

## APPENDIX B

### Garrison Dam National Fish Hatchery HACCP Plan for Walleye West Pond Unit

Revision Date: March 18, 2003

- 1) Species Description
- 2) Past Stocking History
- 3) Flow Diagram
- 4) Potential Hazards
- 5) Hazard Analysis Worksheet
- 6) HACCP Plan Form
- 7) HACCP Step Summary

#### 1. Species Description

<b>Hatchery Name:</b>	Garrison Dam National Fish Hatchery
<b>Hatchery Address:</b>	Fish Hatchery Road Riverdale, ND 58565
<b>Species of fish imported:</b>	Walleye ( <i>Stizostedion vitreum</i> )/ Species Code WAE
<b>Cultured, wild harvested, or both:</b>	Cultured
<b>Harvest method:</b>	Earthen ponds drained to common outside kettle
<b>Method of distribution:</b>	Wyoming Game and Fish Department fish distribution unit
<b>Intended use:</b>	Importation into the state of Wyoming for public fisheries management.
<b>Risk Level Prior to HACCP:</b>	<u>Level 6, Moderate Risk</u> – ANS Present In Drainage, But Not At Source (APPENDIX F).
<b>Risk Level After HACCP:</b>	<u>Level 2 –3, Low Risk</u> – depended if NTS present prior to loading and type of NTS present (APPENDIX F).

#### 2. Past Stocking History\*

Water Name	Species Code	Number Stocked	Pounds Stocked	Fish/Pound	Stocking Date
Grayrocks Res	WAE	408,800	365.00	1,120	07/08/2002
Keyhole Reservoir	WAE	187,964	137.00	1,372	07/03/2002
Goldeneye Reservoir	WAE	50,078	36.50	1,372	07/03/2002
	<b>2002 Total =</b>	<b>646,842</b>			

