

APPENDIX A

Garrison Dam National Fish Hatchery HACCP Plan for Northern Pike

Revision Date: March 18, 2003

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- 2) Past Stocking History
- 3) Flow Diagram
- 4) Potential Hazards
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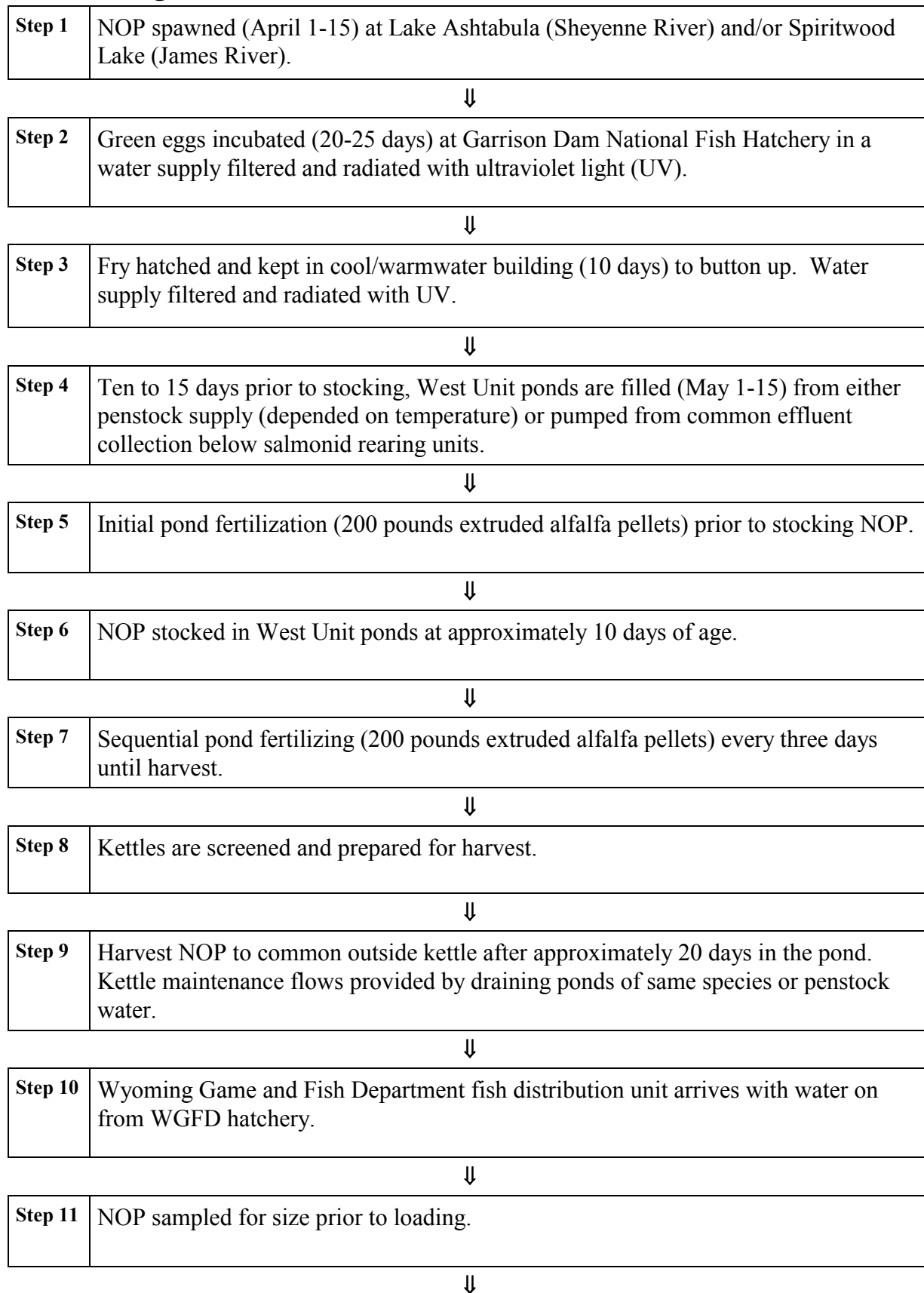
1. Species Description

