2019 MLIRD Aquatic Treatment Plan Proposal

Lakeland Restoration Services LLC
78 E River Spur
Priest River, ID 83856
(208) 597-6601
lakeland@lakelandrs.com

MLIRD

Early Spring - Mid Fall 2019

OVERVIEW

Following is a proposal to treat invasive aquatic plants (Eurasian watermilfoil & Curly leaf pondweed) nuisance plants that interfere with recreation and use of the waterway and algae in Moses Lake, Washington. Moses Lake has a surface area of 6,800 acres with a maximum depth of 38 feet and a mean depth of 18.6 feet. Total volume for Moses Lake is 126,000 acre-feet. Moses Lake has approximately 120 miles of shoreline with a water surface elevation of 1,047 feet. Parker Horn has a mean depth of 12.6 feet with an area of 758 acres. Pelican Horn is a little deeper than Parker Horn with a mean depth of 15.6 feet and 1,600 acres.

Qualifications

Lakeland Restoration Services, LLC (LRS) is North Idaho based member managed Limited Liability Company. Dave Kluttz, Managing Member, holds a B.S. in Agronomy from California State University and was previously in business for nearly 30 years in California as Providence Horticulture, Inc.

When opportunities arose in aquatic and terrestrial weed management after he relocated to North Idaho, Dave decided to put his vast experience to use to aid in maintaining the health of natural ecosystem in the area that he lives.

LRS's customer base has increased each year from 2009 to 2018. In 2018, LRS serviced 23 major customers within Idaho, Washington and Montana. The company's primary workload is aquatic and riparian vegetation management, comprising of 75% and 25% of the annual income, respectively. Our teams work closely with Lake and Water Quality managers to provide services for writing treatment plans and recommendations, applying aquatic and terrestrial herbicides, performing comprehensive surveys, and creating electronic documentation of both our application and survey process using GPS and GIS technology for the purposes of both tracking and analysis. We have a powerful team of personnel, equipment and technologies that will allow us to complete difficult tasks in a timely manner.

Our mission is to build a business based on quality and trust.

Our goals and objectives are:

- To be committed to early detection, rapid response, containment, and management of aquatic invasive species.
- To provide services to our customers that are accurate and effective.
- To provide and encourage long term, lasting relationships that will accomplish the best results possible.
- To keep the environment and ecological health in the forefront of our process.
- To communicate with our clients and the public, answering any questions or concerns by providing the best information and treatment plans moving forward.

NO legal penalties have been imposed on the company due to any issue.

LRS does not contain any special ownership status designations.

Between 2009 and 2018, Lakeland Restoration Services has worked with various agencies in Washington to control invasive weeds:

- Alta Lake -Eurasian watermilfoil, cattails, bulrush, phragmites, nuisance aquatic plants
- Amber Lake - Eurasian watermilfoil, cattails
- Conconully and Salmon Lakes - Eurasian watermilfoil, various pondweeds
- Curlew Lake - Chara, curly leaf pondweed, northern milfoil, algae, elodea
- Davis Lake - Eurasian watermilfoil
- Diamond Lake - Eurasian watermilfoil
- Eloika Lake - Eurasian watermilfoil, yellow flag iris
- Grant County - Phragmites, yellow flag iris, purple loosestrife, tree of heaven, salt cedar
- Lake Arthur (Gonzaga University) - various aquatic nuisance plants
- Lake Osoyoos - Eurasian watermilfoil, pondweeds
- Leader Lake - Eurasian watermilfoil, curly leaf pondweed, nuisance aquatic plants
- Liberty Lake - Eurasian watermilfoil, phragmites

- Long Lake / Lake Spokane (Avista & Homeowners) - Eurasian watermilfoil, curly leaf pondweed
- Loon Lake - Eurasian watermilfoil, yellow flag iris
- Newman Lake - Eurasian watermilfoil
- Nine Mile Reservoir (Avista) - Eurasian watermilfoil
- Moses Lake - phragmites, yellow flag iris, purple loosestrife, tree of heaven, salt cedar, Eurasian watermilfoil, curly leaf pondweed, nuisance pondweeds. algae
- Palmer Lake - Eurasian watermilfoil, curly leaf pondweed, nuisance aquatic plants
- Patterson Lake - Eurasian watermilfoil, curly leaf pondweed, nuisance aquatic plants
- Pend Oreille River - Eurasian watermilfoil, Flowering Rush, nuisance aquatic plants
- Port of Kennewick - Eurasian watermilfoil, curly leaf pondweed, nuisance pondweeds
- City of Richland Washington - Eurasian watermilfoil, curly leaf pondweed, nuisance pondweeds
- Roses Lake - Eurasian watermilfoil, bulrush
- Silver Lake - Eurasian watermilfoil, curly leaf pondweed
- Spectacle Lake - Eurasian watermilfoil, curly leaf pondweed, nuisance pondweeds
- Thama Slough - Eurasian watermilfoil, curly leaf pondweed, aquatic nuisance plants, algae
- Tiger Inlet - Eurasian watermilfoil
- Tiger Slough - Eurasian watermilfoil
- Willow Springs Duck Club - phragmites, yellow flag iris, purple loosestrife, tree of heaven, salt cedar, Eurasian watermilfoil, curly leaf pondweed, nuisance pondweeds

Between 1996 - 2018, Lakeland Restoration Services has worked with various agencies in Idaho to control invasive weeds:

- Adams County – leafy spurge
- Avista James Property - Riparian rehabilitation project
- Avista Little Spokane - Riparian rehabilitation project
- Black Lake – Eurasian watermilfoil
- Cave Lake – Eurasian watermilfoil
- Fry Creek – various aquatic nuisance plants
- Harrison Slough – Eurasian watermilfoil
- Hayden Lake – Eurasian watermilfoil
- Lake Coeur d'Alene – Eurasian watermilfoil
- McLean's Bay (Hayden Lake) – Eurasian watermilfoil, spatterdock
- Medicine Lake – Eurasian watermilfoil
- Pend Oreille Lake – Eurasian watermilfoil
- Pend Oreille River – Eurasian watermilfoil
- Pend Oreille River (Lakeview Sandpoint) – Eurasian watermilfoil, curly leaf pondweed, aquatic nuisance plants, algae
- Pend Oreille River (Swan Shores) - Eurasian watermilfoil, curly leaf pondweed, aquatic nuisance plants, algae
- Radiant Lake – aquatic nuisance plants, algae
- Thompson Lake – Eurasian watermilfoil
- Twin Lakes – water shield

STAFF QUALIFICATIONS

The following is a list of key personnel, their role in this project, experience and pertinent information. We will be happy to provide additional information or resumes upon request.

David L. Kluttz, Managing Member/Applicator

Dave will oversee each phase of the project to ensure accuracy/efficacy, safety, and efficiency, as well as pilot one (1) of the application boats. He has 23 years of experience in aquatic weed control, including both application and survey work in lakes, rivers and delta systems. In addition, he has 21 years of experience in crop production, consultation and diagnosis/treatment of landscape pest problems, including noxious weed eradication and environmental restoration. Dave is actively involved in the industry. He regularly attends regional conferences as both an attendee and a presenter for the purposes of continuing education. He is continually looking for innovative ways to improve the service level of the company and impact the industry in the areas of effective control and cost savings.

- B.S. Agronomy, California State University, Fresno, CA - 1977
- 40 years - California PCO No. 96530 (A,B,C,D,E,F,G,J) and PCA No. 74299 (A,C,E,G)
- 18 years - Idaho Professional Applicator, License No. 41977 (AH, AW, GP, LP, LS, OH, OI, PH, SP, SW)
- 11 years - Washington Professional Applicator, License No. 66448 (D, E, H, L, Q, R, AW, OC, OW)
- 9 years - Montana Pesticide Applicator, License No. 102461-12 (12, 30, 31, 34, 36, 37, 38, 40)
- Certified Diver
- 4 years - Oregon Pesticide Applicator, License No. L1031367CPO

Jim Pogue, Applicator

Jim was a Merchant Marine Engineer from 1979 to 2013. He has worked with LRS from 2013 to present. Jim calibrates and services our equipment. He operates BioBase and helps to coordinate spray crews.

- Washington Professional Applicator, License No. 82871
- Idaho Professional Applicator, License No. 49627 (AP)
- 2014-2018 Lakeland Restoration Services, Fleet maintenance, Aquatic Spray Applicator, land and water surveys, boat operator, Safety plan overseer

- U.S.C.G. Chief Engineer, Limited Oceans, License #1109921 Exp date Jan 14, 2020
- Marine Fire Fighting Life Boatsman-Tankship- dangerous liquids
- SCTW First Aid & CPR 12 hour personal survival
- 2001 - 2014 Chief Engineer M/V/ San Niunau, (ex Stella Maris) NZ Flag 1400 ton purse seiner

Cathy Allen, Mixer/Loader

Cathy performs duties as a mixer/loader. She has 12 years of experience working with Lakeland on both aquatic and riparian projects. Additionally, Cathy has 12 years of experience as a mixer/loader, 31 years OTR truck driver/owner, Priest Lake Search and Rescue Volunteer including Introduction to Ropes and Swift Water Rescue. She is a Certified HealthCare Provider with CPR and First Aid. Additionally, she is a certified EMT with both the Volunteer Priest Lake Ambulance and West Pend Oreille Fire Dept.

Kendall Corn, Office Manager, GIS/GPS

Kendall manages the Lakeland office and is responsible for aspects of the project relating to technology (GIS and GPS) and the effective implementation of data collection and storage protocols and procedures into these systems.

- B.A. Geography, Eastern Washington University, WA - 2017
- GIS Certificate, Eastern Washington University, WA - 2017
- Certified Rescue SCUBA Diver

Lori Barrick/Bookkeeper

Lori is responsible for accounts receivable, accounts payable, tax reporting , compliance, licensing, and insurance. She has 39 years of experience in accounting, government contracting, customer service, effective implementation of protocols, procedures, and policies; and inventory tracking. Lori is also responsible for aspects of the project relating to contractual procedures and reporting requirements.