## 2. Past Stocking History (Continued)\*

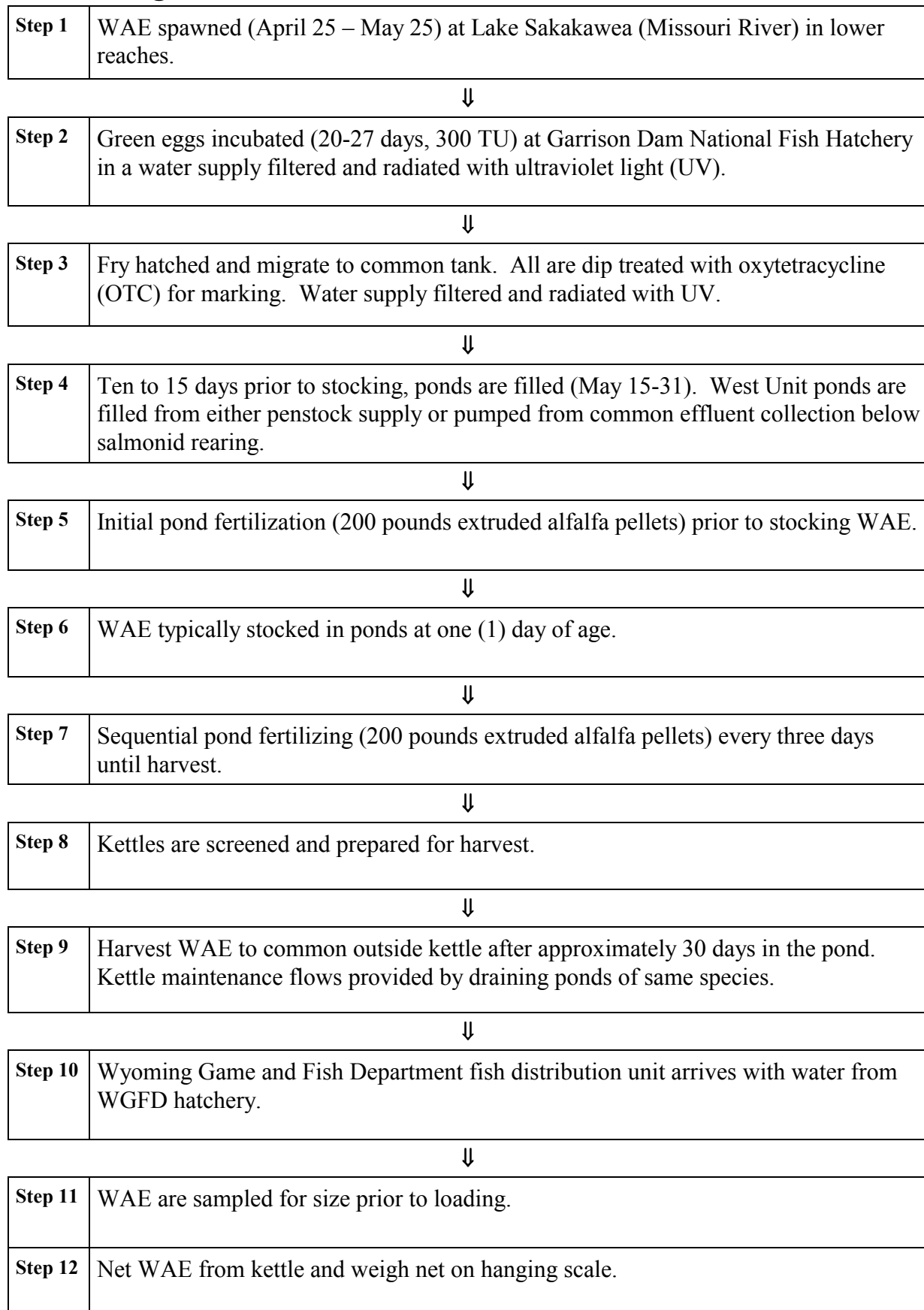
Water Name	Species Code	Number Stocked	Pounds Stocked	Fish/Pound	Stocking Date
Keyhole Reservoir	WAE	185,414	102.10	1,816	07/10/2001
Goldeneye Reservoir	WAE	45,977	28.70	1,602	07/10/2001
Ocean Lake	WAE	177,502	110.80	1,602	07/10/2001
Hawk Springs Res	WAE	80,086	44.10	1,816	07/10/2001
Rock Lake	WAE	5,993	3.30	1,816	07/10/2001
Packers Lake	WAE	5,993	3.30	1,816	07/10/2001
Springer Res	WAE	7,446	4.10	1,816	07/10/2001
Lak Reservoir	WAE	8,354	4.60	1,816	07/10/2001
Wardell Reservoir	WAE	3,044	1.90	1,602	07/10/2001
Wheatland Res 1	WAE	39,952	22.00	1,816	07/10/2001
Bump Sullivan Res	WAE	9,988	5.50	1,816	07/10/2001
Deaver Reservoir	WAE	8,971	5.60	1,602	07/10/2001
Grayrocks Res	WAE	406,092	172.00	2,361	06/27/2001
	<b>2001 Total =</b>	<b>984,812</b>			
Deaver Reservoir	WAE	10,000	4.90	2,039	06/30/2000
Wardell Reservoir	WAE	4,078	2.00	2,039	06/30/2000
Ocean Lake	WAE	139,961	63.70	2,039	06/30/2000
Lak Reservoir	WAE	15,023	11.70	1,284	06/29/2000
Keyhole Reservoir	WAE	283,716	220.96	1,284	06/29/2000
Bump Sullivan Res	WAE	7,084	5.10	1,389	06/28/2000
Springer Res	WAE	3,056	2.20	1,389	06/28/2000
Hawk Springs Res	WAE	81,951	59.00	1,389	06/28/2000
Packers Lake	WAE	2,817	2.10	1,389	06/28/2000
Rock Lake	WAE	5,556	4.00	1,389	06/27/2000
Wheatland Res 1	WAE	40,281	29.00	1,389	06/27/2000
Grayrocks Res	WAE	400,156	284.00	1,409	06/27/2000
	<b>2000 Total =</b>	<b>993,679</b>			
Deaver Reservoir	WAE	8,085	5.50	1,470	06/29/1999
Big Horn Lake	WAE	101,430	69.00	1,470	06/29/1999
Wardell Reservoir	WAE	2,646	1.80	1,470	06/29/1999
Mayland Stock Pond	WAE	1,029	0.70	1,470	06/29/1999
Ocean Lake	WAE	74,970	51.00	1,470	06/29/1999
Bump Sullivan Res	WAE	7,350	5.00	1,470	06/29/1999

