/L
ACGIH-TLV
8HR TWA: N/L
STEL: N/L
CEILING: N/L
OTHER LIMITS
8HR TWA: N/A
STEL: N/A
CEILING: N/A
INGREDIENT NAME: Inert/Other ingredients - Proprietary Information
CONCENTRATION: 82.81%
CAS NUMBER: N/A
OSHA-PEL
8HR TWA: N/L
STEL: N/L
CEILING: N/L
ACGIH-TLV
8HR TWA: N/L
STEL: N/L
CEILING: N/L
OTHER LIMITS
8HR TWA: N/A
STEL: N/A
CEILING: N/A

3. HAZARDS INFORMATION

EMERGENCY OVERVIEW: Product is non-toxic by ingestion, skin contact, or inhalation. May be irritating to skin and eyes.
ROUTE(S) OF ENTRY:
Skin: No
Inhalation: No
Ingestion: No
SKIN CONTACT: Mild irritant
SKIN SENSITIZATION: Possible mild sensitizer (unconfirmed)
EYE CONTACT: Mild irritant
TARGET ORGANS: N/D
CARCINOGENICITY RATING:
NTP: N/L
IARC: N/L
OSHA: N/L
ACGIH: N/L
None
SIGNS AND SYMPTOMS: Direct contact with eyes or skin may cause mild irritation.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: N/D

4. FIRST AID MEASURES

EYES: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.
SKIN: Remove from source of exposure. Flush with copious amounts of water. If irritation persists or signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.
INGESTION: Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.
INHALATION: Remove from source of exposure. If signs of toxicity occur, seek medical attention. Provide symptomatic/supportive care as necessary.

5. FIRE FIGHTING PROCEDURES

FLASH POINT: N/A (Aqueous suspension)
FLASH POINT METHOD: N/A
LOWER EXPLOSIVE LIMIT(%): N/A
UPPER EXPLOSIVE LIMIT(%): N/A
AUTOIGNITION TEMPERATURE: N/A
FIRE & EXPLOSION HAZARDS: Non-flammable and no explosive properties.
EXTINGUISHING MEDIA: Use appropriate media for underlying cause of fire.
FIRE FIGHTING INSTRUCTIONS: Wear protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

SPILL OR RELEASE PROCEDURES: Recover product and place in an appropriate container for disposal. Ventilate and wash the spill area.

7. HANDLING AND STORAGE

HANDLING: The usual precautions for handling chemicals should be observed.
STORAGE: Store in a closed container in a cool, dry place.
SPECIAL PRECAUTIONS: Wash thoroughly with soap and water after handling. Keep impervious gloves on until all potentially contaminated personal protective equipment is removed.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Use local exhaust
RESPIRATORY PROTECTION: Not usually required. If necessary, use a dust/mist respirator meeting NIOSH standards of at least N-95, R-95 or P-95.
SKIN PROTECTION: Impervious gloves, clothing to minimize skin contact.
EYE PROTECTION: Not usually required. If necessary, use safety glasses or goggles.
OTHER PROTECTION: Wash thoroughly with soap and water after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE/PHYSICAL STATE: Light brown aqueous suspension
ODOR: Pungent, musty odor
BOILING POINT: N/D
MELTING/FREEZING POINT: N/D
VAPOR PRESSURE (mm Hg): N/D
VAPOR DENSITY (Air=1): N/D
EVAPORATION RATE: N/D
BULK DENSITY: 1.12-1.2 g/cm3
SPECIFIC GRAVITY: N/D
SOLUBILITY: Readily mixable with water
pH: 4.1-4.8 as a 10% solution in water
VISCOSITY: N/D

10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Not chemically reactive.
INCOMPATIBILITIES: Alkalinity inactivates product.
HAZARDOUS DECOMPOSITION PRODUCTS: Not known to occur.
HAZARDOUS POLYMERIZATION: Not known to occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity
ORAL LD50: N/D. > 5,000 mg/kg (rat) for a similar formulation. EPA Toxicity Category IV
DERMAL LD50: N/D. > 2,500 mg/kg (rabbit) for a similar formulation. EPA Toxicity Category III
INHALATION LC50: N/D. In a nose-only inhalation study with rats with a similar formulation, no lethality was observed at the highest attainable aerosol concentration of 6.81 mg/liter for 4 hours.
CORROSIVENESS: N/D. Not expected to have any corrosive properties.
DERMAL IRRITATION: Transient, slight or mild irritation noted in a dermal irritation study with a similar formulation. EPA Toxicity Category IV.
OCULAR IRRITATION: Transient, mild irritation was observed in test animals in a study a similar formulation. EPA Toxicity Category III.
DERMAL SENSITIZATION: N/D. The possibility of mild sensitization exists with this formulation, however, this has not been confirmed by actual experience.
SPECIAL TARGET ORGAN EFFECTS: N/D
CARCINOGENICITY INFORMATION: N/D. None of the components are classified as carcinogens.