EQUIPMENT

Lakeland Restorations Services uses airboats to survey and apply herbicides.

Airboats (equipped with a GPS and a bottom finder unit) are used to apply herbicide to the application site. Each airboat is manned by a three (3) person crew. One (1) crew member navigates the airboat, GPS units, and applies the product. The remaining two (2) crew members handle the herbicides and add the product to the concentrate tank or granular spreader.

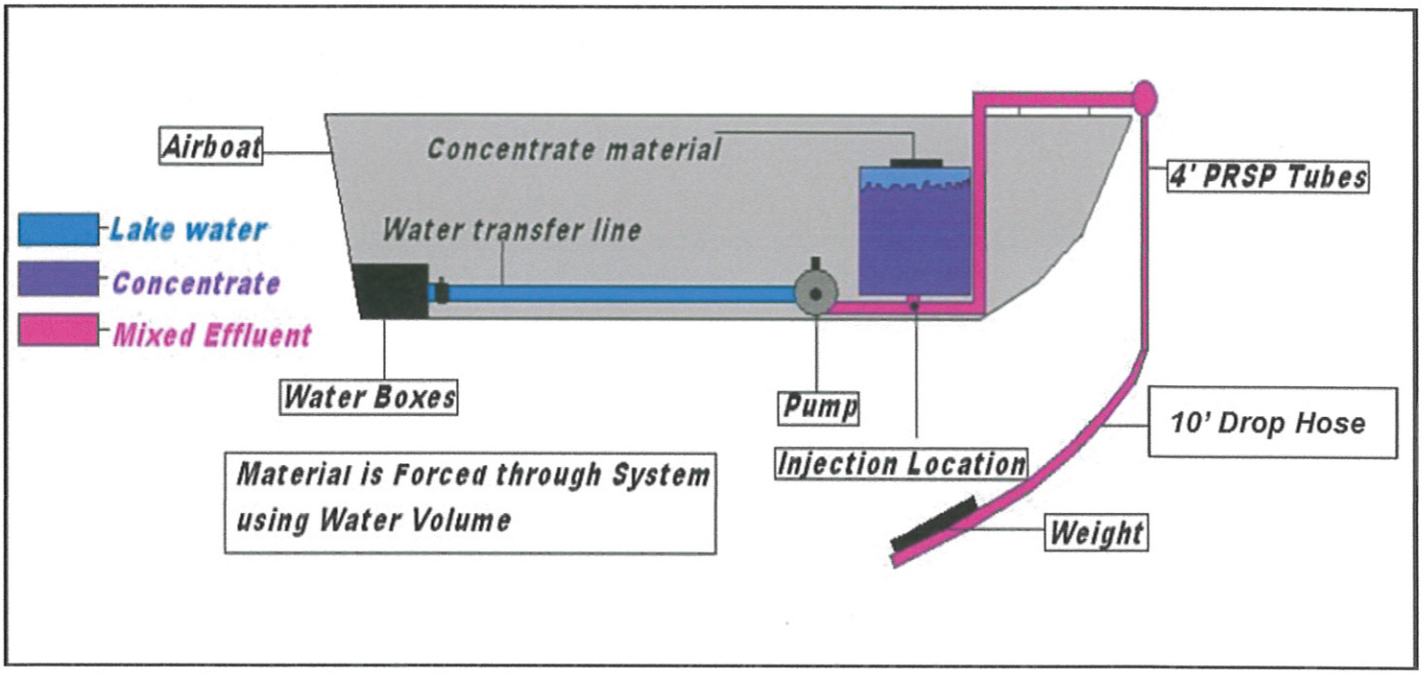
Liquid formulations are applied using a manifold boom style sub-surface injection system that is attached to each airboat. The collection side of the system gathers lake water from built in water boxes at the rear of the boat using a high volume, close tolerance pump powered by a 5hp Honda motor.

The pump generates pressure through a manifold system causing a Venturi effect, which pulls the concentrate from the tank, thereby mixing it with the lake water to be injected directly into the water column through the manifold boom.

The boom is 8' wide and has a single 3" hose with weights that can be adjusted to deliver products at any depth. The weights are mounted in a vertical fashion so they will not collect plant debris. Injecting the herbicide directly into the plant bed exposes the plants to a higher concentration of herbicide and protects the herbicide from breaking down too rapidly due to ultraviolet light or water temperature. Thus, increasing the herbicides' half-life.

The concentrated herbicide is monitored with a liquid volume meter that is attached to the manifold system. The applicator controls the flow of herbicide with a hand-operated valve in order to achieve the desired concentration. Herbicide is continually poured from each container into a twenty-five (25) gallon tank ensuring a consistent and accurate application. Each container is triple-rinsed in the treatment area during the treatment.

Boats are pressure washed, drained and dried to ensure aquatic invasive species are not present after use. Airboats have flat hulls with a self-contained motor that does not use lake water to cool or propel itself. The hull is open allowing for simple inspection, which makes it easier to ensure there are not any aquatic invasive species present.



Side view diagram of airboat liquid injection system.

The following equipment will be used for this project:

- Four crew members, including two licensed applicators.
- 18-foot Airboat with 364 ci 550-hp motor capable of carrying a 2,500-lb payload.
- 16-foot Airboat with 364 ci 500-hp motor capable of carrying 2,000-lb payload.
- 16-foot Airboat with 454 Chevy 425-hp motor capable of carrying 2,000-lb payload.
- 20-foot Hewescraft with 130-hp Honda motor, capable of carrying 1,800 payload which will be used as a nurse boat.
- Liquid injection system with 25-gallon tank and 5-foot subsurface injection nozzles.
- Garmin GPS equipment used to plot and track treatments.
- ArcGIS Collector App used to create and edit infestation maps instantly and share maps with live editing.
- ArcGIS Online and ArcView 10.X to provide maps of treatment areas, analyze results and supply shapefiles.
- Biobase software is used to collect vegetation density, depth and soil hardness. This program allows LRS to accurately prescribe herbicides in water bodies with various depths.
- GEHL Skid steer and Bobcat Skid Steer for moving pallets of herbicide product.
- Two 18-foot tractor trailers for moving product.
- 2012 Ford F-350 truck, used to haul equipment and personnel.
- 2013 Ford F-150 truck, used to haul equipment and personnel.

ENVIRONMENTAL PROTECTION MEASURES/SAFETY EQUIPMENT

In order to minimize spills, herbicide will be manually loaded directly into a nurse boat from its on-shore storage location. The nurse boat will deliver the product directly to the application boat, which will remain in the treatment areas throughout the day. Herbicide is inventoried each time it is loaded onto the application boat to ensure the correct amount of herbicide is applied to each area.

Personal Protection Equipment is provided to workers, as per the herbicide label information. A spill kit and absorption materials are available near the loading site as well as with the boats to be used in the unlikely event of a spill.

CHEMICAL AND DO MONITORING

Herbicide Residue Testing

When required by the NPDES permit, or at the request of the MLIRD appointed project manager, water will be collected and tested for herbicide residues. This activity will be planned based on the distribution of treatment areas around the water body.

Water samples will be collected using a Kemmerer bottle sampler at a depth of 2 meters in all sites.

LRS will set up sample sites:

- One inside the treatment area.
- One 500 feet outside of the treatment area.

For testing analysis, all samples collected will be delivered the day of collection to an independent laboratory facility, Anatek Labs in Moscow, ID (www.anateklabs.com)

Dissolved Oxygen Monitoring

Dissolved Oxygen (DO) is necessary for life in a water body. Dissolved oxygen is the concentration of oxygen dissolved in water, expressed in milligrams per liter (mg/l). Dissolved oxygen gets into water by diffusion from the atmosphere. Dissolved oxygen levels range from 0 mg/l to a maximum of 18 mg/l.

When large numbers of herbicides treated aquatic plants die, they support increasing amounts of bacteria which use large amounts of DO. Monitoring DO will be done at a depth of 2 meters, pre-, during and post-treatment at specific treatment sites. A maximum DO level will be recorded at the beginning of the herbicide application process.

SAFETY PLAN

Before any commencement of all projects, Lakeland Restoration Services develops a comprehensive safety plan and treatment plan. The plans will list treatment areas, herbicides rates and methodology for the treatment. These plans are shared with our customers and changes are made with the council of contractor representative.

GPS MONITORING AND BIOBASE SONAR DATA

Treatments are monitored with the use of Global Positioning System (GPS) technology. Treatment areas are obtained in digital format. Treatment routes are pre-mapped within the treatment areas and into six (6) GPS devices (2 for each application vessel). By using two (2) GPS devices, the applicator is able to monitor their progress within the treatment area from multiple perspectives. Additionally, using two (2) devices ensures no loss of data.

GPS tracks are uploaded to an ArcGIS program at the end of each treatment day for review. Tracks are analyzed for thoroughness of the treatment and used to calculate the actual area treated to ensure that the desired application is achieved.

Lakeland uses BioBase, a powerful cloud-based software program, which processes and creates reports and layered maps from sonar data. Polygons are drawn to select specific areas of the map to analyze and automatically calculate Percent Area Covered (PAC), average biovolume, surface acreage, average and max depths, and water volumes. This is a great way to assess habitats for lake managers and for the National Pollutant Discharge Elimination System (NPDES) reporting and permitting.

REPORTING

Our teams work closely with Lake and Water Quality managers to provide services for writing treatment plans and recommendations, applying aquatic and terrestrial herbicides, performing comprehensive surveys, and creating electronic documentation of both our application and survey processes using GPS and GIS technology for the purposes of both tracking and analysis. LRS works closely with the Washington State Department of Ecology (WSDOE) to file pre-authorizations and completion reports for projects.