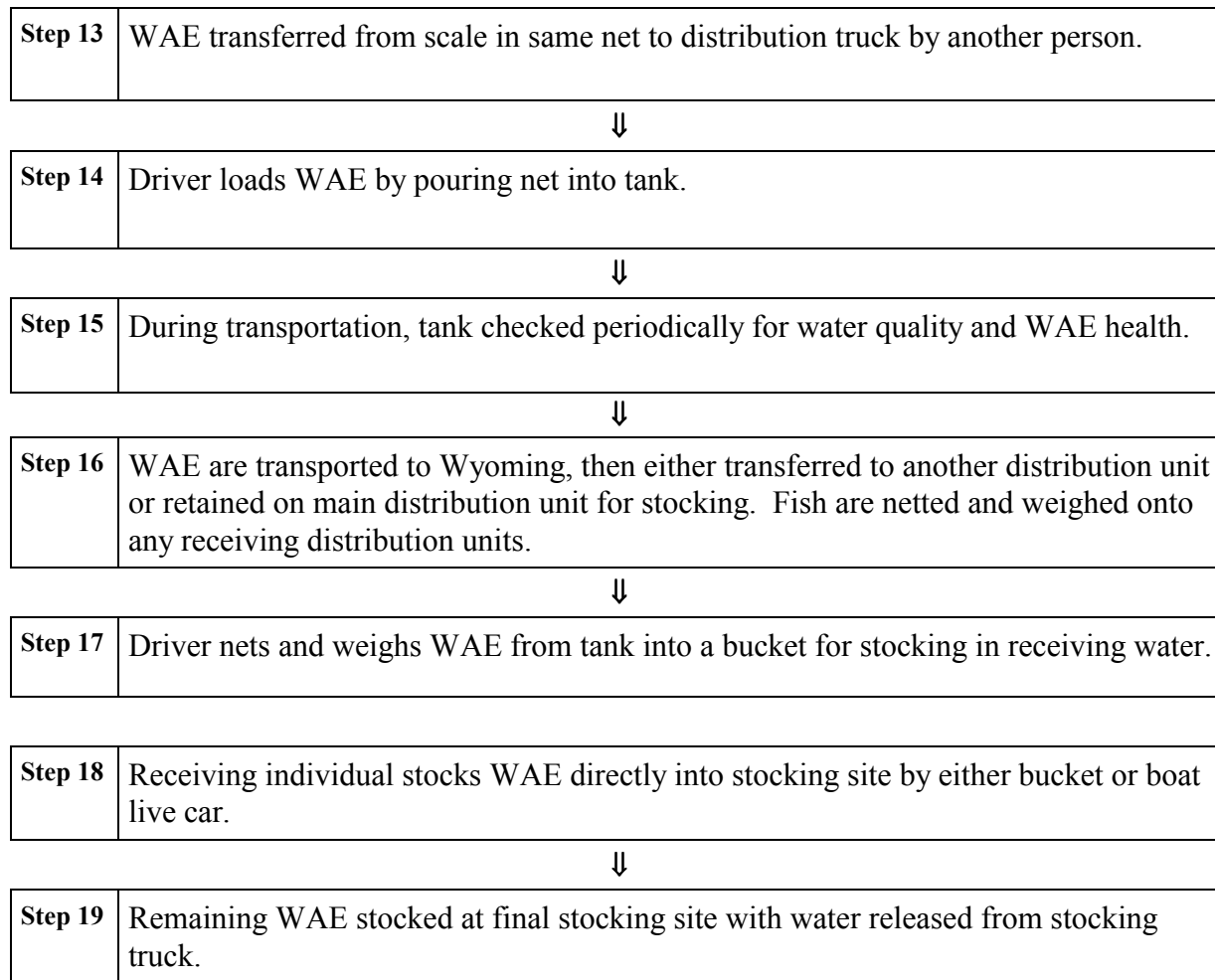
## 2. Past Stocking History (Continued)\*