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Studies on non-targets have been performed without identifying any organisms at risk. The following species have been included in the testing: mammals (rats, rabbits); freshwater aquatic organisms (Daphnia magna, Rainbow Trout); birds (Mallard, Bobwhite); and non-target insects (Green Lacewing larvae, Ladybird Beetles, Honey Bee).

13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHODS: Dispose of product in accordance with federal, state and local regulations.

14. TRANSPORTATION INFORMATION

DOT
STATUS: Not Regulated
PROPER SHIPPING NAME: N/A
HAZARD CLASS: N/A
UN NUMBER: N/A
PACKING GROUP: N/A
REPORTABLE QUANTITY: N/A
IATA/ICAO
STATUS: Not Regulated
PROPER SHIPPING NAME: N/A
HAZARD CLASS: N/A
UN NUMBER: N/A
PACKING GROUP: N/A
REPORTABLE QUANTITY: N/A
IMO
STATUS: Not Regulated
PROPER SHIPPING NAME: N/A
HAZARD CLASS: N/A
UN NUMBER: N/A
PACKING GROUP: N/A
REPORTABLE QUANTITY: N/A
FLASH POINT: N/A

15. REGULATORY INFORMATION

TSCA STATUS: Exempt
CERCLA STATUS: N/D
SARA STATUS: N/D
RCRA STATUS: N/D
PROP 65 (CA): N/D

16. OTHER INFORMATION

REASON FOR ISSUE: Added alternate brand name (synonym) - Foray XG
APPROVAL DATE: 07/20/04
SUPERSEDES DATE: 06/11/04
Note: Combined and Replaced MSDS # BIO-0033 Rev 0.
LEGEND:
N/A = Not Applicable
N/D = Not Determined
N/L = Not Listed
L = Listed
C = Ceiling
S = Short-term
® = Registered Trademark of Valent BioSciences

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Libertyville, IL 60048 - 800-323-9597

July 2004

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BOND max®

SPREADER STICKER DEPOSITION AID

Principal Functioning Agents:

Alcohol ethoxylate, 1,2-propanediol and synthetic latex 57.5%
Constituents ineffective as spray adjuvant 42.5%
TOTAL **100.0%**

CA Reg. No. 34704-50060
WA Reg. No. 34704-08003

KEEP OUT OF REACH OF CHILDREN

WARNING

NET CONTENTS: 2.5 U.S. GALLONS (9.462 L)

Loveland PRODUCTS

Loveland Products, Inc. • PO Box 1286 • Greeley, CO 80632-1286

A1012

0 21077 68734 5

WARNING: Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Harmful if swallowed, absorbed through skin or inhaled. Avoid breathing vapor or spray mist. Remove contaminated clothing and wash clothing before reuse. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling.
Personal Protective Equipment: Wear protective eyewear such as goggles, face shield, or safety glasses and wear long-sleeved shirt and long pants, socks, shoes and gloves.

First Aid: If in Eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice. **If on Skin or Clothing:** Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. **If Swallowed:** Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by the poison control center or doctor. Do not give anything by mouth to an unconscious person. **If Inhaled:** Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.

FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT, CALL 1-866-944-8565.

GENERAL: BOND MAX® combines the adherence ability of a latex polymer with super coverage of non-ionic surfactants. **BOND MAX** will increase deposition, reduce run-off and secure spray from rain or overhead irrigation. **BOND MAX** will decrease surface tension, resulting in better coverage. **BOND MAX** promotes rapid spreading for a uniform protective film. Apply sprays containing **BOND MAX** at least 30 minutes before an anticipated rain or overhead irrigation.
DIRECTIONS FOR USE: Fill spray tank 1/2 full with water and begin agitation. Add pesticides as directed by label, while maintaining agitation. After pesticides are thoroughly mixed, eliminate any existing foam with approved defoamer (Unfoamer®). Then fill tank to desired water volume before adding **BOND MAX**. For tank mix compatibility concerns, conduct a jar test of the proposed mixture to ensure compatibility of all components. Mix components in the same ratio as the proposed tank mix.

Suggested Use Rates: Field & Row Crops: Ground and Air Application (fl. oz./100 gallons):

Above 50 GPA: 12 to 24
10 to 50 GPA: 20 to 32
Below 10 GPA: 28 to 40

Gallons of Spray Volume per Acre		BOND MAX per 100 gallons spray
Vineyards, hop yards	Treefruits & nuts	
150 to 300	600 to 1000	1 to 2 ounces
75 to 150	300 to 500	2 to 4 ounces
50 to 100	200 to 330	3 to 6 ounces
20 to 40	75 to 125	8 to 16 ounces
15 to 30	60 to 100	10 to 20 ounces
8 to 16	30 to 50	1 pint to 1 quart
5 to 10	20 to 30	1.5 pints to 1.5 quarts

Rinse tank, pump, lines and nozzles with water immediately after spraying. Observe the pre-harvest interval on the pesticide label when using **BOND MAX**. No time limitations apply to non-food crops.
Environmental Hazards: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash-waters.