GPS tracks will be downloaded at the end of each day from our GPS units and will be uploaded onto ArcGIS. Tracks will be analyzed for thoroughness of treatment application, which can then be reviewed by the MLIRD appointed project manager.

A WSDA approved Herbicide Application Log will be completed to include the following:

- Date
- Owner, Application Location, Crop
- Approximate size of area treated
- Start and end times of the treatment

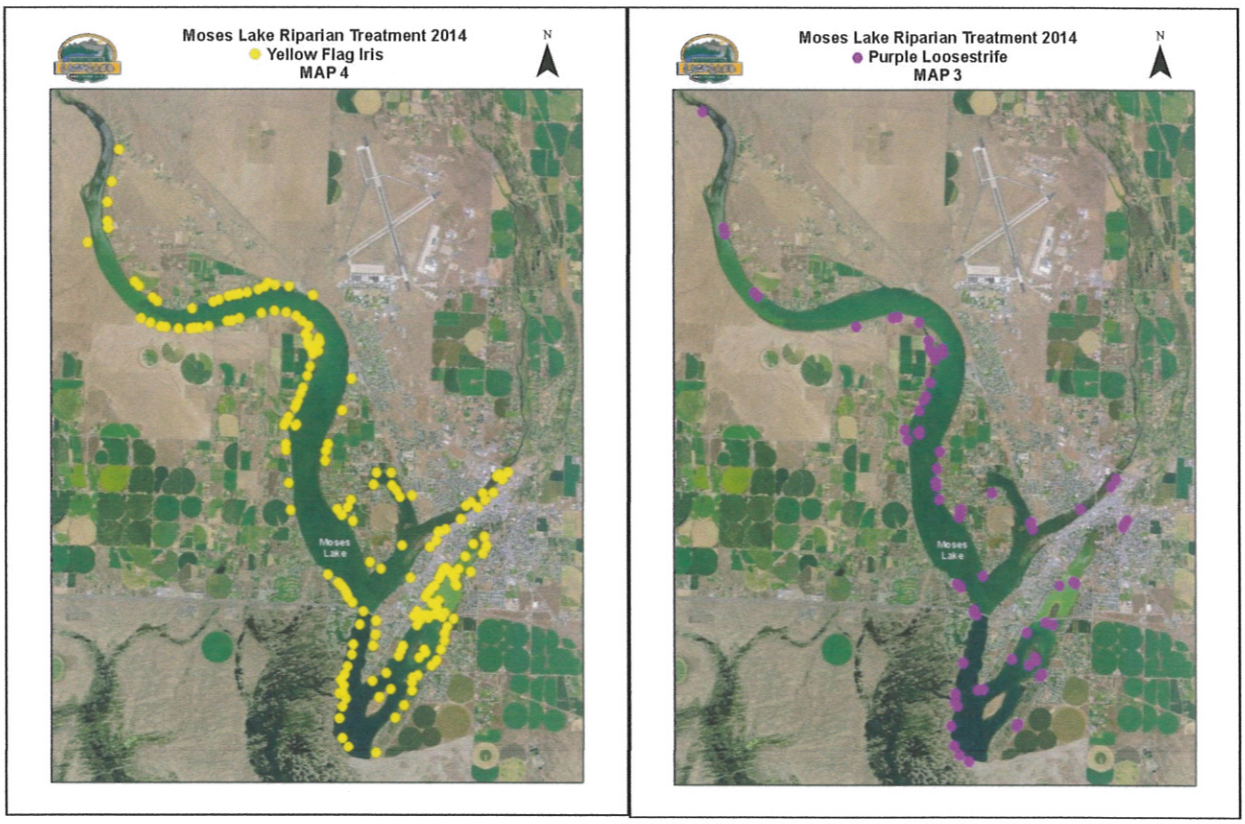
- Staff Names and License Numbers
- Weather conditions (Temperature, wind etc.)
- Pesticide Information

A detailed final report (20 paper copies) will be submitted to MLIRD appointed manager within 45 days of the completion of treatment. The final report will include a summary of each of the following aspects of the project:

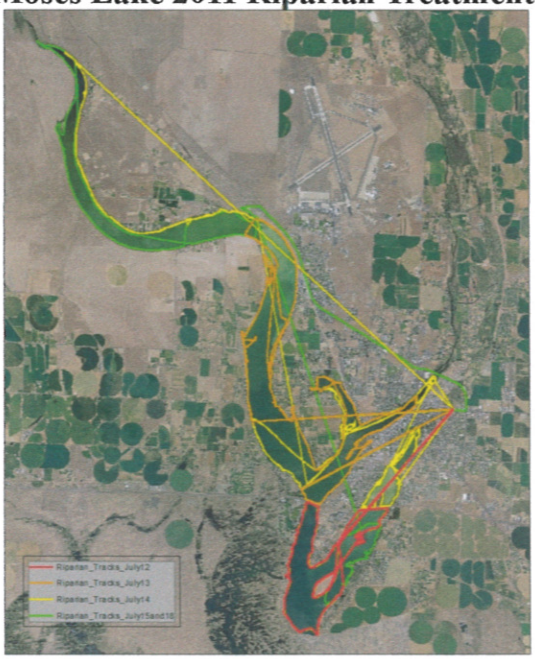
- Equipment used
- Posting/Notifications delivered
- Recommended Treatment Plan for undesirable species (Including methodology used and acreage/ product totals)
- Logs, Maps, and Tracking procedures
- Product Delivery & Storage
- Environmental Protection Measures/Safety Equipment

The final report will also include the following:

- Copies of Herbicide Application Logs
- GPS Track logs showing treatment vessel paths and areas treated in both electronic (Native ArcGIS Shapefiles) and hard copy maps



Moses Lake 2011 Riparian Treatment

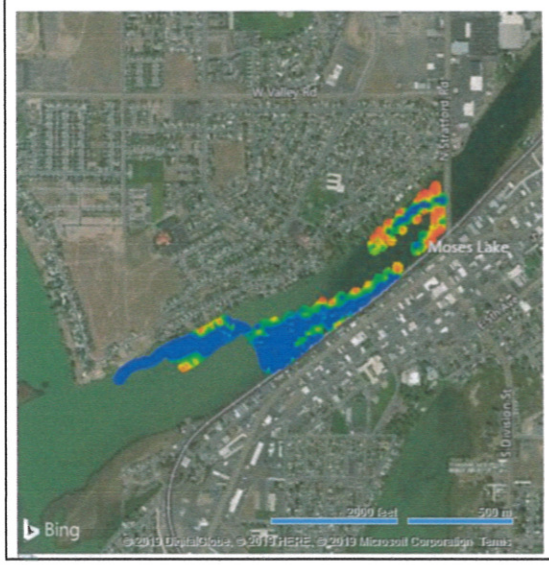


Treatment Tracks

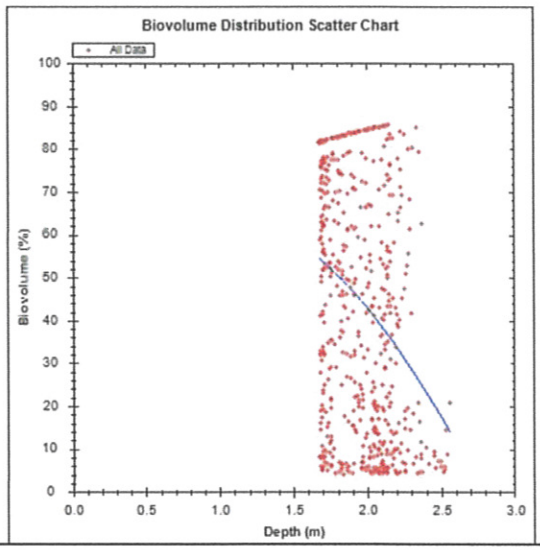
0 1 2 3 4 Miles

N

Vegetation Biovolume Heat Map



Biovolume Distribution Scatter Chart



GOALS

1. Conduct a complete survey of Moses Lake to determine areas of submerged plant growth within the Moses Lake Watershed. This survey will inventory the variety of plant types, their population density, their identity and their location via Garmin handheld GPS (Global Positioning System) map readings and ArcGIS Collector App to generate infestation maps while on the lake. Lakeland will provide an ArcGIS Online link to MLIRD for a transparent overview of tasks completed daily. This same survey will conduct a bathymetry map of water depths using Biobase. Biobase is a mapping software that uses sonar to accurately locate depths, soil and vegetation density. Biobase will allow Lakeland to accurately prescribe an herbicide treatment so that Lakeland is in accordance with WSDOE while still performing an effective treatment to vegetation.

2. Perform point intercept rake toss surveys throughout the littoral zone of Moses Lake to determine plant species in each location using a Garmin GPS handheld, ArcGIS Collector App and an airboat. The crew will establish elevations, aquatic vegetation, water temperature, dissolved oxygen levels and lake bottom makeup. The rake toss survey will be combined with dive survey data in conjunction with historical data to create an accurate map of CLPW & EWM infestations. The use of an airboat will allow the survey to easily traverse shallow areas in addition to providing a good platform for identification. This information will be recorded on ArcGIS Online and can be viewable for MLIRD immediately after infestations have been mapped.

3. Prescribe a path forward to manage Moses Lake in 2019. A use of selective herbicides and algaecides (if needed) that will control invasive aquatic plants and algae to maintain native plants where they do not interfere with lake aesthetics, boating, fishing and recreation.

4. Provide public meetings to address questions and concerns the residents of Moses Lake may have concerning lake management and provide a presentation to answer questions and concerns of the community. Lakeland will work with MLIRD in concert.

5. Properly post and notice Moses Lake prior to the commencement of any lake management activities. Insuring compliance with permit requirements. Continue to maintain a call system (Freedom Voice) where residents may call Lakeland Restoration Services and have questions answered throughout this annual process - Inquiries will be responded to within 24 hours.

6. Continue to monitor and control aquatic invasive plants (Curly Leaf Pondweed and Eurasian Water Milmoil) as part of maintaining Moses Lake. Moses Lake will be surveyed after treatment if requested to accurately record results for comparison.

