# Report to the Agriculture, Conservation and Forestry Committee on Findings Pursuant to PL 2019, Chapter 84

# Report Prepared for: Maine Board of Pesticides Control

Client Contact:

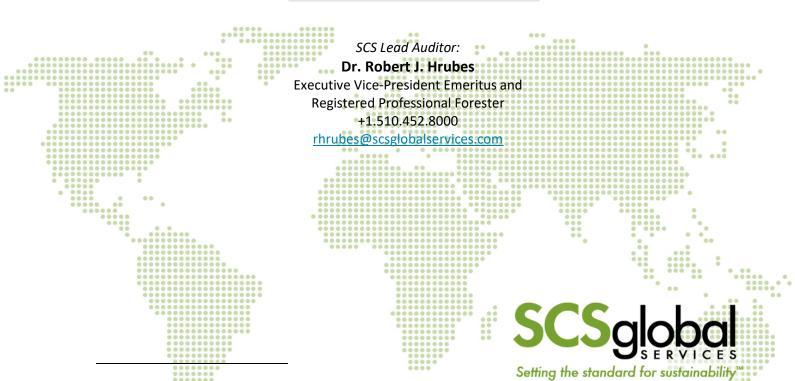
Megan L. Patterson, Director

DATE OF FIELD ACTIVITIES

28 August – 9 September, 2019

DATE OF FINALIZED REPORT

22 January 2020<sup>1</sup>



<sup>1</sup> Review draft submitted to BPC on 19 December 2019.

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# 1. General Information

SCS Global Services (formerly, Scientific Certification Systems) was contracted by the Maine Board of Pesticides Control (BPC) to undertake an independent assessment of conformance to State of Maine pesticide use regulations by industrial forest management companies engaged in aerial application of herbicides on forestlands under the jurisdiction of the Maine Board of Pesticides Control. The project results from a Resolve passed by the Maine State Legislature on 18 June 2019 (LD1691) directing the Board of Pesticides Control (BPC) to work with the Maine forest products industry to monitor aerial herbicide applications.

The objective of the contracted project was to gather information to enable the SCS project team to compile and convey observational data and conclusions as to the current practices of aerial pesticide (herbicide) applications in Maine, resulting in a monitoring report. The work was accomplished through personal interviews with forestry staff of Maine industrial forestland owners throughout the State, review of pertinent documents and, most importantly, sample-based field observations of organizations involved in aerial pesticide application (forestland owners, pesticide suppliers, aerial pesticide applicators).

The field work, comprised of monitoring inspections of aerial pesticide operations on three major industrial forestland ownerships<sup>2</sup>, took place from August 26 to September 9, 2019. The SCS audit team was comprised of:

Robert J. Hrubes, Ph.D., Lead Auditor: Dr. Hrubes is a California Registered Professional Forester (#2228) with 40+ years of professional experience in both the public and private sectors. He is a founding member of the Forest Stewardship Council and the Forest Stewards Guild and he established and managed SCS' natural resources practice, beginning in the early 1990's until is semi-retirement in 2017. Hrubes holds degrees in forest management (BSF-lowa State University), resource systems management (MS-University of Michigan), economics (MA-University of California at Berkeley) and wildland resource science (Ph.D.-University of California at Berkeley). Dr. Hrubes has led a large number of FSC forest management certification audits throughout North America as well as other regions ranging from Australia to Brazil to Sweden to Japan. Over the past 25 years, Hrubes has led numerous FSC forest management audits in Maine. Dr. Hrubes retired from his role as Executive Vice President of SCS Global Services in 2017 but remains active with the company on a part-time basis.

**Mr. Gordon Moore, Audit Team Member:** Gordon Moore is a Maine Professional Forester (#3207). He has worked in the timber industry in Maine for 40 years and, most recently, retired as a District Forester for the Maine Forest Service (MFS). During his time with the State of Maine he worked as the State Water Quality Forester and as a Timber Harvest Management specialist as well as co-author of the Performance Standards for Road Construction and Timber Harvesting on Wetlands Sites for the Land Use Planning Commission & MFS and co-authored along with the

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<sup>&</sup>lt;sup>2</sup> The pesticides applied on the three participating forestland properties were a mix of the same three commercially available herbicides: Rodeo (active ingredient: glyphosate), Arsenal (active ingredient: imazapyr) and Oust (active ingredient: sulfometuron methyl).

MFS and US Forest Service in developing Best Management Practices for Water Quality during Timber Harvesting. Gordon is a Maine licensed forester, receiving an AS in Forestry and BA's in Biology and Mathematics from the University of Maine at Fort Kent and completed work towards a MS at the University of Maine at Orono in wetland ecology. Gordon's professional work is conducted under the name: Maple View Forestry. His professional activities include having served on FSC forest management certification audit teams.

Both members of the SCS audit team underwent training and received pesticide handler certificates from BPC prior to commencement of the field auditing activities that are the subject of this report. However, at no time during the verification audit did the SCS auditors handle pesticides.