STORAGE AND DISPOSAL

STORAGE: Store in cool, dry place. Store in original container. Keep container tightly closed. Do not reuse empty container.
DISPOSAL: Do not contaminate water, food or feed by storage or disposal. Wastes may be disposed of on-site or at an approved waste disposal facility. Triple rinse (or equivalent) adding rinse water to spray tank. Offer container for recycling or dispose of container in sanitary landfill, or by other procedures approved by appropriate authorities. Recycling decontaminated containers is the best option of container disposal. The Agricultural Container Recycling Council (ACRC) operates the national recycling program. To contact your state and local ACRC recycler visit the ACRC web page at www.acrecycle.org.
For help with any spill, leak, fire or exposure involving this material, call day or night CHEMTREC 1-800-424-9300.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

BEFORE BUYING OR USING THIS PRODUCT, read the Directions for Use and the following Conditions of Sale and Limitation of Warranty and Liability. By buying or using this product, the buyer or user accepts the following Conditions of Sale and Limitation of Warranty and Liability, which no employee or agent of LOVELAND PRODUCTS, INC. or the seller is authorized to vary. LOVELAND PRODUCTS, INC. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, when the product is used in accordance with such Directions for Use under normal conditions of use. LOVELAND PRODUCTS, INC. MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THE BUYER'S OR USER'S EXCLUSIVE REMEDY FOR ANY INJURY, LOSS, OR DAMAGE RESULTING FROM THE HANDLING OR USE OF THIS PRODUCT SHALL BE LIMITED TO ONE OF THE FOLLOWING, AT THE ELECTION OF LOVELAND PRODUCTS, INC. OR THE SELLER: DIRECT DAMAGES NOT EXCEEDING THE PURCHASE PRICE OF THE PRODUCT OR REPLACEMENT OF THE PRODUCT. LOVELAND PRODUCTS, INC. AND THE SELLER SHALL NOT BE LIABLE TO THE BUYER OR USER OF THIS PRODUCT FOR ANY CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES, OR DAMAGES IN THE NATURE OF A PENALTY.

BOND MAX® and UNFOAMER® are registered trademarks of Loveland Products, Inc.

BOND MAX 2.5GL/A1012

MATERIAL SAFETY DATA SHEET

BOND MAX®

FOR CHEMICAL EMERGENCY, SPILL, LEAK, FIRE, EXPOSURE OR ACCIDENT, CALL CHEMTREC - DAY OR NIGHT 1-800-424-9300

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

FORMULATED FOR:

LOVELAND PRODUCTS, INC.
P.O. Box 1286 • Greeley, CO 80632-1286

24-Hour Emergency Phone: 1-800-424-9300
Medical Emergencies: 1-866-944-8565
U.S. Coast Guard National Response Center: 1-800-424-8802

PRODUCT NAME: BOND MAX® SPREADER STICKER DEPOSITION AID
CHEMICAL NAME: Synthetic Latex (combination of synthetic latex, 1,2-Propanediol and alcohol ethoxylate)
CHEMICAL FAMILY: Mixture
CA REG. NO.: 34704-50060
WA REG. NO.: 34704-08003
MSDS Number: 8111550-10-LPI **MSDS Revisions:** Sections 1 and 13 **Date of Issue:** 07/08/10 **Supersedes:** 10/14/08

2. HAZARDS IDENTIFICATION SUMMARY

KEEP OUT OF REACH OF CHILDREN - WARNING - Causes substantial but temporary eye irritation. Do not get in eyes or on clothing. Harmful if swallowed, absorbed through skin or inhaled. Avoid breathing vapor or spray mist. Remove contaminated clothing and wash clothing before reuse. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Wash thoroughly with soap and water after handling. Primary routes of entry are eye contact and skin contact

This product is a sticking agent with surfactant. This product is a light blue liquid with mild odor.

3. COMPOSITION, INFORMATION ON INGREDIENTS

Chemical Ingredients:	Percentage by Weight:	CAS No.	TLV (Units)
Synthetic Latex, 1,2-Propanediol, alcohol ethoxylate	57.50	Mixture	Not established
Other Ingredients	42.50		

4. FIRST AID MEASURES

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
If on skin or clothing: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.
If swallowed: Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not give anything by mouth to an unconscious person.
If inhaled: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F/Test Method): >212°F / >100°C (PMCC)
FLAMMABLE LIMITS (LFL & UFL): Not established
EXTINGUISHING MEDIA: Dry chemical or carbon dioxide (CO_2), foam or water spray/fog.
HAZARDOUS COMBUSTION PRODUCTS: Carbon monoxide and/or carbon dioxide
SPECIAL FIRE FIGHTING PROCEDURES: Wear self-contained breathing apparatus and full protective gear.
UNUSUAL FIRE AND EXPLOSION HAZARDS: None.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:
Wear appropriate personal protective equipment (refer to Section 8). Pick up the material with absorbent material and place in a container for proper disposal in accordance with local, state and federal regulations.
ENVIRONMENTAL PRECAUTIONS: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

7. HANDLING AND STORAGE

HANDLING: Personal Protective Equipment: Wear protective eyewear, such as goggles, face shield, or safety glasses and long-sleeved shirt and long pants, socks, shoes and gloves. Wash thoroughly after handling.
STORAGE: Store in a cool, dry place. Store in original container. Keep tightly closed. Do not reuse empty container. Do not contaminate water, food or feed by storage or disposal.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Work in well-ventilated area. Local exhaust may be required if working in confined space.
RESPIRATORY PROTECTION: Wear a NIOSH approved air-purifying respirator for pesticide handling if necessary.
EYE PROTECTION: Chemical goggles or face-shield.
SKIN PROTECTION: Wear long sleeved shirt, long pants, shoes and socks.