7. Continue to monitor and control shoreline invasive plants (Yellow Flag Iris, Reed Canary Grass, and Phragmites Austrailis) as part of maintaining Moses Lake. Moses Lake will be surveyed during treatment and accurate records will be maintained for future comparison.

8. After Moses Lake is mapped and the treatment plan is created, schedule limited harvesting to assist in maintaining Moses Lake to provide a healthy and usable water body. This approach will reduce harvester activity and provide a cost savings to the district by reducing operating costs, fuel, labor and maintenance. This approach will also reduce sediment disturbance reducing the amount of nutrients in the water column.

9. Formulate plan to reduce carp populations through programs such as electrofishing or host carp tournaments whereby prizes are awarded to teams that harvest the most "tonnage" requiring the fisherman to keep and weigh fish. Fish will be collected and processed. This will help with long term sediment disturbance and provide a better game fishery.

TIMELINE

Task	Projected Completion Date
Littoral Zone Survey -Identify locations of aquatic and riparian invasive plants. -Gather Bathymetric readings of lake bottom and vegetation density. -Map aquatic plant infestations. Create Treatment Plan -Calculate the amount of herbicides recommended. -Order herbicides.	**10 Days** **Early May** **Progress Payment from MLIRD after completion of Littoral Zone Survey and Treatment Plan Creation.**
Notify Ecology -Send letters to affected property owners within .25 miles of treatment area.	**2 Days** **Mid May**
Post Docks + Place Sign Boards -Public access points within .25 miles will be posted no sooner than 48 hours before treatment.	**1 Day** **Late May / Early June**
Perform Treatment -Perform Treatment. -Conduct water residue tests where necessary.	**3 Days** **Early June** **Progress Payment from MLIRD after completion of Treatment**
Post-Treatment Survey -Conduct post-treatment survey to evaluate control. -Create updated Biobase map -Create updated infestation map	2 Week After Treatment **3 Days** **Mid June** **Progress Payment from MLIRD after completion of Post-Treatment Survey**
Create 2nd Treatment Plan -Calculate the amount of herbicides recommended. -Order herbicides	**1 Day** **Late July**
Notify Ecology -Send letters to affected property owners within .25 miles of treatment area.	**2 Days** **Late July/ Early August**

<u>Post Docks + Place Sign Boards</u> -Public access points within .25 miles will be posted no sooner than 48 hours before treatment.	**1 Day** **Mid August**
<u>Perform Treatment</u> -Perform Treatment. -Conduct water residue tests where necessary.	**3 Days** **Mid August** **Progress Payment from MLIRD after completion of Treatment**
<u>Post-Treatment Survey and Final Report</u> -Conduct post-treatment survey to evaluate control. -Create updated Biobase map -Create updated infestation map	**10 Days** **Early September**
-Submit Final Report to MLRD	**10 Days** **Late September** **Final invoice upon completion of project and submission of final report.**

Invasive Weed Maintenance

To locate and identify all invasive plants in and around Moses Lake. Map infestations using ArcGIS and Biobase. Create a treatment plan to manage and reduce all invasive species present on Moses Lake. Coordinate with MLIRD staff, residents and other stakeholders to educate and answer inquiries.

Upon approval of treatment plan

Coordinate and execute application as directed by MLIRD staff and abide by all permit requirements of permit held by the district.

Fees For Services

Included with pricing accommodates a staff of 4 techs that will require 10 days to complete surveys and provide a treatment plan. Fees include mobilization, meals, lodging and per diem. Treatment plan will be presented with labels, S.D.S. sheets and supporting documents before departure.

Total cost of this project is predicated on acres treated and herbicides/algaecides chosen in the specified treatment plan. Product rates will vary with desired results and goals. Herbicide/ algaecide rates will vary with average depth of treatment areas chosen by the MLIRD staff and LRS staff. Costs of the treatment will be determined with development of treatment plan and approved by MLIRD staff.

I. Rake toss survey following WSDOE aquatic survey sampling protocol identifying Eurasian watermilfoil (EWM) and curly leaf pondweed infestations along with other invasive and profusely nuisance plants. - 10 Days.120 Miles of Shoreline, Including GIS and mapping. (2 Surveys)

4,000 Acres @ $7.50/acre = **$30,000.00**

II. Biobase survey to record bathymetry, plant diversity and soil composition in littoral zone, including mapping and development of data. (2 Surveys)

4,000 acres @ $3.75/acre = **$15,000.00**

III. Create treatment plan listing treatment areas (from GIS files) and average depth (Biobase bathymetry). Treatment plan will be reviewed by Chris Overland MLIRD manager and approved. (2 Surveys)

Professional Detailed Treatment Plan = **$2,500.00**

IV. Notifying residents within .25 miles of treatment area by mail for upcoming treatment using WSDOE protocol.

$5.00/ Letter

Post docks and shoreline within .25 miles of treatment area no sooner than 48 hours prior to treatment

$3.50/ Posting

Estimated Total Cost for Posting and Notifying = $4,750

V. Perform Treatment for estimated 300 acres

Application of herbicides/algaecides = **$190.00/Acre (For All Products)**

Estimated Total Cost for Treatment = $67,500.00

VI. **6 Water Quality Tests**

Estimated Cost for 6 Water Quality Tests = $3,000.00

VII. **Materials**

Tryclopyr 3: $75/ga

Weedar 64 (2,4-D): $19.53/ga

Aquathol K: $92.68/ga

Diquat Dibromide: $65/ga

Hydrothol 191: $95.85/ga

Clipper (Flumioxazin): $79/lb

Green Clean 5 Liquid: $30.73/ga

Competitor: $43.00/ga

Spray Dye: $51.60/ga

Total Cost for Herbicides/algaecides to be determined with development of treatment plan.

VIII. **Riparian and Shoreline Invasive Plant Control (OPTIONAL)**

120 mile shoreline of Moses Lake will be performed using

Glyphosate - $45.20 /ga

Imazapyr 4 SL - $126.38 /ga

Tryclopyr 3 - $75.00/ga

Fee for treatment around shoreline is $425.00 / hour with a crew of 3. This treatment is predicated on the results of the survey and guidance from MLIRD manager Chris Overland.

IX. **Consulting and Public Presentations (OPTIONAL)**

Consulting, powerpoint creation and presentations will be billed at $65.00 per person per hour. Estimate of tasks requested will be presented to Mr. Overland prior to commencement of any services.

X. Annual Services Rendered will not exceed $190,000 including sales tax.

Overall costs are estimates	$ 175,763.18
(8.1% WA Sales Tax)	$ 14,236.82
TOTAL	***$ 190,000.00***

Lakeland Restoration Services looks forward to continuing our relationship with MLIRD and the Moses Lake community. Moses Lake is the centerpiece of the community. Providing a healthy lake promotes real estate value, commerce and recreational activity providing renewed residential, business and industrial interest insuring a vibrant community.

REFERENCES:

GONZAGA UNIVERSITY LAKE ARTHUR

- 2016: NPDES Permit Acquisition, Eurasian watermilfoil control 4 acre pond, Installation aeration system
- 2017: Aeration system maintenance, Eurasian watermilfoil control 4 acre pond
- 2018: Aeration system maintenance, Eurasian watermilfoil control 4 acre pond

Contact: Timothy Hatcher
Phone: 509-313-5680
Email: hatchert@gonzaga.edu

OKANOGAN COUNTY NOXIOUS WEED BOARD:

- 2013: September- Survey and map Spectacle Lake
- 2014: June – treated 33 acres of Eurasian watermilfoil (EWM) and pondweeds on Spectacle Lake
  August – surveyed Pateros Pool, Okanogan River and Columbia River
- 2016: May- treated 36 acres for EWM and pondweeds on Spectacle Lake and treated 25 acres EWM and pondweeds on Lake Osoyoos.
- July- Treated 11 EWM and pondweeds on Lake Conconully and 15 acres for EWM and pondweeds on Salmon Lake, Lake Osoyoos treated 7 acres for EWM and aquatic nuisance plants
- 2017: October-treated 30 acres for EWM, curly leaf pondweed and aquatic nuisance plants on Spectacle Lake, Patterson Lake 28.7 acres for curly leaf pondweed and aquatic nuisance plants, Palmer Lake 25 acres for curly leaf pondweed and aquatic nuisance plants, Leader Lake 8 acres for curly leaf pondweed and aquatic nuisance plants
- 2018: July-treated 27 acres on Lake Osoyoos for EWM and aquatic nuisance plants

Contact: Anna Lyon
Phone: 509-422-7165
Email: alyon@co.okanogan.wa.us

FLATHEAD LAKE, MONTANA:

- 2018: Flowering Rush Control on Flathead Lake

Contact: Virgil Dupuis
Phone: 406-275-4899
Email: virgil_Dupuis@skc.edu

Contact: Peter Rice
Phone: 406-243-5122
Email: peter.rice@mso.umt.edu

AVISTA

- 2011: September- Conducted a survey in the Spokane River to quantify the distribution and frequency of all aquatic vegetation on a lake-wide scale, identify new populations of invasive aquatic and emergent plants and identify new populations of other invasive aquatic species. GPS mapping was performed and maps were provided to David Armes.
- 2012: August- treated 15 acres of EWM in Black Lake using triclopyr and diquat
  October - treated 10 acres near St. Joe for terrestrial vegetation control