Water Name	Species Code	Number Stocked	Pounds Stocked	Fish/Pound	Stocking Date
Springer Res	WAE	7,644	5.20	1,470	06/29/1999
Packers Lake	WAE	3,675	2.50	1,470	06/29/1999
Grayrocks Res	WAE	200,655	136.50	1,470	06/29/1999
Hawk Springs Res	WAE	96,726	0.50	1,470	06/29/1999
Keyhole Reservoir	WAE	74,970	51.00	1,470	06/28/1999
Ocean Lake	WAE	264,770	182.60	1,450	07/01/1998
Mayland Stock Pond	WAE	1,004	0.70	1,376	06/30/1998
Wardell Reservoir	WAE	2,752	2.00	1,376	06/30/1998
Big Horn Lake	WAE	224,976	163.50	1,376	06/30/1998
Deaver Reservoir	WAE	7,981	5.80	1,376	06/30/1998
Keyhole Reservoir	WAE	99,580	52.00	1,915	06/24/1998
Wheatland Res 1	WAE	37,863	21.00	1,803	06/24/1998
Hawk Springs Res	WAE	78,333	42.20	1,803	06/24/1998
Springer Res	WAE	11,011	5.40	1,803	06/24/1998
Packers Lake	WAE	6,118	3.30	1,803	06/24/1998
Grayrocks Res	WAE	499,416	115.20	1,803	06/24/1998
Rock Lake	WAE	6,118	3.30	1,803	06/24/1998
	<b>1998 Total =</b>	<b>1,819,102</b>			
Wheatland Res 1	WAE	65,600	41.00	1,600	07/02/1997
Packers Lake	WAE	6,400	4.00	1,600	07/02/1997
Ocean Lake	WAE	450,000	364.40	1,235	07/02/1997
Grayrocks Res	WAE	395,200	247.00	1,600	07/02/1997
Hawk Springs Res	WAE	100,800	63.00	1,600	07/02/1997
Springer Res	WAE	8,000	5.00	1,600	07/02/1997
Bump Sullivan Res	WAE	8,000	5.00	1,600	07/02/1997
Rock Lake	WAE	6,400	4.00	1,600	07/02/1997
Keyhole Reservoir	WAE	200,000	129.50	1,544	07/02/1997
	<b>1997 Total =</b>	<b>1,240,400</b>			
Grayrocks Res	WAE	<b>150,180</b>	76.00	1,968	06/15/1996
Ocean Lake	WAE	<b>49,000</b>	35.00	1,400	07/08/1993

\*Past stocking history summarizes all WAE stocked from Garrison Dam NFH, West or East Pond Units not specifically identified under past stocking records.

### 3. Flow Diagram





## 5. Potential Hazards (List relevant species)

- A. Aquatic Nuisance Species (ANS) Plants. Curly-leaf pondweed (*Potamogeton crispus*)** found in Lake Sakakawea and Stilling Basin Pond, but not observed in production units. ANS plants are not in West Pond water supply. (CONTACT FREQUENCY – NONE).
- B. Aquatic Nuisance Species (ANS) Fish and Other Vertebrates.** None identified in immediate drainage (CONTACT FREQUENCY – NONE).
- C. Aquatic Nuisance Species (ANS) Invertebrates.** None identified in immediate drainage (CONTACT FREQUENCY – NONE)
- D. Non-Target Species (NTS) Plants.** Filamentous algae, not an issue (CONTACT FREQUENCY – VERY LOW).

**E. Non-Target Species (NTS) Fish. Chinook and other salmonids** may be present in West Unit Pond water. One **white sucker** identified in kettle, considered introduced from downstream effluent due to loose screen. Although rare, NTS fish are generally much larger than WAE and easily identified and removed (CONTACT FREQUENCY – VERY LOW).

**F. Non-Target Species (NTS) Amphibians. Northern Leopard Frog (*Rana pipiens*) and Plains Spadefoot Toad (*Scaphiopus bombifrons*)** are only adult amphibians present by the West Pond Unit. Tadpoles are seldom observed during WAE harvest, but Northern Leopard Frog tadpoles may be present (CONTACT FREQUENCY – VERY LOW).