	OSHA PEL 8 hr TWA	AIHA WEELs TWA
1,2-Propanediol	not listed	10 mg/m^3

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR: Light blue liquid with mild odor.
SPECIFIC GRAVITY (Water = 1): 1.026 g/ml
VAPOR PRESSURE: Not established
PERCENT VOLATILE (by volume): Not established
BULK DENSITY: 8.56 lbs/gal.
BOILING POINT: Not established
EVAPORATION RATE: Not established
SOLUBILITY: Dispersible
pH: 7.4 (1% solution)

Note: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specification items.

10. STABILITY AND REACTIVITY

STABILITY: Stable
CONDITIONS TO AVOID: None known.
INCOMPATIBILITY: Low pH (strong acidic conditions) will cause coagulation. Excessive free metallic ions may cause coagulation.
HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide from burning.
HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute Oral LD_{50} (rat): > 5000 mg/kg
Eye Irritation (rabbit): Moderate eye irritant
Inhalation LC_{50} (rat): Not established
Acute Dermal LD_{50} (rabbit): >2000 mg/kg
Skin Irritation (rabbit): Slight skin irritant
Skin Sensitization: Not a sensitizer.
Carcinogenic Potential: Not listed by OSHA, NTP, IARC, and ACGIH as a known human carcinogen

12. ECOLOGICAL INFORMATION

Do not contaminate water when cleaning equipment or disposing of equipment wash waters.

13. DISPOSAL CONSIDERATIONS

Wastes may be disposed of on site or at an approved waste disposal facility. Triple rinse (or equivalent), adding rinse water to spray tank. Offer container for recycling or dispose of in a sanitary landfill or by other procedures approved by appropriate authorities. Recycling decontaminated containers is the best option of container disposal. The Agricultural Container Recycling Council (ACRC) operates the national recycling program. To contact your state and local ACRC recycler visit the ACRC web page at http://www.acrecycle.org/. Do not contaminate water, food or feed by storage or disposal.

14. TRANSPORT INFORMATION

DOT Shipping Description: NOT REGULATED BY USDOT.
Freight Classification: ADHESIVES, ADJUVANTS, SPREADERS OR STICKERS (NMFC 4610; CLASS: LTL 60, TL 35)
Consult appropriate ICAO/IATA and IMDG regulations for shipment requirements in the Air and Maritime shipping modes.

15. REGULATORY INFORMATION

NFPA & HMIS Hazard Ratings:

NFPA		HMIS
2 Health	0 Least	2 Health
2 Flammability	1 Slight	2 Flammability
0 Instability	2 Moderate	0 Reactivity
	3 High	H PPE
	4 Severe	

SARA Hazard Notification/Reporting
SARA Title III Hazard Category:

Immediate	Y	Fire	N	Sudden Release of Pressure	N
Delayed	N	Reactive	N		

Reportable Quantity (RQ) under U.S. CERCLA: Not listed
SARA, Title III, Section 313: Not listed
RCRA Waste Code: Not listed
CA Proposition 65: Not listed

16. OTHER INFORMATION

MSDS STATUS: Sections 1 and 13 revised.

PREPARED BY: Registrations and Regulatory Affairs

REVIEWED BY: Environmental/Regulatory Services

®Bond Max is a registered trademark of Loveland Products, Inc.

Disclaimer and Limitation of Liability: This data sheet was developed from information on the constituent materials identified herein and does not relate to the use of such materials in combination with any other material or process. No warranty is expressed or implied with respect to the completeness or ongoing accuracy of the information contained in this data sheet, and LOVELAND PRODUCTS, Inc. disclaims all liability for reliance on such information. This data sheet is not a guarantee of safety. Users are responsible for ensuring that they have all current information necessary to safely use the product described by this data sheet for their specific purpose.

Micro-Tac ™

Sticker Agent

For Use with Hercon® Disrupt Micro-Flake® Mating Disruption Products

Principal Functioning Agents:

Acrylic copolymer.....	65%
Constituents ineffective as Sticker	35%
Total	100%

All ingredients are exempt from the requirements of a tolerance under 40 CFR 180

DPR Reg No. 8730-50004-AA Net contents 1 gallons ☐ 2.5 gallons ☐

KEEP OUT OF REACH OF CHILDREN

C A U T I O N

FIRST AID

IF SWALLOWED

- Call a poison control center or doctor immediately for treatment advice
- Have person sip a glass of water if able to swallow.
- Do not induce vomiting unless told to by a poison control center or doctor.
  - Do not give anything t o an unconscious person

IF IN EYES

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor immediately for treatment advice

IF ON SKIN

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
  - Call a poison control center or doctor immediately for treatment advice.