- 2013: May- treated 17 acres riparian invasive vegetation control using glyphosate and Imazapyr
  August- performed a comprehensive survey of the Chain Lakes including EWM and phragmites
- 2014: August- treated 42 acres for Eurasian watermilfoil on Thompson Lake in Idaho, completed a terrestrial treatment in Sacheen Springs for noxious weeds, and a riparian treatment on Little Spokane River (Little Spokane Mitigation Plan)
- 2015: July- completed a riparian treatment on both Little Spokane River and Sacheen Springs; treated 38 acres of Lake Spokane for EWM as well as treated an additional 30 acres for homeowners on Lake Spokane
  August- treated 44 acres of Windy Bay on Lake Coeur D' Alene
  September- conducted noxious weed control for Lake Spokane Recreations sites targeting yellow flag iris and poison ivy
- 2016: July- treated Little Spokane River for noxious weeds; treated approximately 70 acres on Lake Spokane for Avista and homeowners
- 2017: July-treated 54 acres EWM and aquatic nuisance plants on Lake Spokane for Avista and homeowners
  August-treated 18 acres of EWM in the Nine Mile Reservoir
- 2018: July treated 70 acres of EWM and nuisance aquatic plants in Lake Spokane for Avista and homeowners

Contact: Avista: Meghan Lunney
Phone: 509-
Email: meghan.lunney@avistacorp.com

TIGER INLET

- 2016: July- treated 22.2 acres for EWM
- 2017: July-treated 22 acres for EWM and nuisance aquatic plants
- 2018: July –treated 16.5 acres for EWM

Contact: Tom Colosimo
Phone**: 509-290-0880**
Email: tomcolosimo@comcast.net

DIAMOND LAKE

- 2012: July- yellow flag iris treatment on 4.5 acres
  August- survey of yellow flag iris
- 2013: September- treated 25 acres of yellow flag iris, fragrant water lily, reed canary grass and Eurasian watermilfoil
- 2015: September - treated 28 acres for fragrant water lily and Eurasian watermilfoil
- 2016: September – treated 8.9 acres of EWM and 5 acres of yellow flag iris and fragrant water lily
- 2017: September – treated 3 acres of EWM and 15 acres of yellow flag iris and fragrant water lily

Contact: Jeff Taylor
Phone: (509) 879-3910
Email: jeff@airjunky.com

Additional references available upon request

ACORD®

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)
03/22/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME:	
RIVERBEND INSURANCE CORPORATION 405 W WALNUT, SUITE #1 NEWPORT WA 99156	PHONE (A/C, No, Ext):	FAX (A/C, No):
	E-MAIL ADDRESS:	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : ADMIRAL INSURANCE COMPANY	
INSURED LAKELAND RESTORATION SERVICES LLC 78 EAST RIVER SPUR RD PRIEST RIVER ID 83856	INSURER B :	
	INSURER C :	
	INSURER D :	
	INSURER E :	
	INSURER F :	

COVERAGES **CERTIFICATE NUMBER:** **REVISION NUMBER:**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	[X] COMMERCIAL GENERAL LIABILITY [ ] CLAIMS-MADE [X] OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: [X] POLICY [ ] PRO-JECT [ ] LOC [ ] OTHER:	X		FEIECC1427206	04/01/2019	04/01/2020	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 3,000,000 $ 50,000 $ 5,000 $ 3,000,000 $ 3,000,000 $ 3,000,000
	AUTOMOBILE LIABILITY [ ] ANY AUTO [ ] OWNED AUTOS ONLY [ ] SCHEDULED AUTOS [ ] HIRED AUTOS ONLY [ ] NON-OWNED AUTOS ONLY						COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ $ $ $
	[ ] UMBRELLA LIAB [ ] OCCUR [ ] EXCESS LIAB [ ] CLAIMS-MADE [ ] DED [ ] RETENTION $						EACH OCCURRENCE AGGREGATE	$ $
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? Y / N [ ] (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	N / A					[ ] PER STATUTE [ ] OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	 $ $ $
A	CONTRACTORS POLLUTION PROFESSIONAL LIABILITY	X N/A		FEIECC1427206	04/01/2019	04/01/2020	EA OCCURRENCE $3,000,000 $3,000,000	AGGREGATE $3,000,000 $3,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

PEST & WEED CONTROL

MOSES LAKE IRRIGATION AND REHABILITATION DISTRICT AND DEPARTMENT OF NATURAL RESOURCES, AQUATIC RESOURCES DIVISION ARE BOTH ADDITIONAL INSUREDS.

CERTIFICATE HOLDER

MOSES LAKE IRRIGATION AND REHABILITATION DISTRICT
PO BOX 98
MOSES LAKE WA 99337

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Ray A. Rankin

Lakeland Restoration Services, LLC
78 E River Spur Rd, Priest River, ID 83856
Phone/Fax: (208) 448-2222
www.lakelandrs.com

2014 MOSES LAKE AQUATIC INVASIVES CONTROL USING HERBICIDE
Moses Lake Irrigation & Rehabilitation District
Moses Lake, Washington

FINAL REPORT

Introduction

Lakeland Restoration Services, LLC (LRS) was contracted by MLIRD an aquatic herbicide treatment in the continued effort to control aquatic invasive nuisance pond weeds specifically, curly leaf pond weed and horned pondweeds. These weeds in Moses Lake create numerous problems in the shallow lake. Carp feed and roll in plants creating floating mats creating hazards to boating, swimming and recreation. Large volumes of decaying plants reduce oxygen levels for a good fish habitat.

Because of prevailing west winds, plant material blows into Parker Horne and other high use areas in the city and surrounding community.

Eurasian Water Milfoil will also be controlled with this application. At the time of treatment, no identifiable areas of EWM was noted. Although some resurgence was noted during the 2014 fall survey (see separate survey report).

Ongoing nuisance and invasive pondweed control has taken place since 2012. In 2010 and 2011, 680 acres of EWM had been successfully controlled.

Algaecide Treatments

Since 2010, an active problem to control algae in high use areas has taken place. Areas with low water exchange such as "the fill", Parker Horne, and Mont Lake have been areas of target treatments with Phycomyacin at 100 # per acre. Blue Heron Park and Connelly Park have also been treated on a regular basis to control algae, thereby reducing outbreaks of swimmers itch and proving higher quality water for swimming and recreation.

Public & Agency Notifications/Shoreline Posting

The following is a list of notifications that were delivered as required by the Washington State Department of Ecology Aquatic Plant and Algae Management General Permit #WAG994180:

- A Business and Resident Notice was mailed to all property owners within ¼ mi. of all treatment areas on June 6th, 2014 (attached – see Appendix A).
- Pre/Post Treatment reports were provided to the Department of Ecology (attached – see Appendix B).
- Shoreline Notices were printed on white paper and posted (Appendix C). Signs were posted facing the water and the shore and were placed on each private or public property within 10 feet of shoreline, within 400 feet of the treatment area, and within every 100 feet of the shoreline. Signs were removed after all applicable restrictions were lifted.
- Public Access signs, 2 feet by 3 feet in size were posted at each public access area along with a 8 ½ x 11 map showing the reader's location and the treatment areas in both English and Spanish (Notice attached – see Appendix D). Signs were removed after all applicable restrictions were lifted.

Public Outreach

The MLIRD began educational outreach when the Moses Lake EWM control project was started in 2008. After the survey was conducted, survey results and maps were used at meetings to plan for the control project and, as a teaching tool for the public and at District Board meetings.

As the control project planning and implementation progressed, the educational tools put into place included:

- **Internet:** A LRS website project page was posted at www.lakelandrs.com, dedicated specifically to the Moses Lake invasive and nuisance aquatic and algae weed control project. The page included information about how the project would proceed, what the public could expect in the way of restrictions, the kind of herbicide being used and maps of the lake showing where herbicide treatment would occur.
- **Email**: An email contact address, info@lakelandrs.com was available, giving the public a means to ask questions directly of the contractor and irrigation district. These emails were routed to a LRS representative that returned the answer via email or phone call if requested by the customer.

- **Phone:** A toll-free, dedicated phone number (877-273-6674) was available which gave the public pre-recorded information about the project. Information became available for the Moses Lake project on June 6th, 2014. The number allowed customers to leave a message, and a return call was made by a LRS representative to answer any questions or concerns.

Product Delivery/Distribution

Product was supplied and delivered as follows:

- Helena Chemical supplied the herbicides and algaecide for this project. Product was delivered to the LRS warehouse at 932 A Wheeler Rd. Moses Lake, WA.

Personnel

The following personnel were present at different times for this project:

- David Kluttz – License # 66448 – Applicator/Airboat Pilot
- Jake Nesbitt – License #88023 – Applicator/Airboat Pilot
- Jim Pouge - Mixer/Loader Cert. – Mixer/Loader/Airboat Pilot
- Cathy Allen – Mixer/Loader Cert. – Mixer/Loader/ Shoreline Posting
- Jessie Griffin – Mixer/Loader Cert. – Mixer/Loader/ Shoreline Posting
- Jalen Griffin – Mixer/Loader Cert. – Mixer/Loader/ Shoreline Posting
- Kiler Kenison - Mixer/Loader Cert. – Mixer/Loader/ Shoreline Posting

Product Information

The following table outlines the average depth, total surface acres, and amount of herbicides applied by treatment area (treatment maps attached – see Appendix E):

2014 MOSES LAKE TREATMENT					
Area	Avg. Depth	Surface Acres	Aquathol (gallons)	Diquat @ 1.9 GPA(gallons)	Diquat @ 1 GPA(gallons)
1	15	9.42	268.0	19.0	
2_1	4	10.36	79.0		10.0
2_2	4	9.84	75.0		10.0
3_1	5	11.97	114.0		11.0
3_2	5	8.55	81.0		9.0
3_3	5	8.18	78.0		8.0
4	4	8.72	66.0		9.0
5_1	5	8.51	80.0		8.0
5_2	5	10.05	95.0		10.0
5_3	5	8.03	76.0		8.0
5_4	5	7.61	72.0		8.0
6_1	5	9.04	86.0		9.0
6_2	5	9.74	93.0		10.0
			1263.0	19.0	110.0

Application rates per area:

Area 1	Aquathol	1.9 Gal/Acre Foot
	Diquat	1.9 Gal/Acre
Area 2	Aquathol	1.9 Gal/Acre Foot
	Diquat	1 Gal/Acre
Area 3	Aquathol	1.9 Gal/Acre Foot
	Diquat	1 Gal/Acre
Area 4	Aquathol	1.9 Gal/Acre Foot
	Diquat	1 Gal/Acre
Area 5	Aquathol	1.9 Gal/Acre Foot
	Diquat	1 Gal/Acre
Area 6	Aquathol	1.9 Gal/Acre Foot
	Diquat	1 Gal/Acre

†Total acres treated were determined by encompassing tracks. This process was accomplished by importing tracks recorded during the application process using GPS technology into Arcview GIS.