**G. Non-Target Species (NTS) Invertebrates. Clam shrimp (*Eulimnadia texana*)** are the only NTS invertebrate marginally present in the West Pond Unit. These invertebrates are common in ephemeral waters and not considered a concern (CONTACT FREQUENCY – LOW).

**H. Specific Pathogen of Concern and/or Other Health Concerns:** Garrison Dam National Fish Hatchery salmonid production is inspected annually and is Specific Pathogen Free (SPF). An iridovirus specific to sturgeon has been identified at the facility, however not an issue with WAE and their production process in the West Pond Unit. No parasites are identified or noted on WAE fingerlings. (CONTACT FREQUENCY – VERY LOW)

#### 4. Hazard Analysis Worksheet

##### A. ANS Hazard Analysis Worksheet

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential ANS hazards introduced or controlled at this step (1)	(3) Are any potential ANS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
All Steps	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		

## B. NTS Hazard Analysis Worksheet

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
<b>Step 1.</b> WAE spawned (April 25 – May 25) at Lake Sakakawea (Missouri River) in lower reaches.)	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 2.</b> Green eggs incubated (20-27 days, 300 TU) at Garrison Dam National Fish Hatchery in a water supply filtered and radiated with ultraviolet light (UV).	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 3.</b> Fry hatched and migrate to common tank. All are dip treated with oxytetracycline (OTC) for marking. Water supply filtered and radiated with UV.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 4.</b> Ten to 15 days prior to stocking, ponds are filled (May 15-31). West Unit ponds are filled from either penstock supply or pumped from common effluent collection below salmonid rearing. .	Fish/Other Vertebrate <u>Salmonids</u>	No	Remote Possibility of Introduction	Possible Hazard Controlled at Subsequent Step	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 5.</b> Initial pond fertilization (200 pounds extruded alfalfa pellets) prior to stocking WAE.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 6.</b> WAE typically stocked in ponds at one (1) day of age.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 7.</b> Sequential pond fertilizing (200 pounds extruded alfalfa pellets) every three days until harvest.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		

## B. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
<b>Step 8.</b> Kettles are screened and prepared for harvest	Fish/Other Vertebrate <u>Salmonids</u>	No	<b>Fish May Migrate From Ditch to Kettle</b>	<b>Check And Clear Kettle Before Screening</b>	No
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 9.</b> Harvest WAE to common outside kettle after approximately 30 days in the pond. Kettle maintenance flows provided by draining ponds of same species.	Fish/Other Vertebrate <u>Salmonids</u>	No	<b>NTS Fish May Be Present in Kettle</b>	<b>Visual Inspection Of Fish In Kettle</b>	No
	Invertebrate	No	None Present		
	Plant	No	<b>Algal Forms/Macrophyte May Be in Kettle</b>	<b>Remove From Effluent Screen Or Kettle</b>	No
	Parasites and Pathogens	No	None Present		
<b>Step 10.</b> Wyoming Game and Fish Department (WGFD) fish distribution unit arrives with water on truck from WGFD hatchery.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
<b>Step 11.</b> WAE are sampled for size prior to loading.	Fish/Other Vertebrate	No	<b>NTS Fish May Be Present in Kettle</b>	<b>Visual Inspection Of Sampled Fish</b>	<b>Yes</b>
	Invertebrate	No	None Present		
	Plant	No	<b>Algal Forms/Macrophyte May Be in Kettle</b>	<b>Remove From Effluent Screen Or Kettle</b>	No
	Parasites and Pathogens	No	None Present		
<b>Step 12.</b> Net WAE from kettle and weigh net on hanging scale.	Fish/Other Vertebrate <u>Salmonids</u>	No	<b>NTS Fish May Be Present in Net</b>	<b>ID &amp; Remove Any NTS Vertebrates From Net</b>	No
	Invertebrate	No	None Present		
	Plant	No	<b>Plant Form May be Present in Net</b>	<b>Remove Any Plant From Net</b>	No
	Parasites and Pathogens	No	None Present		
<b>Step 13.</b> WAE transferred from scale in same net to distribution truck by another person.	Fish/Other Vertebrate <u>Salmonids</u>	No	<b>NTS Fish May Be Present in Net</b>	<b>ID &amp; Remove Any NTS Vertebrates Before Unloading</b>	No
	Invertebrate	No	None Present		
	Plant	No	<b>Plant Form May be Present in Net</b>	<b>Remove Any Plant Before Unloading</b>	No
	Parasites and Pathogens	No	None Present		