Any questions or comments regarding this report should be directed to:

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# 2. Monitoring Design

The monitoring activities undertaken by the SCS team were focused on assessing conformance to three sets of "Verification Criteria" developed by Daniel J. Simonds<sup>3</sup>, principal consultant of MixedWood LLC, who was separately contracted by the Board of Pesticides Control for this purpose. The MixedWood-developed Verification Criteria<sup>4</sup> (duly reviewed and approved by the BPC staff prior to use by SCS) were formatted around three "checklists:"

<sup>&</sup>lt;sup>3</sup> Daniel Simonds possesses a suite of experience & expertise — forestry, forestry auditing practices and procedures, and a working knowledge of Maine pesticide law—which made him uniquely qualified to develop the monitoring criteria for this project. Daniel is a Certified Forester, Licensed Maine Forester (ME883), and has 22 years of experience in industrial land management. Daniel is qualified as a Lead Auditor for third-party forest practice certification standards and is a noted expert in the protocols associated with FSC, SFI, and PEFC. Daniel also served 6 years as an appointed member of the Board of Pesticides Control. During his service, which including a year as Board chair, Daniel built expertise in the implementation and development of Maine pesticide regulations.

<sup>&</sup>lt;sup>4</sup> MixedWood scoped, designed, and vetted the monitoring criteria as well as the associated field verification checklists for use by SCS Global auditors. Initial considerations for criteria included simple adoption of FSC and/or SFI audit criteria. Ultimately, these were determined to be limited in scope and insufficiently Maine-specific for this project. Final criteria were designed using a complex aggregation of the numerous, existing and pertinent, state and federal regulations, as well as pesticide label language. During implementation and use of the monitoring criteria,

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- Document Review Checklist—intended for office-based use by the audit team when
  interviewing personnel and reviewing documents generated by industrial forest management
  companies that agreed to participate in the investigation. The subject areas covered by the
  Document Review Checklist are:
  - Notifications
  - Licensing (e.g., of applicators)
  - Records (e.g., application projects, annual summary, incident reports, employee training)
  - o Sensitive Area (SA) maps
  - Sensitive Area Likely to be Occupied (SALO) checklists
- Operations Checklist—intended for field use by the audit team when observing operations and interviewing involved personnel at the helicopter "landing zones" at which pesticides are mixed and loaded onto a helicopter for application on nearby project sites. The subject areas covered by the Operations Checklist are:
  - Mixing and Loading--Label
  - Mixing and Loading—Regulations
  - o Herbicide Prescription Specification—By-Product & From Label
  - Application Equipment (Label)
  - Application Equipment (Regulations)
  - o Worker Protection
- **Application Checklist**—intended for field use by the audit team when observing operations and interviewing personnel at the project sites (forest stands) where herbicides are aerially applied. The subject areas covered by the Application Checklist are:
  - Site Conditions
  - o Early Entry to Site
  - Mixing & Loading
  - Sensitive Areas (SA)
  - Sensitive Areas Likely to be Occupied (SALO)

The auditing/monitoring approach employed by the Audit Team was to gather pertinent information and data, recorded on the appropriate checklist, regarding conformance to the Verification Criteria, through the following means:

- Interviews of personnel employed by participating industrial forestland owners, pesticide suppliers and pesticide applicators; interviews took place both in company offices and in the field
- Review of pertinent documents
- Direct field observations of aerial application sites, landing zones and water drafting sites
- All observational data was recorded on the appropriate Verification Criteria Checklists.

During the course of the monitoring project, at total of 20 Checklists were completed (filled out) by the SCS team: 3 Document Review Checklists, 9 Operations Checklists and 8 Application Checklists. Hard

MixedWood provided training, support, and oversight. This effort ensured effective, efficient and professional implementation of the monitoring project.

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and electronic copies of the completed Checklists are maintained in the project file at the SCS Offices. Electronic copies of the completed checklists, along with this report, have been conveyed to BPC.

The findings presented in this Audit Report are based exclusively on the findings of the audit team, as recorded on the Checklists, augmented by notes of face-to-face interviews with participating individuals listed later in this report.

## **Participating Forestland Owners and Service Providers:**

Three industrial forestland owners, each with substantial landholdings in Maine, agreed to participate in the verification audit<sup>5</sup>:

J.D. Irving (personnel based out of their Fort Kent office)Seven Islands Land Company (personnel based out of their Ashland Office)Weyerhaeuser (personnel based out of their Greenville and Bingham Offices)

All three forestland owners retain the services of the same pesticide supplier:

### **Nutrien Ag Solutions**

Likewise, all three forestland owners retain the services of the same helicopter application company:

### **JBI Helicopter Services**

Both Nutrien Ag Solutions and JBI Helicopter Services have an extensive and connected track record of work in Maine. It is the SCS audit team's understanding that essentially all aerial application of herbicides in forestry operations in Maine, this year and in recent prior years, involves retaining the services of Nutrien Ag Solutions and JBI Helicopter Services. A clear benefit of this current situation is that there is a very high degree of consistency in aerial application procedures as the same supplier and applicator employees undertook all forestry aerial pesticide applications in Maine in 2019.