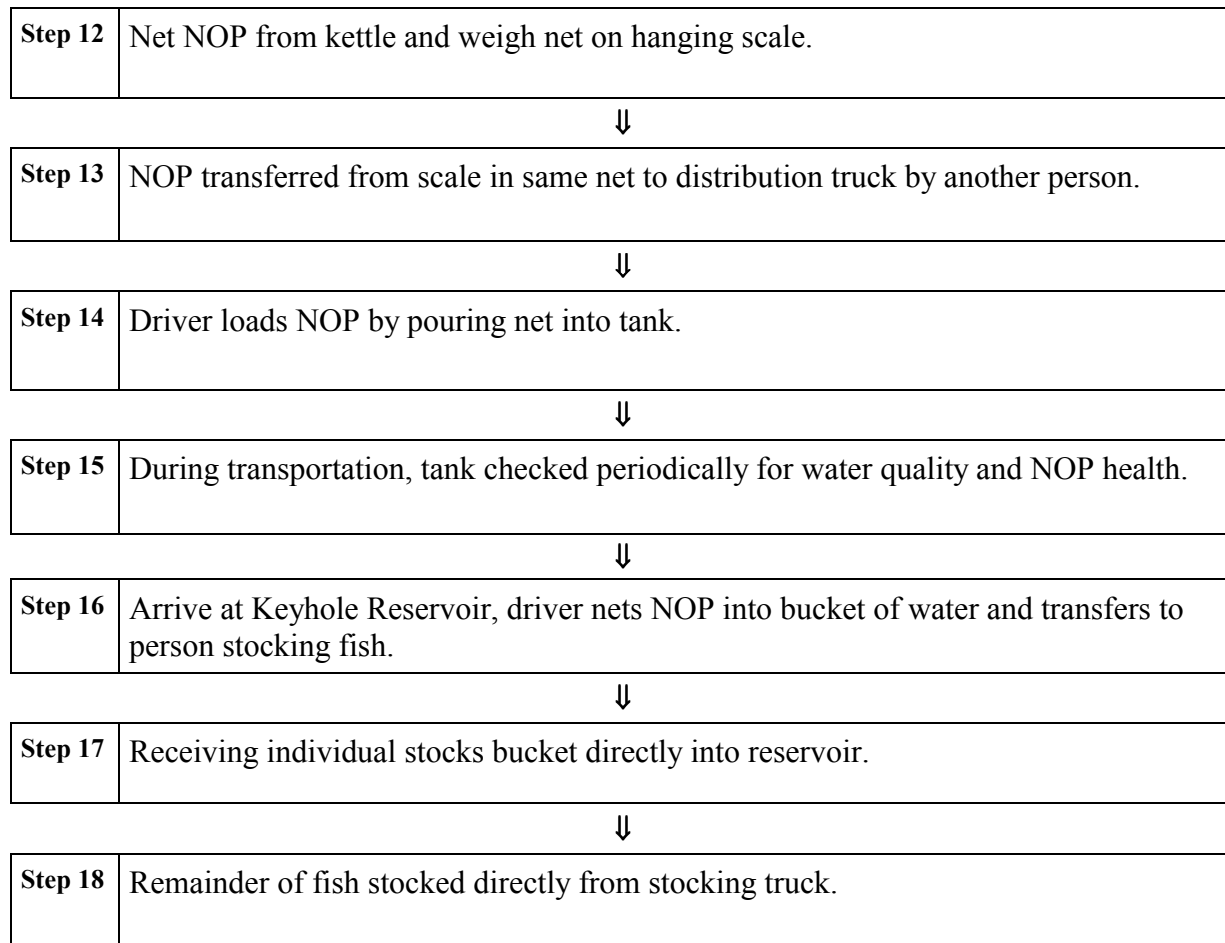
Hatchery Name:	Garrison Dam National Fish Hatchery
Hatchery Address:	Fish Hatchery Road Riverdale, ND 58565
Species of fish imported:	Northern Pike (<i>Esox lucius</i>)/ Species Code NOP
Cultured, wild harvested, or both:	Cultured
Harvest method:	Earthen ponds drained to common outside kettle
Method of distribution:	Wyoming Game and Fish Department fish distribution unit
Intended use:	Importation into the state of Wyoming for public fisheries management.
Risk Level Prior to HACCP:	<u>Level 6, Moderate Risk</u> – ANS Present In Drainage, But Not At Source (APPENDIX F).
Risk Level After HACCP:	<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	Number Stocked	Lbs Stocked	No/Lbs	Stocking Date	ANS/NTS Present
Keyhole Reservoir	NOP	175,076	126.50	1,384	05/30/2001	None Identified
Keyhole Reservoir	NOP	95,460	74.00	1,290	05/23/2000	None Identified
Keyhole Reservoir	NOP	93,258	54.00	1,727	05/23/2000	None Identified
Keyhole Reservoir	NOP	175,000	166.70	1,050	05/28/1999	None Identified
Keyhole Reservoir	NOP	200,410	122.50	1,636	05/28/1998	None Identified
Keyhole Reservoir	NOP	200,037	131.00	1,527	06/10/1997	None Identified
Keyhole Reservoir	NOP	90,900	118.20	769	06/13/1996	None Identified
Keyhole Reservoir	NOP	190,055	125.20	1,518	06/07/1995	None Identified