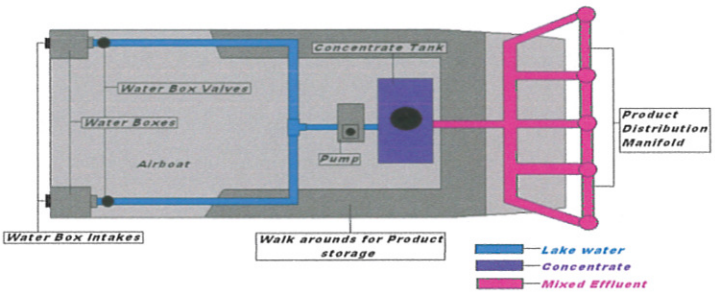
*Changes in acreage or product occurred due to boat drift, submerged obstacles, mapping discrepancies, or changes made at the request of the Project Manager.

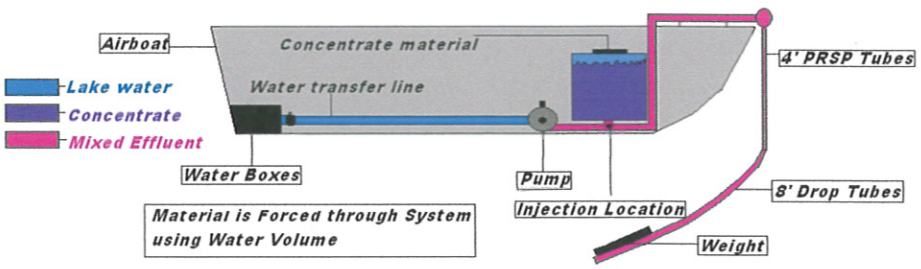
Treatment Methodology

The application of Aquathol and Diquat was accomplished using 1 airboat using the following methodology:

Herbicide was applied at an average speed of 5 mph using a manifold boom style sub-surface injection system that is attached to the airboat (pictures at right/diagram below). The collection side of the system gathers lake water from built in water boxes at the rear of the boat using a high volume, close tolerance pump powered by a 5hp Honda motor. The pump generates pressure through a manifold system causing a venturi effect, which pulls the concentrate from the tank, thereby mixing it with the lake water to be injected directly into the water column through the manifold boom. The boom is 8' wide and has 5 drop tubes, each 4' long.

Diagram A-1: Liquid Injection System – top view/side view





Herbicide was continually poured from each 2.5 gallon container into a 25 gallon tank ensuring a consistent application. Each container was triple-rinsed in the treatment area during the treatment, rendered incapable of reuse, and stored at the Lakeland facility for recycling. Jugs were then taken to local AG airport for storage to be recycled.

Equipment

The following equipment was used for this project:

Herbicide Treatments

- 16-foot Airboat with 454 ci 550-hp motor capable of carrying 2,500-lb payload
- Liquid injection system with a 25-gallon tank and five 4-foot subsurface injection nozzle system
- Garmin GPS equipment used to plot and track treatments
- Arcview (GIS) to provide a means to map treatment areas, analyze results, and provide ArcGIS compatible shapefiles
- 18-foot tractor trailer for moving product
- 2014 Ford F150 and 2008 Ford F350 used to haul equipment and supplies

Algaecide Treatments

- 16 Ft. airboat w/364 c, 550 HP motor
- Skid Steer with pallet forks
- 18 foot airboat

Logs, Maps, and Tracking

The entire treatment was monitored with the use of Global Positioning System (GPS) technology. Treatment routes were pre-planned using Arcview GIS, and pre-loaded into 2 GPS devices per treatment vessel.

Following the treatment, tracks were downloaded into Arcview, and analyzed for thoroughness of the treatment.

A WSDA approved Pesticide Application Record was completed for each treatment day as required (attached – see Appendix F). These records will be retained for 7 years with the project file.

Algaecide Treatments

On June 30, 2014 LRS performed a treatment of 10.5 on Moses Lake to manage Blue Green and Green Algae blooms with algaecides as directed by MLIRD and again on August 27th and 28th, 2014 near the Blue Heron and Parker Horne area a total of 28 acres were treated. Phycomycin was applied at a rate of 100 pounds per acre resulting in a total of 3,800 pounds of Phycomycin used in treatments.

Parker Horne Algaecide Treatment

Summary

With EWM populations have been severely reduced in previous years, pondweed and algae control is the top priority of this program in 2014.

High nutrient and sediment loading has occurred in Moses Lake, primarily through Crab Creek which runs through Moses Lake. Parker Horn has been a top priority for herbicide and algaecide treatments because of its proximity to down town. All other treatments have been associated with high use areas, such as parks, boat ramps and swimming areas. This approach has improved the water quality.

Combinations of herbicide at moderate rates facilitate the successful control of target plants. Diquat appears to have some algaecide properties when used for Pond Weed control early in the season.

Phycomycian is effective for most algae, including Blue green algae. Hydrothol may be considered. I would recommend testing the product for future use in Moses Lake as well.

6000 letters were sent out to announce application. The public has responded well and has been receptive to the treatments since 2010.

From the reports I have heard, the warm water fishery, specifically Bass and Walleye numbers and size have increased since the commencement of this treatment program.

The "Fill" after treatment 2014

Appendix A

Business and Residential Notice

Herbicide/Algaecide Treatment
Business and Residential Notice

Distribution Date: June 6, 2014

Moses Lake will be treated with aquatic herbicide/*algaecide on/or **between** June 23, 2014 to June 27, 2014.
*Algaecide treatments will occur on an as needed basis.

In order to help prevent fragmentation, **please DO NOT cut, rake, or hand-pull plants prior to treatment.**

This application will involve the use of airboats. Please remove items from docks such as lawn chairs, flower pots, personal/recreational devices, etc.

Product(s) planned for use: Aquathol K, Diquat
Algaecide: Phycomicin

Active ingredient(s): (Dipotassium salt of endothall),(Diquat dibromide [6,7-dihydrodipyrido (1,2-a:2'1'-c) pyrazinediium dibromide])

Algaecide: (Sodium Carbonate Peroxyhydrate)

It has been advised that no swimming occur within the treated area(s) during or for 24 hours following herbicide treatment. It has been advised that no swimming occur within the treated area(s) during or for 2 hours following algaecide treatment.
If you are using the lake itself as a potable, irrigation and/or domestic or livestock water source, please contact Lakeland Restoration Services, LLC to determine if any restrictions apply: (877) 273-6674 or info@lakelandrs.com

Details of treatment time and the end of use restrictions will be announced at www.lakelandrs.com.

Fishing: no restriction.

Location of Treatment(s): Specific sites on Moses Lake.

Signs will be posted treated and potentially affected areas prior to application. The signs will describe any water use restrictions or advisories.

If you would like to request additional notification prior to treatment, or have further questions, please contact Lakeland Restoration Services, LLC at (877) 273-6674 or info@lakelandrs.com.

This herbicide treatment is regulated under a permit issued by the Washington State Department of Ecology. Permit No. WAG994180

Moses Lake Irrigation and Rehabilitation District

June 16, 2014

To: Property Owners on or surrounding Moses Lake, Blue Lake, Alkali Lake, and Lenore Lake

Aquatic Treatments

MLIRD has been very active since 2008 reducing aquatic invasive species and algae, making Moses Lake a great lake to live and recreate on. Much has been accomplished in the area of beautification and greater public usage in the past and now it is time for the 2014 treatments.

MLIRD has contracted Lakeland Restoration Services, LLC to perform the aquatic herbicide treatment of invasive species as well as any algae that may decide to grow in Moses Lake this year.

The aquatic herbicide treatments for Moses Lake will occur during the week of June 23 - 27, 2014.

The permitting process and notification system of the State of Washington is being followed with the enclosed notification. See "Aquatic Herbicide/Algaecide Treatment Business and Residential Notice" attached.

- **If you are using the lake itself as a potable and/or irrigation water source, please contact Lakeland Restoration Services LLC to determine if any restrictions apply for these treatments.**

Details of treatment times will be announced at www.lakelandrs.com. If you have any questions, please refer to the website or contact the applicator directly at (1-877-273-6674).

Algaecide Treatments

Algaecide Treatments will be applied only when needed.

The permitting process and notification system of the State of Washington is being followed with the enclosed notification. See "Aquatic Herbicide/Algaecide Treatment Business and Residential Notice" attached.

Moses Lake Irrigation and Rehabilitation District, P O Box 98, Moses Lake WA 98837
Phone: 509-765-8716 Fax: 509-764-8425

- **There is no restriction for swimming, fishing, irrigation or consumption.**

Details of treatment times will be announced at **www.lakelandrs.com**. If you have any questions, please refer to the website or contact the applicator directly at (1-877-273-6674).

Riparian Treatments

Moses Lake Irrigation & Rehabilitation District (MLIRD) has entered into an inter-local agreement with the Department of Natural Resources and partnered with the Grant County Noxious Weed Board in an effort to eradicate designated invasive noxious weeds within the confines of Grant County as required by state law. With the management tools in place MLIRD is managing the project in your local area.

MLIRD has contracted Lakeland Restoration Services, LLC to perform herbicide treatments in a continued effort to control riparian invasive nuisance plants (Phragmities, Yellow Flag Iris, Purple Loose Strife, Reed Canary Grass and Tree of Heaven).