Forest landowner field staff play an integral role in the aerial pesticide projects, including:

- Determining which forest stands will be treated during the summer pesticide application "season" which, depending on weather patterns, can be a rather short window of time
- In coordination with other forestland owners requiring the services of Nutrien Ag Solutions and JBI Helicopter Services, and subject to exogenous factors associated with weather, establishing a planned schedule of pesticide treatments for each annual treatment "season"
- Delineating treatment areas as well as Sensitive Areas (SA) and Sensitive Areas Likely to be Occupied (SALO)
- Posting requisite signage and publishing requisite public notices
- "Blocking off" roadways through project sites during active aerial operations
- Undertaking any remedial work that may be required, following operations
- Submitting required documentation to BPC

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<sup>&</sup>lt;sup>5</sup> SCS had no role in the selection of participating forestland owners, pesticide suppliers and aerial pesticide applicators.

### **Participating Individuals:**

The following individuals participated (i.e., directly interacted with the SCS Audit Team in the field) in the verification audit:

Ron Lemin, Nutrien Rick Dionne, Nutrien Bruce Pelletier, Nutrien Ray Newcomb, JBI Chris Thresher, JBI Elvin Alvarez, JBI Sean Newcomb, JBI Alex Addren, JBI Ked Coffin, JDI Chris Huston, JDI Tim Cyr, JDI Nick Baser, 7 Isl. Zack Lowry, 7 Isl. Jason Desjardin, 7 Isl. John Ackley, WYCO Ben Dow, WYCO Devon Fogarty, WYCO Cullen Utermark, WYCO Megan Patterson, BPC Daniel Simonds, MixedWood LLC and Contractor to BPC

The field component of the verification audit commenced on August 26, 2019. Over the following 14 days, one or both of the SCS auditors engaged in field and office investigations on a total of 8 days. To the extent possible, field work was dependent on helicopter activity which, in turn, was dependent on favorable weather conditions. Weather conditions resulted in the SCS auditors observing active helicopter operations on a total of 5 days; active helicopter operations were observed on JD Irving and Weyerhaeuser forestland. No aerial applications took place on Seven Islands Land Company lands from the commencement date of the project through to the end of the 2019 aerial application "season." During the 5 days of active helicopter operations, a total of approximately 40 "lifts" were observed. On other field days, when weather conditions grounded the helicopter, field work focused on inspection of sites that had received aerial herbicide application earlier in the season, prior to commencement of the verification audit.

### **Field Observation Locations:**

Aug. 26 – Oxbow Road, JDI Aug. 27 – North Maine Woods, JDI

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<sup>&</sup>lt;sup>6</sup> Helicopter leaving a landing zone with a full load herbicide mix, deploying the load on the target stand, and returning to the landing zone.

- Aug. 28 T8R7 WELS, 7 Islands (3 sites)
- Aug. 29 Sandwich Academy Grant, Greenville Unit, WYCO
- Sept. 1 -- Near Long Pond South of Greenville, Greenville Unit, WYCO
- Sept. 5 Big W Township, Greenville Unit, WYCO
- Sept. 6 Big W, West Middlesex, Brassua, Soldiertown Townships, Greenville Unit, WYCO
- Sept. 8 Mayfield Township, Lexington Township, Bingham Unit, WYCO

# 3. Monitoring Results

Based upon the data collected and analyzed, interviews completed and field observations made, the SCS Audit Team concludes that:

- Overall, there is a consistently high level of compliance with applicable BPC regulatory requirements and pesticide label law.
- The participating industrial forestland companies and herbicide service providers (supplier and applicator) were consistently observed to be exercising a precautionary approach; e.g., substantial exceedance of the regulatory setbacks from special areas such as waterbodies and shutting down aerial operations when wind exceeds 10 miles per hour rather than the requisite 15 MPH.
- Personnel engaged in aerial herbicide application operations (landowner employees, pesticide supplier employees, aerial applicator employees) were consistently observed by the Audit Team to be acting with:
  - o Professionalism
  - o Competence
  - Consistent and robust understanding of and compliance with applicable regulations.
- In all field operations observed by the Audit Team, field personnel were found to:
  - Carefully prepare and accurately measure application volumes
  - o Employ safe and precise application procedures.
- All equipment employed in aerial operations (transport, mixing, application) was observed to be well maintained and in good working order
- The application equipment and spray regulation systems employed by JBI are demonstrably
  effective at "getting the job done" with precision and minimum necessary deployment of
  chemicals. The nozzles employed are low pressure, narrow spectrum and designed specifically
  to minimize drift. The equipment incorporates an integrated flow regulation system that uses
  GPS inputs to regulate pressures and flow-rates in real time to match aircraft speed variations,
  resulting in ground-calibrated precision.