3. Flow Diagram





4. 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. Steps will be implemented to identify and remove any plant form from process (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 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 NOP, 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 NOP 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 irrdovirus specific to sturgeon has been identified at the facility, however not an issue with NOP and their production process. No parasites are identified or noted on NOP fingerlings. (CONTACT FREQUENCY – VERY LOW)

5. 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)
Step 1. NOP spawned (April 1-15) at Lake Ashtabula (Sheyenne River) and/or Spiritwood Lake (James River).	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)
Step 2. Green eggs incubated (20-25 days) 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		
Step 3. Fry hatched and kept in cool/warmwater building (10 days) to button up. 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		
Step 4. Ten to 15 days prior to stocking, West Unit ponds are filled (May 1-15) 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		
Step 5. Initial pond fertilization (200 pounds extruded alfalfa pellets) prior to stocking NOP.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 6. NOP stocked in West Unit ponds at approximately 10 days of age.	Fish/Other Vertebrate	No	None Present		
	Invertebrate	No	None Present		
	Plant	No	None Present		
	Parasites and Pathogens	No	None Present		
Step 7. 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		
Step 8. Kettles are screened and prepared for harvest	Fish/Other Vertebrate	No	Fish May Migrate From Ditch to Kettle	Check and Clear Kettle Before Screening	No
	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)
Step 9. Harvest NOP to common outside kettle after approximately 20 days in the pond. Kettle maintenance flows provided by draining ponds of same species or penstock water.	Fish/Other Vertebrate	No	NTS Fish May Be Present In Kettle	Visual Inspection Of Fish In Kettle	No
	Invertebrate	No	None Present		
	Plant	No	Algal Forms/Macrophyte May Be In Kettle	Remove From Effluent Screen Or Kettle	No
	Parasites and Pathogens	No	None Present		
Step 10. 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		
Step 11. NOP are sampled for size prior to loading.	Fish/Other Vertebrate	No	NTS Fish May Be Present In Kettle	Visual Inspection Of Sampled Fish	Yes
	Invertebrate	No	None Present		
	Plant	No	Algal Forms/Macrophyte May Be In Kettle	Remove From Effluent Screen Or Kettle	No
	Parasites and Pathogens	No	None Present		
Step 12. Net NOP from kettle and weigh net on hanging scale.	Fish/Other Vertebrate	No	NTS Fish May Be Present In Net	ID & Remove Any NTS Vertebrates From Net	No
	Invertebrate	No	None Present		
	Plant	No	Plant Form May Be Present In Net	Remove Any Plant From Net	No
	Parasites and Pathogens	No	None Present		
Step 13. NOP transferred from scale in same net to distribution truck by another person.	Fish/Other Vertebrate	No	NTS Fish May Be Present In Net	ID & Remove Any NTS Vertebrates From Net Before Unloading	No
	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. 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)
Step 14. Driver unloads NOP by pouring net into tank.	Fish/Other Vertebrate	Yes	NTS Fish May Be Present In Net	If NTS 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		
Step 15. During transportation, NOP are checked periodically for water quality and health.	Fish/Other Vertebrate	No	NTS Fish May Be In Tank	Remove Any NTS If Possible	No
	Invertebrate	No	None Present		
	Plant	No	Plant Form May Be Present In Tank	Remove Any NTS If Possible	No
	Parasites and Pathogens	No	None Present		
Step 16. Arrive at Keyhole Reservoir, driver nets NOP into bucket with water and transfers to person stocking fish.	Fish/Other Vertebrate	Yes	NTS Fish May Be Present In Net	Visual Inspection Of Sampled Fish. Sort If NTS 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		
Step 17. Receiving individual stocks bucket directly into reservoir.	Fish/Other Vertebrate	Yes	NTS Fish May Be Present In Bucket	If NTS ID'd At Step 12, Run Bucket Over Sort Board Before Stocking	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		
Step 18. Remainder of fish stocked with water released from stocking truck.	Fish/Other Vertebrate	Yes	NTS Fish May Still Be Present In Distribution Tank	If NTS ID'd At Step 14, Empty Tank Into Net And Use Sort Board	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		