## B. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
<b>Step 14.</b> Driver unloads WAE by pouring net into tank.	Fish/Other Vertebrate <u>Salmonids</u>	Yes	NTS Fish May Be Present in Net	If NTS of Concern present, run Each Net Over Sort Board before Loading into Unit	Yes
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Net	Remove any Plant from Net before Unloading	No
	Parasites and Pathogens	No	None Present		
<b>Step 15.</b> During transportation, WAE are checked periodically for water quality and health.	Fish/Other Vertebrate <u>Salmonids</u>	No	NTS Fish May Be in Tank	Remove any NTS Vertebrates from Tank if Possible	No
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Tank	Remove any NTS Plants from Tank if Possible	No
	Parasites and Pathogens	No	None Present		
<b>Step 16.</b> WAE are transported to Wyoming and transferred to another distribution unit or retained on main distribution for stocking. Fish are weighed onto any receiving distribution units.	Fish/Other Vertebrate <u>Salmonids</u>	Yes	NTS Fish May Be Present in Net	Visual Inspection of Sampled Fish. Sort Board Fish if NTS Identified	No
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Tank	Remove any Plant from Net before Unloading	No
	Parasites and Pathogens	No	None Present		
<b>Step 17.</b> Driver nets WAE from tank into a bucket for stocking in receiving water.	Fish/Other Vertebrate <u>Salmonids</u>	Yes	NTS Fish May Be Present in Net	Visual Inspection of Sampled Fish. Sort if NTS of Concern is Identified	Yes
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Tank	Remove any Plant from Net before Unloading	No
	Parasites and Pathogens	No	None Present		

## B. NTS Hazard Analysis Worksheet (Continued)

(1) Harvest or Aquaculture Step (from flow diagram)	(2) Identify potential NTS hazards introduced or controlled at this step (1)	(3) Are any potential NTS hazards significant? (Yes/No)	(4) Justify your decisions for column 3.	(5) What control measures can be applied to prevent the significant hazards?	(6) Is this step a critical control point? (Yes/No)
<b>Step 18.</b> Receiving individual stocks bucket directly into reservoir.	Fish/Other Vertebrate <u>Salmonids</u>	Yes	NTS Fish May Be Present in Bucket	If NTS Vert ID'd At Step 12 & 17, Visual Review Of Bucket	No
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Tank	Remove Any Plant From Fish Before Stocking	No
	Parasites and Pathogens	No	None Present		
<b>Step 19.</b> Remaining WAE stocked at final stocking site with water released from stocking truck.	Fish/Other Vertebrate <u>Salmonids</u>	Yes	NTS Fish May Still Be Present in Distribution Tank	If NTS ID'd At Step 16 Or 17, Empty Tank Into Net And Run Remaining WAE Over Sort Board If NTS Is Of Concern	Yes
	Invertebrate	No	None Present		
	Plant	No	Plant Form May be Present in Tank	Remove Any Plant From Tank Before Unloading	No
	Parasites and Pathogens	No	None Present		

## 6. ANS-HACCP Plan Form – Preventative Measures

<b>(1) Critical Control Point:</b> Step 11. WAE are sampled for size prior to loading.	
<b>(2) Significant Hazard(s):</b> First opportunity to examine WAE for NTS vertebrates or plant introduction. If no NTS present, risk level reduced significantly.	
<b>(3) Limits for Each Control Measure:</b> Identify any NTS vertebrate present. WGFD representatives informed of NTS prior to their arrival for loading.	
<b>Monitoring</b>	<b>(4) What:</b> If NTS identified, requires focused HACCP due to increased risk level. Identified NTS may be acceptable for destination and considered lower risk level after review of WGFD NTS Acceptance List (APPENDIX E, “Stocking Guide for Non-Target Species Management”).
	<b>(5) How:</b> If NTS is identified in WAE and a concern, additional examination of kettle is required to determine extent of NTS presence. Sorting and removal may be required if NTS not acceptable for destination; or confirm kettle not accepted for importation.