At bottom line, no evidence was gathered during the course of the verification audit to contradict the following overall conclusion:

The State of Maine regulatory framework, within which aerial application of herbicides in forest operations takes place, is functioning as designed.

**Further:** within the context of forest landowners' silvicultural decisions and the decision to aerially apply herbicides to control (for a targeted period of time) but not eliminate vegetation that competes with forest stand establishment and early stand development, we observed a consistent and genuine effort

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on the part of forest managers and pesticide applicators/suppliers to minimize reliance on and use of herbicides, principally through thorough planning and integrated pest management.

### **Additional Observations**

### Spray Height

Field observations by the Audit Team were that the helicopter's "spray height" (distance above the ground when herbicide is released from the spray boom) was consistently around 30 feet. As the pertinent verification criterion (taken from the regulations) is stated as: "Spray height < 10 ft. except higher for safety", the auditors regularly inquired of the helicopter pilot and ground crew as to the reason for consistently exceeding the 10-foot target. The answer was two-fold:

- Due to the fact that most treatment blocks are at least partially bordered by stands of trees of at least 30' height, it is a safety hazard to utilize a spray height of 10'
- Releasing herbicide at 10' would require the pilot to pull up rapidly at the end of the spray run to clear the adjacent tree line, resulting in an increased likelihood of the rotor wash of the banked helicopter pushing herbicide into the adjoining (non-targeted) trees.

That is, field personnel have judged that a 30' spray height is warranted for both safety and environmental considerations. Based upon our observations of the geometry of aerial release of herbicide at the periphery of the treatment block, we concur with the validity of that judgment. Accordingly, we conclude that the operations we observed were in compliance with "spray height < 10 ft. except higher for safety."

### Wildlife Disturbance

As young stands of conifer trees can be attractive as a food source for ungulates such as moose and deer, it is not uncommon for moose, or other large mammals such as bear and deer to forage in stands that are scheduled for aerial application of herbicides. Dialogue with field personnel involved in aerial application projects, particularly the pilots, confirmed an awareness of the risk of wildlife "harassment" and that standardized measures are employed for avoiding harassment. Field personnel, employees of the forest landowner companies, regularly conduct "wiggle walks" of a treatment area prior to operations for the purpose of identifying sensitive areas, which are most commonly water bodies. While not the principal purpose of "wiggle walks", some field personnel interviewed during the audit mentioned that their focus also includes evidence of large mammal activity. If evidence of animal presence or activity is detected, the information is, as a matter of practice, conveyed to the helicopter crew. Additionally, the helicopter pilot "scouts" the spray block before treatment. These pass-overs enable the pilot to spot moose or bear and usually the noise of the helicopter results in the animal leaving the treatment block. The pilot can record the presence of large mammals during the scouting passes and can record their locations in the on-board GPS. The pilots informed the auditors that they, as a matter of practice, do not knowingly release herbicides onto large mammals. If necessary, the treatment will be delayed until large mammals vacate the treatment block.

While the audit team members are not qualified to definitively judge the effectiveness of these measures, nor did the audit protocol provide an opportunity to examine the topic in depth, it is our general sense that personnel involved in aerial pesticide application projects are genuinely committed to and effective at avoiding disturbance to wildlife that would qualify as harassment.

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# Maine Board of Pesticides Control Forestry Aerial Herbicide Application Monitoring – 2019 3<sup>rd</sup>-Party Verification Criteria

# **DOCUMENT REVIEW CHECKLIST (Office)**

# **Staff Interviews**

Landowner	Name	Employer	role
Manager			
Applicator			
Acres			
# Sites			

NOTES:				

**NOTIFICATION (REGS)** 

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
CHAIL TER	52611611	CLINOSE	305 02/1002		Details & conclusion
51	I	A/B	n/a	Newspaper Ads	Verify
51	IV	В	1		Interview, demonstration, documents, records, observations, comments  verified  not reviewed
51	I	С	n/a	Posters	Verify details
51	IV	С	1/2		Interview, demonstration, documents, records, observations, comments  verified  not reviewed
51	IV	В	2	Indiv. Notice	Verify notification w/in 500'  Interview, demonstration, documents, records, observations, comments  verified not reviewed
51	IV	D	n/a	Program Notice	Verify BPC notification  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
51	IV	D	n/a	Program Notice	Verify Poison Control Center notification  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
51	VI	А	n/a	Program Notice	Verify notice 7-30 days prior  Interview, demonstration, documents, records, observations, comments

	1	1	T	1	
					verified
					not reviewed
51	VI	B/C	n/a	Program Notice	Verify notification details (VI B1-2)
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
28	1	Α	n/a	Notif. Requests	Verify relevant notification requests
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
28	1	В	n/a	Notif. Procedure	Verify relevant notification responses
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
28	2	С	n/a	Registry	Verify appropriate consultation of Notification Registry
				Consultation	
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
28	2	D	1/2	Registry	Verify relevant notification responses - w/in 250'
				Notification	
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
20	2		2/6/7	Dowlets:	Novify notification dataile
28	3	D	3/6/7	Registry	Verify notification details
				Notification	Interview demanstration decuments records observations comments
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed

28	4	D	4	Registry Notification	Verify add'l information - if requested  Interview, demonstration, documents, records, observations, comments verified not reviewed
22	4	С	I - III	Off-target Application	Consent recorded for off-target discharge or drift  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	5	A/B	n/a	Variances	Verify application, receipt , & record  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	6	A/B	n/a	Emergencies	Verify declaration  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

LICENSING (REG)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria  Details & conclusion
31	n/a	n/a	n/a	Licensing	Verify licensed applicators - appropriate categories
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
31	n/a	n/a	n/a	Licensing	Verify firm licenses - Nutrien, JBI, others (?)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

**RECORDS (REG)** 

	7				
CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
					Details & conclusion
50	1	Α	1	Applic. Records	Verify required records - 2 year retention
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
50	1	Α	II	Applic. Records	Verify record details (see IIa - d)
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
50	2	Α	n/a	Annual Summary	Verify 2018 report
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
50	2	С	n/a	Incident Reports	Verify if relevant
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
20	5	Α	n/a	Employees	Appropriate training
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed

SA MAPS (REG)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
CHAPTER	SECTION	CLAUSE	30B-CLAU3L	10116	Details & conclusion
22	2	С	I	SA Identification	Site maps retained 2 years  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	III	Site Plan	Verify record details (see IIa - d)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	I	Site Plan Map	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	I	Site Plan Map	Target area boundaries  Interview, demonstration, documents, records, observations, comments verified not reviewed
22	3	В	I	Site Plan Map	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	I	Site Plan Map	Significant landmarks & flight hazards  Interview, demonstration, documents, records, observations, comments

					verified not reviewed
22	3	В	-	Site Plan Map	SALO w/in 1000'  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	I	Site Plan Map	SA w/in 500'  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	В	II	Site Plan Map	School bus schedule  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

SALO CHECKLISTS (REG)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
CHATTER	32011014	CLINOSE	300 00,1030	10116	Details & conclusion
22	3	С	I	SALO Checklist	Date, time, target descrip., applic. ID  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Confirmation of notifications (Ch28 & 51)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Confirmation of site ID (3A)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Weather monitoring location  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Weather monitoring equipment  Interview, demonstration, documents, records, observations, comments verified not reviewed

22	3	С	I	SALO Checklist	Confirmation of acceptable weather conditions  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Current weather observations (wind speed & direction)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	SA protection measures  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I	SALO Checklist	Confirmation of no humans visible  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

# Maine Board of Pesticides Control Forestry Aerial Herbicide Application Monitoring – 2019 3<sup>rd</sup>-Party Verification Criteria

# **OPERATIONS CHECKLIST (Landing Zone (LZ))**

### **APPLICATION SITES**

Landowner	Site ID	Rx	Acres
Applicator			
LZ Location			
Assessor			

# **Staff on Site**

Name	Employer	role

WEATHER						
time	time observation					

### **MIXING & LOADING**

Batch ID	time	Volume	Rx	Sites	Observed?
					y/n

# **APPLICATIONS**

Site ID	time	Volume	Rx	Acres	Observed?
					y/n

MIX & LOAD (LABEL)

HERBICIDE	LABEL PAGE	CATEGORY	SUB- CATEGORY	TOPIC	Verification Criteria
LABEL	NO.				Details & conclusion
ACCORD XRT II	1	Haz. to Humans, etc.	n/a	PPE	Long-sleeved shirt & pants - chem. resistant gloves - shoes/socks
Rodeo	1	Haz. to Humans, etc.	PPE	PPE	Interview, demonstration, documents, records, observations, comments verified
Oust	2	Haz. to Humans, etc.	Precautionary Statements	PPE	not reviewed
Arsenal	2	Haz. to Humans, etc.	PPE	PPE	
Accord XRT II	1	Phys. & Chem. Haz.	n/a	n/a	Do not mix, store, apply in galvanized or unlined steel containers
Rodeo	1	Phys. & Chem. Haz.	n/a	n/a	Interview, demonstration, documents, records, observations, comments verified
Arsenal	2	Phys. & Chem. Haz.	n/a	n/a	not reviewed
Accord XRT II	3	Mixing Directions	n/a	n/a	Eliminate risk of siphoning
Rodeo	3	Mixing Directions	n/a	n/a	☐ Interview, demonstration, documents, records, observations, comments ☐ verified ☐ not reviewed
Accord XRT II	3	Mixing Directions	n/a	n/a	Avoid water containing soil
Rodeo	4	Mixing Directions	n/a	n/a	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Accord XRT II	4	Tank Mixing	n/a	n/a	Maintain agitation at all times
Rodeo	4	Tank Mixing	n/a	n/a	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Rodeo	1	Directions for Use	n/a	n/a	Do not apply in a way that will contact persons
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed

MIX & LOAD (REGS)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
					Details & conclusion
20	3	А	n/a	Storage	Secure enclosure - prevent unauthorized use, mishandling, etc.  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
20	5	A	n/a	Employees	Appropriate training  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
20	5	В	n/a	Employees	Appropriate PPE  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

# HERBICIDE PRESCRIPTION SPECIFICATION – BY PRODUCT & FROM LABEL

HERBICIDE	LABEL PAGE	CATEGORY	SUB-CAT.	TOPIC	Verification Criteria
	NO.				Details & conclusion
d XRT	4	Aerial Application	n/a	n/a	Application rate = 3-25 gpa  verified not reviewed
Accord XRT	6	Forestry Management	n/a	n/a	Application rate = 4-8 qts/acre  verified not reviewed
	4	Aerial Application	n/a	n/a	Application rate = 3-25 gpa  verified not reviewed
	7	Forestry Site Prep	n/a	n/a	Application rate = 1.5 - 7.5 qt/acre  verified not reviewed
Rodeo	8	Forestry Site Prep	Tank Mixing	n/a	Arsenal App. Conc. = 2-16 oz/ac  verified not reviewed
	8	Forestry Site Prep	Tank Mixing	n/a	Oust XP = 1-4 oz/ac  verified not reviewed
	8	Forestry Conifer & HW Release	Broadcast Applic.	ME & NH	Use up to 2.25 qt/ac  verified not reviewed

	8	Forestry Conifer & HW Release	Broadcast Applic.	ME & NH	May be tank mixed 1-2.5 oz Arsenal App Conc  verified not reviewed
	9	Forestry Conifer & HW Release	Broadcast Applic.	ME & NH	May be tank mixed 1-3 oz Oust XP  verified not reviewed
	13	Agric. Use Requirements	Conifers Site Prep	NE & Lake States	Application = 2-4 oz/ac - black spruce  verified not reviewed
	14	Agric. Use Requirements	Conifer Release	NE & Lake States	Application = 1.5-3 oz/acre white spruce  verified not reviewed
st	17	Agric. Use Requirements	Use Restrict. Forestry	n/a	Apply < 8 oz/acre/year  verified not reviewed
Oust	17	Agric. Use Requirements	Use Restrict. Forestry	n/a	Do not apply more than 2 applications/year  verified not reviewed
	22	Non-Agric. Uses	Tank Mix Combos	n/a	Add 2-6 oz/ac to Glyphosate  verified not reviewed
	26	Additional Instructions	n/a	n/a	Apply < 4.25 oz/ac/single application  verified  not reviewed

	5	Site Specific Restrictions	Nonagr. Land/Forest	n/a	Do not apply more than 48 fl.oz/year  verified not reviewed
	7	Application Methods	Aerial Application	n/a	Application rate = 2-30 gal/ac  verified not reviewed
Arsena	9	Forestry Use	Site Prep Treatment	n/a	Application rate = 5-30 gal/ac  verified not reviewed
	9	Forestry Use	Site Prep Treatment	Broadcast Applic.	Application rate = 12-16 oz/ac  verified not reviewed
	10	Forestry Use	Conifer Release	Broadcast Applic.	Application rate = 6-12 oz/ac  verified not reviewed

APPLICATION EQUIPMENT (LABEL)

HERBICIDE	LABEL PAGE NO.	CATEGORY	SUB- CATEGORY	TOPIC	Verification Criteria  Details & conclusion
				,	
Oust	4	Mandatory Spray Drift Req.	Aerial Application	n/a	Use extremely coarse or coarser droplet size (ASABE S572.1)  Interview, demonstration, documents, records, observations, comments
Arsenal	6	Aerial Application	n/a	n/a	verified not reviewed
Oust	4	Mandatory Spray Drift Requirements	Aerial Application	n/a	Boom length < 75% of rotor diameter (Oust)  Boom length < 90% of rotor diameter (Arsenal)
Arsenal	6	Aerial Application	n/a	n/a	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	4	Mandatory Spray Drift Requirements	Aerial Application	n/a	Nozzles oriented toward back of aircraft  Interview, demonstration, documents, records, observations, comments verified not reviewed
Arsenal	2	Engineering Controls	n/a	n/a	Pilots must use enclosed cockpit  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Arsenal	7	Application Methods	Aerial Application	n/a	Spray equipment calibrated  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

APPLICATION EQUIPMENT (REG)

CHAPTER	SECTION	CLAU	SUB-CLAUSE	TOPIC	Verification Criteria
0	5255	SE	332 32, 1332		Details & conclusion
22	2	A	ı	Spray Equipment	Used in accordance with mfg. recommendations & instructions  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	А	1	Spray Equipment	Sound mechanical condition  Interview, demonstration, documents, records, observations, comments verified not reviewed
22	2	А	1	Spray Equipment	free of leaks, defects, malfunctions - which may cause off-target  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	A	II	Spray Equipment	Calibrated according to relevant guidance  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	А	II	Spray Equipment	Calibration records sufficient  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	А	III	Spray Equipment	Functioning shut-off valves  Interview, demonstration, documents, records, observations, comments verified not reviewed