IF INHALED

- Move person to fresh air.
- If a person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible
- Call a poison control center or doctor immediately for further treatment advice

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time (NPIC Web site: www.npic.orst.edu). After 4:30 pm call your poison control center at 1-800-222-1222.

PRECAUTIONARY STATEMENTS

CAUTION. Causes moderate eye irritation. Harmful if swallowed or absorbed through skin. Avoid contact with eyes, skin or clothing. Wear protective eyewear (goggles or face shield), long-sleeved shirt and long pants, shoes plus socks and chemical-resistant gloves. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco. Remove and wash contaminated clothing before reuse.

DIRECTIONS FOR USE

Hercon® Micro-Tac™ is a proprietary product that functions as a sticker. Micro-Tac™ is intended for use with Hercon® Disrupt Micro-Flake® mating disruptant products that are labeled for agricultural, forestry, non-cropland, ornamental, right-of-way and turf uses. Not for aquatic use. It can be used with a thickening agent such as Micro-Thic™.

Recommended Use Rates: For ground application: Use approved equipment only when applying the Hercon® Disrupt Micro-Flake® mating disruption products and Micro-Tac™. Use 8-48 oz of Micro-Tac™ per acre.

For Aerial Application: Use approved equipment only when applying the Hercon® Disrupt Micro-Flake® mating disruption and Micro-Tac™. Use 1-24 oz of Micro-Tac™ per acre.

Environmental Hazards: Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

Storage and Disposal: Store in original container only. Do not contaminate water, food or feed by storage or disposal. Do not reuse empty container. Triple rinse (or equivalent) during mixing and loading. This product is freeze sensitive. Storage conditions are between 50-90 degrees F (10-32 degrees C). After prolonged storage (greater than 6 months) product tends to settle and may require agitation to re-disperse.

Distributed by: Hercon Environmental
Aberdeen Rd
Emigsville, PA 17318 USA

Rev 091609

HERCON Environmental

MATERIAL SAFETY DATA SHEET

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: HERCON® MICRO-TAC™
Spray Adjuvant: Sticker

MSDS Number 100777 September 16, 2009
COMPANY: ABERDEEN ROAD COMPANY d/b/a HERCON ENVIRONMENTAL
P.O. Box 435
Aberdeen Road
Emigsville, PA 17318 USA

For more information call 717-764-1192 Have the product container or label with you when calling a poison control center or doctor or going for treatment. For emergency information concerning this product, call the National Pesticide Information Center (NPIC) at 1-800-858-7378 seven days a week, 6:30 am to 4:30 pm Pacific Time (NPIC Web site: www.npic.orst.edu). After 4:30 pm call your poison control center at 1-800-222-1222.

2. COMPOSITION AND INFORMATION ON INGREDIENTS ACTIVE

COMMON NAME*: Multipolymer Emulsion*
FORMULA

Components:	CAS No.	Concentration range
acrylic copolymer		>=53.0 – <=59.0%
water	*7732-18-5*	*>=38.0 - <=-43%*
vinyl acetate	*108-05-4*	*<0.5%*
Polyvinyl polymer		*<10%*
Isopropyl alcohol	*67-63-0*	*<0.01%*

3. PRODUCT HAZARD INFORMATION

ENERGENCY OVERVIEW

Form:	viscous
Color:	white
Odor	acrid

WARNING STATEMENTS
No significant hazards associated with this material
POTENTIAL HEALTH EFFECTS

Likely routes of exposure:	Eye and skin contact , inhalation
Eye contact:	Direct eye contact with liquid may cause irritation
Skin contact:	Prolonged or repeated contact may cause irritation No more than slightly toxic if absorbed
Inhalation	May be harmful if inhaled
Swallowing:	May be harmful if swallowed. Significant adverse health effects are not expected to develop if only small amounts (less than a mouthful) are swallowed.

Refer to Section 11 for toxicological information

4. FIRST AID MEASURES

IF SWALLOWED:

- Call a poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water if able to swallow
- Do not induce vomiting unless told to by a poison control center or doctor.
- Do not give anything t o an unconscious person

IF IN EYES:

- Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.
- Call a poison control center or doctor immediately for treatment advice

IF ON SKIN:

- Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor immediately for treatment advice.

IF INHALED:

- Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-t0-mouth if possible.
- Call a poison control center or doctor immediately for further treatment advice.

5. FIRE FIGHTING MEASURES

Flash point:	Non flammable aqueous solution
Hazardous products of combustion	Carbon dioxide, carbon monoxide (CO), smoke, soot
Extinguishing Media:	Dry chemical, foam, water fog or spray, c*arbon dioxide*
Unusual Fire and Explosion Hazards:	None known
Fire fighting equipment:	If involved in fire, use air-supplied equipment.

Do not inhale fumes. Wear full protective equipment and NIOSH approved pressure demand, self contained breathing apparatus .

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Use personal protection recommended in section 8
Environmental precautions	Keep out of drains and water courses
Method for clean-up:	Contain large spills with dikes and transfer the material to appropriate containers for

reclamation or disposal. Absorb remaining material or small spills with an inert material and then place in a chemical waste container. Flush spill area with water.
Refer to Section 13 for disposal information and Section 14 and 15 for reportable quantity information.

7. HANDLING AND STORAGE

<u>Handling</u>
Handle in accordance with good industrial hygiene and safety practices. These practices include avoiding unnecessary exposure and removal of material from eyes, skin and clothing.

Emptied containers retain vapor and product residue. Observe all recommended safety precautions until container is cleaned, reconditioned or destroyed. The reuse of this material's container for non-industrial purposes is prohibited and any reuse must be in consideration of the data provided in this material safety data sheet.

Storage

Temperature: 10-32^{0}C

General: Freeze sensitive.

After prolonged storage (greater than 6 months) products tends to settle and may require agitation to redisperse. Stable under normal conditions of handling and storage.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection: Does not cause significant eye irritation or eye toxicity requiring special protection. Use good industrial practice to avoid eye contact.

Hand protection: Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wearing protective gloves is recommended. Consult the glove/clothing manufacturer to determine the appropriate type glove/clothing for a given application.

Body Protections: Although this product does not present a significant skin concern, minimize skin contamination by following good industrial practice. Wash contaminated skin thoroughly after handling.

Respiratory Protection This material is not likely to present an airborne exposure concern under normal conditions of use. Avoid breathing vapor or mist. Use approved respiratory protection equipment when airborne exposure limits are exceeded. Consult the respirator manufacturer to determine the appropriate type of equipment for a given application. Observe respirator use limitations specified by the manufacturer

Ventilation Provide natural or mechanical ventilation to control exposure levels below airborne exposure limits. If practical, use local mechanical exhaust ventilation at sources of air contamination such as processing equipment.

Airborne exposure limits: (ml/m3 = ppm)

No specific occupational exposure limit has been established for Micro-Tac™

Vinyl acetate ACGIH TLV: 10 ml/m^3 8-hr TWA

ACGIH TLV: 15 ml/m^3 15 min STEL

A3: The ACGIH has designated this component as an "A3" substance thereby including it among substances that are confirmed animal carcinogens with unknown relevance to humans.

OSHA PEL: 10 ml/m^3; 8-hr TWA

OSHA PEL : 20 ml/m^3 ; 15-min STEL

Mexican OEL : 10 ml/m^3 ; 30 mg/m^3 ; 8-hr TWA

Mexican OEL: 20 ml/m^3 ; 60 mg/m^3 ; 15-min STEL

Components referred to herein may be regulated by specific Canadian provincial legislation. Please refer to exposure limits legislated for the province in which the substance will be used.

9. PHYSICAL AND CHEMICAL PROPERTIES

Specific gravity:	1.01 @ 25^{0}C
pH:	4.5 – 5.5
Boiling point	100^{0}C
Water solubility:	completely miscible
Viscosity	300-700 mPa.s @ 25°C

NOTE: These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

10. STABILITY AND REACTIVITY

Conditions to avoid:	Do not expose to extreme temperatures
Materials to avoid	None known
Hazardous reactions	Hazardous polymerization does not occur
Hazardous decomposition products:	None known

11. TOXICOLOGICAL INFORMATION

This product has been tested for toxicity. Results from the formulator of this material sponsored studies or from the available public literature are described below.

Acute animal toxicity data

Oral:	LD50, rat >5,000 mg/kg, Practically nontoxic following oral administration.
Dermal:	LD50, rabbit, >5,000 mg/kg, Practically nontoxic after skin application in animal studies
Eye irritation:	Rabbit, Practically non irritating to eyes (rabbit), 24 h
Skin irritation:	Rabbit, Practically non irritation to skin (rabbit) 4h Rabbit, Practically non irritating to skin (rabbit) 24h
Skin sensitization	Human experience, These materials demonstrated a potential for cumulative irritation but primary irritation and allergic skin reactions were not observed. Data obtained on similar product.
Mutagenicity:	No genetic effects were observed in standard tests using bacterial and animal cells. Data obtained on similar product.

<u>Components</u>

Data from the formulator of this material studies and/or the available scientific literature on the components of this material which have been identified as hazardous chemical under the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200) or the Canadian Hazardous Products Act are discussed below.

Vinyl acetate	Irritating to eyes, skin and respiratory tract Can cause blisters Can cause injury to the eyes Slightly toxic following oral administration Practically nontoxic after skin application in animal studies Slightly toxic based on animal inhalation exposure studies. No adverse effects noted following repeated oral administration Repeated inhalation exposure produced changes to the lungs in animal models This material produced tumors in laboratory animals Listed as "possibly carcinogenic to humans" (Group 2B) by the International Agency for Research on Cancer (IARC). No birth defects were noted in rats given ingredient orally during pregnancy. This material impaired fertility of laboratory animals below dose levels toxic to parental animals. The weight of the evidence indicates that this material is mutagenic in in vitro assays

12. ECOLOGICAL INFORMATION

This product has not been tested for environmental toxicity or biodegradation, but data obtained on similar products are summarized below:

Environmental Toxicity:

Invertebrates	48 h. EC50	Water flea (Daphnia magna) >1000 mg/l
Fish	96 h LC50	Bluegill sunfish (Lepomis macrochirus) >1000 mg/l
	96 h LC50	Rainbow trout (Oncorhynchus mykiss) >1000 mg/l

13. DISPOSAL CONSIDERATIONS

US EPA RCRA Status: This material when discarded is not a hazardous waste as that term is defined by the Resource Conservation and Recovery Act (RCRC), 40 CFR 261.

Disposal considerations: Incineration, Recycle

Miscellaneous advice: Local, state, provincial and national disposal regulations may be more or less stringent. Consult your attorney or appropriate regulatory officials for information on such disposal. This product should not be dumped, spilled rinsed or washed into sewers or public waterways.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

US DOT
Other: Not regulated for transport
Canadian TDG
Other: Not regulated for transport

15. REGULATORY INFORMATION

All components are in compliance with the following inventories:
US TSCA, Canadian DSL, EU EINECS, Australian AICS, Japanese ENCS, Philippine PICCS, Chinese
Other chemical inventory information:
The polymer contained with this product is exempt from listing in the European Inventory. The monomers used to manufacture this polymer are listed as required, as are all other components of this product.

Canadian WHMIS classification	Not controlled
SARA Hazard Notification:	
Hazard Categories under Title III Rules (40 CFR 370):	Not applicable
Section 302 Extremely Hazardous Substances:	vinyl acetate
Section 313 Toxic Chemical(s)	vinyl acetate
CERCLA Reportable Quantity	5,000 lbs vinyl acetate

For this chemical release of more than the Reported Quantity to the environment in a 24 hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675).

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulation and the MSDS contains all the information required by the Canadian Controlled Products Regulation.
Refer to Section 11 for OSHA/HPA Hazardous Chemical and Section 13 for RCRA classification

16. OTHER INFORMATION

Product use: Sticker with the Hercon Disrupt Micro-Flake products for orchard and forestry applications.
Registered for use in Washington (Reg. No. 8730-05001) and California (DPR Reg. No. 8730-50004-AA)

	Health	Fire	Reactivity	Additional Information
Suggested NFPA rating	1	0	0	
Suggested HMIS Rating	1	0	0	B

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APPENDIX F

LETTERS

Toxicology Section Review

February 28, 2013

To: Brad White,
Acting Assistant Director, Plant Protection Division

From: George R Tuttle, M.S.
Toxicologist, Natural Resource Assessment Section

RE: Toxicology review on the use of Disrupt®II in order to eradicate gypsy moth infestations in Washington State.

The Washington State Department of Agriculture (WSDA) is intending to use Disrupt®II (EPA Reg. No. 8730-55) and the spray adjuvant MicroTac™ (DPR Reg No. 8730-50004-AA) to control gypsy moth in Washington State.

WSDA's Natural Resource Assessment Section has reviewed the confidential statement of formulation (CSF) for Disrupt®II, and reviewed the CSF for the spray adjuvant MicroTac™.

The CFS was provided to me, the WSDA agency toxicologist by Hercon® Environmental for confidential review. I have performed a review of the ingredients listed on the CSF for Disrupt®II, the CSF for MicroTac™.

I have also reviewed several other documents including a human health and ecological risk assessment for disparlure (the active ingredient in Disrupt®II) made available by the United States Forest Service, as well as other documents cited in the risk assessment in order to evaluate the potential, if any, for human or environmental health impacts as a result of product application in the study area.

The active ingredient disparlure is associated with very low, to no toxicity as determined by a suite of acute toxicity studies. The lack of toxicity is consistent with its mode of action as a matting disruptor. Although there are accounts that disparlure may persist in humans for years, these case reports are associated with direct dermal and exposures (usually repeatedly) to disparlure by pesticide applicators and no known negative health impacts are associated with those reports. While there is a lack of chronic toxicity data available to confirm that longer-term exposure to disparlure will not produce adverse health effects, any concerns associated with the lack of chronic toxicity data are compensated for by the general lack of toxicity observed in the acute toxicity studies coupled with the very low level of human exposures expected (given the low application rate of disparlure used). It is also important to note that this product has been previously used over large areas with no problems reported by other states where it has been used as an effective tool to control gypsy moth populations.

Disrupt®II also contains several inert ingredients. Most are listed by the U.S. EPA as non-toxic and most are used in the manufacturing of the plastic flakes. None of the information regarding inert ingredients suggested that they would pose a concern to human or environmental health. As a result of reviewing these documents, I do not foresee any risk posed to human or environmental health associated with the use of Disrupt®II in conjunction with the spray adjuvant MicroTac™ in the proposed project area at the rate of 30 g A.I./acre. I conclude that Disrupt®II is an appropriate tool for use in the designated study area. Furthermore, after speaking with the project managers I can also conclude that the WSDA Plant Protection Division is taking appropriate measures to minimize public exposure and minimize off-target application.

George R. Tuttle

Toxicologist - Washington State Department of Agriculture
Office of the Director - Natural Resources Assessment Section
Washington State Department of Agriculture
Natural Resources Building
P.O. Box 42560
1111 Washington ST SE
Olympia, WA 98504-2560
(360) 902-2066 - Office
George.Tuttle@agr.wa.gov

APPENDIX G

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Finding of No Significant Impact
for
KING, COUNTY
WASHINGTON

2013 APHIS Cooperative Gypsy Moth Eradication Program
Site-Specific Environmental Assessment

The United States Department of Agriculture, (USDA), in cooperation with the Washington State Department of Agriculture, (WSDA), proposes an eradication program to eliminate an isolated infestation of the non-native Gypsy Moth, *Lymantria dispar*, (Linnaeus), in King county, Washington during the spring and summer of 2013. Under the process described in the National Environment Policy Act, 1969 (NEPA), an Environmental Assessment (EA) was prepared to analyze the effect of the proposed action at the site-specific level. The environmental consequences of this program are analyzed in this EA, which is supported by and tiered to the "Gypsy Moth Management in the United States: *a cooperative approach*, Final Environmental Impact Statement, November 1995", (FEIS) and a 2012 supplement by the same name (FSEIS). The USDA examined the six alternatives available in the FEIS and has selected the preferred Alternative 6, which consists of suppression, eradication, and slow the spread. Under alternative 6, several treatment options are available for Gypsy Moth management. The treatment options analyzed included:

1) No action
2) *Bacillus thuringiensis* var. *kurstaki* (Btk); a biological insecticide
3) Diflubenzuron; a chemical insecticide
4) Gypsy Moth nucleopolyhedrosis virus (NPV) or Gypchek; a biological insecticide
5) Mass trapping, Gypsy Moth traps with disparlure to attract male Gypsy Moths
6) Mating disruption, aerial application of disparlure
7) Sterile insect release, release of sterile or partially-sterile Gypsy Moth life stages

The potential environment impacts and mitigation measures of these treatment options are described in the FEIS, FSEIS, and EA. The EA was prepared by the USDA and WSDA. The FEIS, FSEIS, and EA are available for review at the following locations:

USDA-APHIS-PPQ
Office of the State Plant Health Director
33400 9th Ave. S., Suite 200
Federal Way, WA 98003

Washington State Library
6880 Capitol Blvd. S
Tumwater, WA 98501

USDA-APHIS-PPQ
APHIS Library, 1st floor
4700 River Road
Riverdale, MD 20737

A cooperative USDA/WSDA eradication project is selected. This cooperative program selects the preferred Alternative 6: specifically eradication, due to the geographic location of Washington State. The USDA / WSDA Gypsy Moth eradication strategy proposed for 2013 includes utilizing the biological insecticide, *Bacillus thuringiensis* var. *kurstaki, (Btk),* and the application of Disparlure, a Gypsy Moth mating disruptant.

- Btk will be applied to all host vegetation at the core of the infestation (10.5 acres).Treatments will be conducted using ground-based application equipment and there will be three to five applications begining in late April. Btk treatments will occur no later than June 30, 2013. The exact number and timing of treatments will depend on larval development, foliage development and weather conditions. The insecticide may be mixed with a spreader-sticker (Bond Max®) during ground treatments.

- Disparlure will be dispersed aerially to 181 acres surrounding (and including) the core of the infestation. A single application will be conducted in early July, prior to adult Gypsy Moth emergance. Disparlure may be mixed with a sticker (Mico-Tac®) to ensure the flakes adhere to tree canopy and other vegtation.

No comments were received during the 30-day public comment period. For more information on implementation of this program, please refer to the site specific 2013 EA. Implementation of this program, with associated operating procedures and mitigation measures as identified in the EA, would ensure that no significant adverse environmental impact would occur to the human environment.

Reasons for the finding of no significant impact include:

A. B.t.k.and Disparlure, used as described in the Environmental Assessment, present minimal risk of significant impact on human health.

B. It is not anticipated that any non-target animal or plant populations would be adversely affected due to the limited size of the treatment areas. Any detrimental effects on susceptible non-target organisms would be transient and these populations would recover as individuals from nearby untreated areas re-colonized the treatment areas.

C. No threatened, endangered, or sensitive species would be adversely affected by this eradication project.

D. No detrimental effects on vegetation, water, or soil are known or anticipated due to this eradication project.

E. No cumulative effects are known or anticipated.

This EA is consistent with Executive Order No. 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." That implementation of this cooperative USDA/WSDA eradication project will not result in disproportionately high and adverse human health or environmental effects on any minority populations and low-income populations. As required by the Executive Order of the President, opportunities for full participation in the NEPA process by such populations have been provided.

B Chambers

Barbara A. Chambers
State Plant Health Director – WA State
United States Department of Agriculture
Animal & Plant Health Inspection Service
Plant Protection and Quarantine

04/17/2013

Date