The riparian treatment for the Moses Lake area will occur during the week of July 8 – 11, 2014.

The riparian treatment for Blue Lake, Alkali Lake and Lenore Lake will occur on July 7, 2014 and the week of July 21-25, 2014.

The permitting process and notification system of the State of Washington is being followed with the enclosed notification. See "Riparian Herbicide Treatment Business and Residential Notice" attached.

- **There is no restriction for swimming, fishing, irrigation or consumption.**

Details of treatment times will be announced at **www.lakelandrs.com**. If you have any questions, please refer to the website or contact the applicator directly at (877-273-6674.

We appreciate your support in helping to make these projects a success.

Kindest Regards,

Julie H. Smith
Acting General Manager

/jhs

Moses Lake Irrigation and Rehabilitation District, P O Box 98, Moses Lake WA 98837
Phone: 509-765-8716 Fax: 509-764-8425

Appendix B

Pre/Post Treatment Notification

DEPARTMENT OF ECOLOGY

Aquatic Treatment Email Form

Email to: JOJE461@ecy.wa.gov,JRYF461@ecy.wa.gov

From: Lakeland Restoration Services, LLC

Office Phone No: 208-448-2222

Pre-Treatment Notification

Week of Treatment June 30, 2014 to July 2, 2014

Water body name	County	Location where treatment will begin	Chemicals/products proposed for use	Targeted plants* & algae	Proposed date & treatment start time
Moses Lake	Grant	Boat Launch	Phycomycin	Blue Green Algae	June 30, 2014 - 10am

* This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons* or native *Elodea*)

Additional Information: _____

Email Form

Email to: JOJE461@ecy.wa.gov,JRYF461@ecy.wa.gov

From: Lakeland Restoration Services
Company: Lakeland Restoration Services
Cell Phone No: 208-448-2222

Post-Treatment Notification

Week of Treatment: June 30, 2014

Water body name	County	Chemicals/products used	Targeted plants* & algae	Acres treated	Amount of product applied (lbs. or gallons)	Date treatment occurred
Moses Lake – Connolly Park	Grant County	Phycomycin	Blue Green Algae	10.5	1050lbs	June 30, 2014

*** This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons*)**

Additional Information: _____

Knowingly submitting false information shall result in permit termination.

DEPARTMENT OF ECOLOGY

Aquatic Treatment Email Form

Email to: JOJE461@ecy.wa.gov,

From: Lakeland Restoration Services, LLC

Office Phone No: 208-448-2222

Pre-Treatment Notification

Week of Treatment August 27, 2014

Water body name	County	Location where treatment will begin	Chemicals/products proposed for use	Targeted plants* & algae	Proposed date & treatment start time
Moses Lake	Grant	Blue Heron Area	Phycomycin	Blue Green Algae	August 27, 2014 @ 7:00PM

* This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons* or native *Elodea*)

Additional Information: _____

Post-Treatment Notification

Week of Treatment: August 27, 2014

Water body name	County	Chemicals/products used	Targeted plants* & algae	Acres treated	Amount of product applied (lbs. or gallons)	Date treatment occurred
Moses Lake	Grant	Phycomycin	Blue Green Algae	28	2800	Aug. 27 and Aug 28

*** This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons*)**

Additional Information: _____

Knowingly submitting false information shall result in permit termination.

DEPARTMENT OF ECOLOGY

Aquatic Treatment Fax Form

To: Jonathon.jennings@ecy.wa.gov, Jeremy.ryf@ecy.wa.gov

From: Company: Lakeland Restoration Services, LLC
208-448-2222

Pre-Treatment Notification

Week of Treatment (date and year): June 23, 2014

Water body name	County	Location where treatment will begin	Chemicals/products proposed for use	Targeted plants* & algae	Proposed date & treatment start time
Moses Lake	Grant	Boat Launch	Aquathol K, Diquat	Eurasian watermilfoil	June 23, 2014 - 8am

* This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons* or native *Elodea*)

Post-Treatment Notification

Week of Treatment: June 23, 2014 to June 25, 2014

Water body name	County	Chemicals/products used	Targeted plants* & algae	Acres treated	Amount of product applied (lbs. or gallons)	Date treatment occurred
Moses Lake	Grant	Aquathol K	Eurasian watermilfoil	130	1263 gallons	June 23 to June 25, 2014
		Diquat	Eurasian watermilfoil	130	129 gallons	

*** This should either be the full common name (i.e., Eurasian watermilfoil), or the genus and species of targeted plants (i.e., *Myriophyllum spicatum*), or genus where species is not known (i.e., *Potamogetons*)**

Additional Information: _____

Knowingly submitting false information shall result in permit termination.

Appendix C

Shoreline Postings

CAUTION

Sodium carbonate peroxyhydrate will be applied under permit to these waters on Between June 23 and June 30 2014 to control algae.

Ecology recommends no swimming in the sign-posted area for 12 hours following treatment due to possible eye irritation.

Drinking Water Restrictions: None

Irrigation Restrictions: None

Stock Watering Restrictions: None

For more information contact the applicator: Lakeland Restoration Services, LLC

Phone Number: (877) 273-6674

Or the Department of Ecology at (360) 407-6400

THIS SIGN MUST REMAIN IN PLACE UNTIL 2 DAYS AFTER APPLICATION

CAUTION

The aquatic herbicides Aquathol K, Diquat will be applied under permit to these waters on **June 23rd to June 27th 2014** to control aquatic vegetation.

Ecology recommends no swimming in the sign-posted area for 24 hours following treatment due to possible eye irritation.

Drinking Water Restrictions: **7 days**

Irrigation Restrictions: **3 days**

Fishing Restriction: **None**

Stock Watering Restrictions: **Do not use water from treatment area for 7 days.**

For more information contact the applicator: Lakeland Restoration Services, LLC. Phone number: (877) 273-6674

The Department of Ecology regulates this activity under an NPDES permit. For information about the permit, contact Ecology Phone number: 360-407-6400

THIS SIGN MUST REMAIN IN PLACE UNTIL 2 DAYS AFTER APPLICATION

PRECAUCIÓN

Los herbicidas acuáticos Aquathol K, Diquat se aplicará bajo permiso a estas aguas el **23 de junio – 27 de junio** para controlar la vegetación acuática.

Ecología no recomienda nadar en la zona señalizado por 24 horas después del tratamiento debido a la irritación ocular posible.

Restricciones de agua potable: **no use agua de la zona de tratamiento durante 7 días.**

Restricciones de riego: **3 dias**

Restricción de la pesca: **ninguno**

Restricciones de riego stock: **no use agua de la zona de tratamiento durante 7 días.**

Para obtener más información, póngase en contacto con el aplicador: Lakeland restauración Services, LLC. Número de teléfono: (877) 273-6674

El Departamento de Ecología regula esta actividad bajo un permiso NPDES. Para obtener información sobre el permiso, con número de teléfono de ecología: 360-407-6400

ESTE SIGNO DEBE PERMANECER EN SU LUGAR HASTA 2 DÍAS DESPUÉS DE LA APLICACIÓN

Appendix D

Public Access Posting

CAUTION

Sodium carbonate peroxyhydrate will be applied under permit to these waters on_____to control algae.
Ecology recommends no swimming in the sign-posted area for 12 hours following treatment due to possible eye irritation.

Drinking Water Restrictions: None
Irrigation Restrictions: None
Stock Watering Restrictions: None

For more information contact the applicator: Lakeland Restoration Services, LLC
Phone Number: (877) 273-6674
Or the Department of Ecology at (360) 407-6400

THIS SIGN MUST REMAIN IN PLACE UNTIL 2 DAYS AFTER APPLICATION

PRECAUCIÓN

Carbonato sódico peroxyhydrate se aplicará bajo permiso a estas aguas on_____para el control de algas.
Ecología no recomienda nadar en la zona señalizado durante 12 horas después del tratamiento debido a la irritación ocular posible.

Restricciones de agua potable: ninguno
Restricciones de riego: ninguno
Stock restricciones de riego: ninguno

Para obtener más información, póngase en contacto con el aplicador:
Lakeland restauración Services, LLC
Número de teléfono: (877) 273-6674
O el Departamento de ecología al (360) 407-6400

ESTE SIGNO DEBE PERMANECER EN SU LUGAR HASTA 2 DÍAS DESPUÉS DE LA APLICACIÓN

Appendix E

Map

name	Area_ID	Acres
Cove West	1	9.42
Parker Horn East	2_1	10.36
Parker Horn East	2_2	9.84
Parker Horn West	3_1	11.97
Parker Horn West	3_2	8.55
Parker Horn West	3_3	8.18
Parker Horn North	4	8.72
Pelican Horn North	5_1	8.51
Pelican Horn North	5_2	10.05
Pelican Horn North	5_3	8.03
Pelican Horn North	5_4	7.61
Pelican Horn South	6_1	9.04
Pelican Horn South	6_2	9.74