22	2	А	III	Spray Equipment	Anti-siphoning device  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	В	I	Weather	Does not favor drift onto SA  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	В	ı	Weather	Does not prevent proper target deposition  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	В	II	Weather	Application ceased when off-site deposition observed  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	В	III	Weather	Wind speed does not exceed 15 mph  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

WATER QUALITY PROTECTION (REG)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
CHAITEN	SECTION	CLAUSE	JOB CLAUSE	10116	Details & conclusion
29	1	А	n/a	Mix/Load	Mixing & Loading >50' from water body  Interview, demonstration, documents, records, observations, comments verified not reviewed
29	1	В	n/a	Pumps	Water pumping equipment clean of pesticides  Interview, demonstration, documents, records, observations, comments verified not reviewed
29	1	С	n/a	Anti-syphon	Verify anti-syphon for water pumping equipment  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
29	2	n/a	n/a	Tanks & Containers	Verify secure transport  Interview, demonstration, documents, records, observations, comments verified not reviewed
29	3	n/a	n/a	Spill Cleanup	Verify spills w/in 50' of water cleaned promptly  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
29	6	А	n/a	Water Buffer	Verify minimum 25' buffer on water bodies  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

# **WORKER PROTECTION STANDARD (WPS) - (BPS Inspection Forms)**

FORM	TOPIC	Verification Criteria
101111	10116	Details & conclusion
General	Posted Information	Visible, central location  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	SDS - all products  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	Names of pesticides in use  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	REI's and expiration  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	Time/date of application  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	Pesticide safety information  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

General	Posted Information	Medical facility information  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Posted Information	Label information (EPA reg., Active ingredients)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
General	Training	Verify training for interviewed staff  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Workers	Site Entry	Verify no entry prior to REI expiration  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Handlers	PPE	Appropriate PPE  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Handlers	Equipment Operation	Verify training for all equipment  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

# Maine Board of Pesticides Control Forestry Aerial Herbicide Application Monitoring – 2019 3<sup>rd</sup>-Party Verification Criteria

# APPLICATION CHECKLIST (SITE)

Landowner				Guide	
Applicator				other Staff	
Sites ID					
LZ Location					
Acres					
Rx				Sensitive	YES NO
				Area?	
			_	SALO?	☐ YES ☐ NO
				DI ILO:	
CITE CON	DITIONS				
SITE CON	DITIONS	1			
Site ID					
Site Map					
Site	☐ YES ☐ NO				
Inspection		T			
	Humans present?				
	Domestic animals?				
	Crop trees dormant?				
	Crop trees 2+ yrs old?				
	Standing water?				
	Conifer stress?				
	Relevant neighbors?				
Application Observed	☐ YES ☐ NO				
	Uniform pattern?				
	Off-site deposition?	YES N	O		
	Spray height				
	Swath displacement?				
	Weather				
•					
NOTES:					

**EARLY ENTRY TO SITE (LABEL)** 

HERBICIDE	LABEL PAGE NO.	CATEGORY	SUB- CATEGORY	TOPIC	Verification Criteria  Details & conclusion
Arsenal	3	Agric. Use Requirements	n/a	n/a	PPE required for early entry to treated areas (coveralls, shoes + socks, gloves, eyewear
Oust	12	Agric. Use Requirements	n/a	PPE	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Rodeo	1	Directions for Use	n/a	n/a	do not apply in a way that will contact persons  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Accord XRT	1	Agric. Use Requirements	n/a	n/a	REI = 4 hours (Accord, Rodeo, Oust) REI = 48 hours (Arsenal)
Rodeo	1	Agric. Use Requirements	n/a	n/a	Interview, demonstration, documents, records, observations, comments
Oust	12	Agric. Use Requirements	n/a	n/a	verified not reviewed
Arsenal	3	Agric. Use Requirements	n/a	n/a	

**SITE CONDITIONS (LABEL)** 

		•	_,,		
HERBICIDE	LABEL PAGE NO.	CATEGORY	SUB- CATEGORY	TOPIC	Verification Criteria  Details & conclusion
Oust	3	Environmental Hazards	n/a	n/a	Do not apply directly to surface of water  Interview, demonstration, documents, records, observations, comments verified not reviewed
Oust	8	Product Information	n/a	n/a	Do not apply to bodies of water  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	27	Additional Instructions	n/a	n/a	Do not treat frozen or snow covered soil  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Arsenal	2	Environmental Hazards	n/a	n/a	Do not apply to water except as specified in label  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Arsenal	5	Site Specific Restrictions	Potable Water Intakes	n/a	Do not apply 1/2 mile upstream of active potable water intake  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

Arsenal	9	Forestry Use	Site Prep & Conifer Release	n/a	Do not apply when conifers under stress  Interview, demonstration, documents, records, observations, comments verified
					not reviewed
Arsenal	10	Forestry Use	Conifer Release	n/a	Apply before end of 2nd growing season (crop trees)  Interview, demonstration, documents, records, observations, comments verified not reviewed
Oust	12	Agric. Use Requirements	Forestry	Application timing	Apply before herabceous weeds emerge or shortly thereafter  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	14	Agric. Use Requirements	Conifer Release	NE & Lake States	Apply when trees are dormant  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	18	Agric. Use Requirements	Use Restrictions Forestry	n/a	Leave treated soil undisturbed  Interview, demonstration, documents, records, observations, comments  □ verified □ not reviewed

**EARLY ENTRY TO SITE (LABEL)** 

					,
HERBICIDE	LABEL PAGE NO.	CATEGORY	SUB- CATEGORY	TOPIC	Verification Criteria
					Details & conclusion
Oust	3	Agric. Use Requirements	n/a	n/a	Use ½ upwind swath displacement
Oust	12	Agric. Use Requirements	n/a	PPE	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	28	Additional Precautions	Application	n/a	Vol. & delivery for uniform pattern, minimize drift
Arsenal	7	Application Methods	Aerial Application	n/a	Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Arsenal	6	Aerial Application	n/a	n/a	Wind speeds 3-10 mph  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Arsenal	6	Aerial Application	n/a	n/a	Required to use upwind swath displacement  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
Oust	4	Mandatory Spray Drift Requrements	Aerial Application	n/a	Spray height < 10 ft. except higher for safety  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

Oust	3	Environmental	n/a	n/a	Surface water buffer strip is applied
Oust		Hazards	11/ 4	11/ 4	Surface water surprisapplied
		11020103			Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
Arsenal	7	Application	Aerial	n/a	Appropriate buffers except on open tracts of land
		Methods	Application	•	
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
Oust	4	Mandatory Spray	Aerial	n/a	Do not apply during temperature inversions
		Drift	Application		
		Requrements			Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
Oust	11	Site Specific	n/a	n/a	Careful evaluation prior to use
		Considerations			
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
Arsenal	6	Aerial Application	n/a	n/a	Required to use upwind swath displacement
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed

MIX & LOAD (REGS)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
CHAITEN	SECTION	CLAUSE	JOB-CLAUSE	TOTIC	Details & conclusion
51	1	С	n/a	Posters	Verify details
51	IV	С	1/2		Interview, demonstration, documents, records, observations, comments  verified  not reviewed
51	IV	В	2	Indiv. Notice	Verify notification w/in 500'
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	D	n/a	Humans & Animals	Application minimizes exposure to humans, animals, livestock  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	E	n/a	Other Factors	Special precautions to avoid adverse impacts
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	Α	n/a	Postive ID	Geo-referenced, electronic mapping (e.g. GPS)
					Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	А	n/a	Postive ID	Effective, visible site marking
					Interview, demonstration, documents, records, observations, comments

	ı	1		_	
					verified verified
					not reviewed
22	3	Α	n/a	Postive ID	Other approved method
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
22	4	A/B	n/a	Off-target	Evidence of Off-Target Direct Discharge of Pesticides
	·	,,,,	117 0	Application	Established of the factor bisting of the still dest
				Application	Interview, demonstration, documents, records, observations, comments
					verified verified
					not reviewed
					not reviewed
22	4	С	1 - 111	Off-target	Consent recorded for off-target discharge or drift
22	7		, ,,,,	Application	consent recorded for on target discharge of anti-
				Application	Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
22	5	A/B	n/a	Variances	Verify application, receipt , & record
22		7,5	Πζα	Variances	verify application, receipt, & record
					Interview, demonstration, documents, records, observations, comments
					verified
					not reviewed
22	6	A/B	n/a	Emergencies	Verify declaration
		7,0	11/α	Lineigencies	verify decidiation
					Interview, demonstration, documents, records, observations, comments
					verified verified
					not reviewed

**SENSITIVE AREAS (REG)** 

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
					Details & conclusion
22	2	С	I	SA Identification	Applicator familiar with spray area  Interview, demonstration, documents, records, observations, comments verified not reviewed
22	2	С	I	SA Identification	ID & record, type & location of SA w/in 500'  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	2	С	I	SA Identification	Site map with target area & adjacent SA (updated manually)  Interview, demonstration, documents, records, observations, comments  verified  not reviewed

SALOS (REG)

CHAPTER	SECTION	CLAUSE	SUB-CLAUSE	TOPIC	Verification Criteria
					Details & conclusion
22	3	В	I	Site Plan Map	Confirmation re: record review  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	С	I-VIII	SALO Checklist	Confirm checklist use on-site  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	D	n/a	SALO Buffers	Confirm on-site  Interview, demonstration, documents, records, observations, comments  verified  not reviewed
22	3	E	n/a	SALO Wind	Verify wind speed 2-10 mph  Interview, demonstration, documents, records, observations, comments  verified  not reviewed