MLRID Proposed AquaticTreatment Areas 2014
Total Acres 120

Proposed Treatment Area

N

0 0.25 0.5 Miles

No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

Date: 3/12/2014

0 0.25 0.5 Miles

N

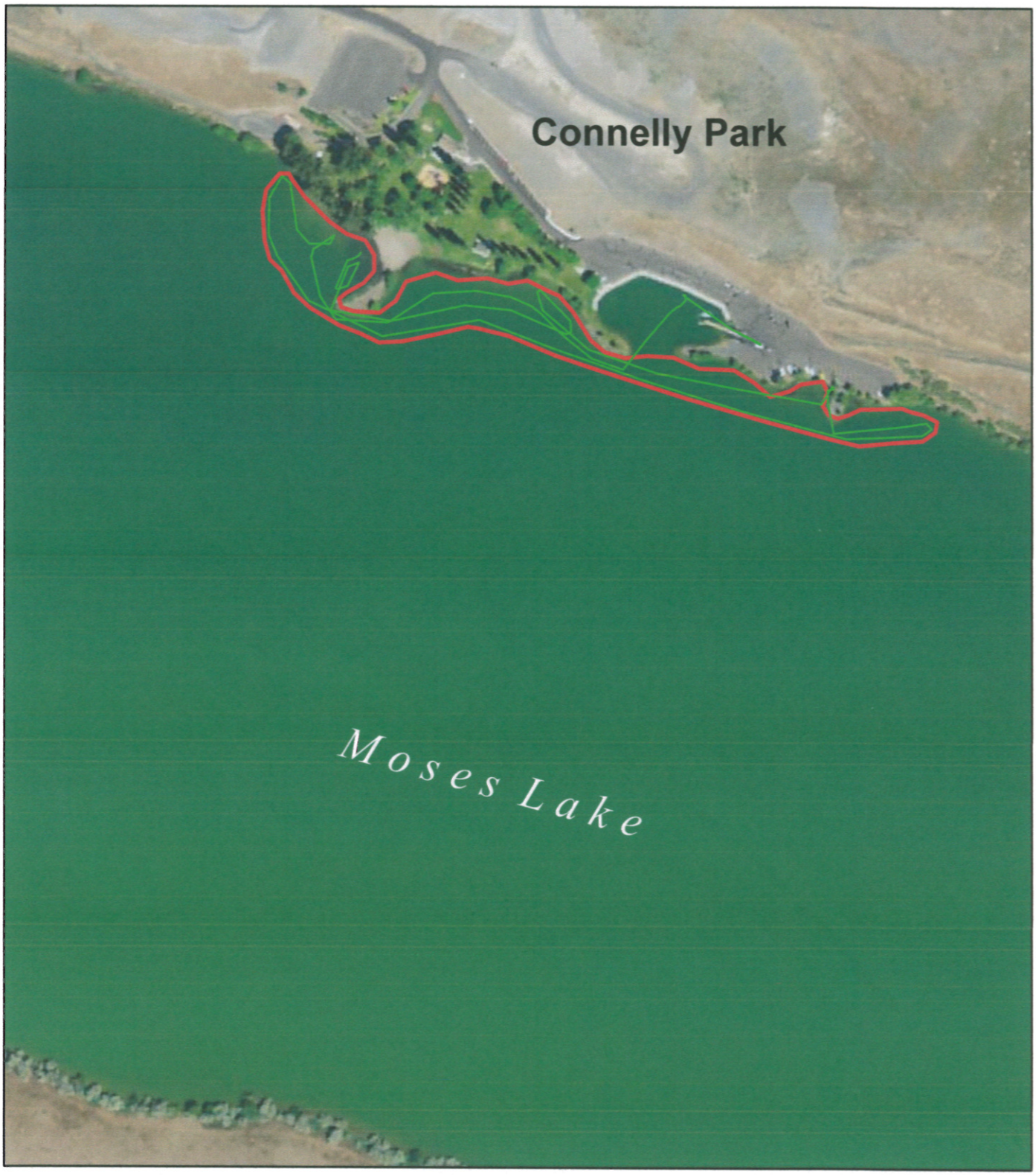
MLRID AlgaecideTreatment 2014

August 28, 2014

LEGEND

GPS Boat Tracks

Date: 9/4/2014



0 0.125 0.25 Miles

N

ConnellyParkTreatment 2014

September 5, 2014

LEGEND

GPS Boat Tracks

Treatment Area, 4.3 ac.

No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

Date: 9/9/2014

0 0.125 0.25 Miles

N

LAKELAND RESTORATION SERVICES LLC

Heron ParkTreatment 2014

September 5, 2014

LEGEND

GPS Boat Tracks

Treatment Area, 5.4 ac.

Date: 9/9/2014

MLRID MilfoilTreatment 2014

June 23 and 24, 2014

LEGEND

GPS Boat Tracks

Milfoil Treatment Area

N

0 0.25 0.5 Miles

No warranty is made by Lakeland Restoration Services as to the accuracy, reliability, or completeness of these data for individual or aggregate use with other data. Original data was compiled from various sources.

Date: 6/26/2014

Appendix F

Pesticide Application Records

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2014 Month: June Day: 24 Start Time: 8:00am
   Stop Time: 6:00pm
2. Name of person for whom the pesticide was applied: Chris Overland
   Firm Name (if applicable): Moses Lake Irrigation and Rehabilitation District
   Street Address: PO Box 98 City: Moses Lake State: WA Zip: 98837
3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448
   Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 208-448-2222
   Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856
4. Name of person(s) who applied the pesticide (if different from #3 above):
   License No(s). If applicable:
5. Application Crop or Site: Moses Lake
6. Total Area Treated (acre, sq. ft., etc.): 65
7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994180
8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Aquathol	70506-176	631	1 gal / acre ft	
Diquat	180.266	64.5	1to 2 gal / acre	
			/	
			/	
			/	

9. Address ***or exact location*** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: 8 WNW
11. Temperature during the application: 76-91
12. Apparatus license plate number (if applicable): E818
13. ☐ Air ☐ Ground ☐ Chemigation
14. Miscellaneous Information:

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2014 Month: June Day: 30 Start Time: 8:00am

   Stop Time: 4:00pm

2. Name of person for whom the pesticide was applied: Chris Overland

   Firm Name (if applicable): Moses Lake Irrigation and Rehabilitation District

   Street Address: PO Box 98 City: Moses Lake State: WA Zip: 98837

3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448

   Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 208-448-2222

   Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856

4. Name of person(s) who applied the pesticide (if different from #3 above):

   License No(s). If applicable:

5. Application Crop or Site: Moses Lake – Connolly Park Blue Green Algae

6. Total Area Treated (acre, sq. ft., etc.): 10.5

7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994180

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Phycomycin	68660-9-8959	1050	100 lbs / acre	
			/	
			/	
			/	
			/	

9. Address ***or exact location*** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: W 7 mph

11. Temperature during the application: 61-87

12. Apparatus license plate number (if applicable): E818

13. ☐ Air ☐ Ground ☐ Chemigation

14. Miscellaneous Information:

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2014 Month: August Day: 27 Start Time: 7:00pm

   Stop Time: 10:00pm

2. Name of person for whom the pesticide was applied: Chris Overland

   Firm Name (if applicable): Moses Lake Irrigation and Rehabilitation District

   Street Address: PO Box 98 City: Moses Lake State: WA Zip: 98837

3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448

   Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 208-448-2222

   Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856

4. Name of person(s) who applied the pesticide (if different from #3 above):

   License No(s). If applicable:

5. Application Crop or Site: Moses Lake – Parker Horne Blue Green Algae

6. Total Area Treated (acre, sq. ft., etc.): 14

7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994180

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Phycomycin	68660-9-8959	1400	100 lbs / acre	
			/	
			/	
			/	
			/	

9. Address ***or exact location*** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: SSW 7 mph

11. Temperature during the application: 76-94

12. Apparatus license plate number (if applicable): E818

13. ☐ Air ☐ Ground ☐ Chemigation

14. Miscellaneous Information:

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

1. Date of Application - Year: 2014 Month: August Day: 28 Start Time: 7:00pm
   Stop Time: 10:00pm
2. Name of person for whom the pesticide was applied: Chris Overland
   Firm Name (if applicable): Moses Lake Irrigation and Rehabilitation District
   Street Address: PO Box 98 City: Moses Lake State: WA Zip: 98837
3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448
   Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 208-448-2222
   Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856
4. Name of person(s) who applied the pesticide (if different from #3 above):
   License No(s). If applicable:
5. Application Crop or Site: Moses Lake –Blue Heron Blue Green Algae
6. Total Area Treated (acre, sq. ft., etc.): 14
7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994180
8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Phycomycin	68660-9-8959	1400	100 lbs / acre	
			/	
			/	
			/	
			/	

9. Address ***or exact location*** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

See attached Maps

10. Wind direction and estimated velocity (mph) during the application: WSW 8mph
11. Temperature during the application: 78-90
12. Apparatus license plate number (if applicable): E818
13. ☐ Air ☐ Ground ☐ Chemigation
14. Miscellaneous Information:

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application and it must be retained for 7 years (Ref. chapter 17.21 RCW)

Washington State Department of Agriculture
Pesticide Management Division
PO Box 42560
Olympia WA 98504-2560
(877) 301-4555

1. Date of Application - Year: 2014 Month: June Day: 23 Start Time: 8:00am

   Stop Time: 6:00pm

2. Name of person for whom the pesticide was applied: Chris Overland

   Firm Name (if applicable): Moses Lake Irrigation and Rehabilitation District

   Street Address: PO Box 98 City: Moses Lake State: WA Zip: 98837

3. Licensed Applicator's Name (if different from #2 above): David Kluttz License No.: 66448

   Firm Name (if applicable): Lakeland Restoration Services, LLC Tel No.: 208-448-2222

   Street Address: 78 E River Spur Rd City: Priest River State: ID Zip: 83856

4. Name of person(s) who applied the pesticide (if different from #3 above):

   License No(s). If applicable:

5. Application Crop or Site: Moses Lake

6. Total Area Treated (acre, sq. ft., etc.): 65

7. Was this application made as a result of a WSDA Permit? ☐ No ☒ Yes (If yes, give Permit No.) # WAG994180

8. Pesticide Information (please list all information for each pesticide, including adjuvants (buffer, surfactant, etc.), in the tank mix):

a) Full Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
Aquathol	70506-176	631	1 gal / acre ft	
Diquat	180.266	64.5	1to 2 gal / acre	
			/	
			/	
			/	

9. Address ***or exact location*** of application. NOTE: If the application is made to one acre or more of agricultural land, the field location must be shown on the map on page two of this form.

   See attached Maps

10. Wind direction and estimated velocity (mph) during the application: 7 WNW

11. Temperature during the application: 74-89

12. Apparatus license plate number (if applicable): E818

13. ☐ Air ☐ Ground ☐ Chemigation

14. Miscellaneous Information: