



May 10, 2024

Public Works Director
306 S Water St
Silverton, OR 97381

Re: Silver Creek Dam (S- 66) – Inspection Summary

This dam was inspected on April 11, 2024. I performed the inspection with Jacob from the City of Silverton and several members of the Engineering Consulting Groups Alden and Cornforth working on the spillway project. The Water Resources Department conducts routine inspections of the dams’ exterior surfaces to identify conditions that might affect the safety of the dam. Dams are assigned a hazard rating based on downstream hazard to people and property, not on the condition of the dam. Silver Creek Dam is classified as a high hazard dam. High hazard dams are typically inspected every year.

Summary: Results of the inspection are summarized in the table below. Detail regarding the inspection can be found in the following photos and text. Where work is needed, additional information can also be found in the section below. Any aspects of the dam that did not present a dam safety concern are not discussed in this letter.

Category	Inspected	Result
Access	<input checked="" type="checkbox"/>	Adequate
Reservoir	<input checked="" type="checkbox"/>	Adequate
Spillway	<input checked="" type="checkbox"/>	Adequate*
Seepage/Leakage	<input checked="" type="checkbox"/>	Adequate
Conduit	<input checked="" type="checkbox"/>	Adequate
Embankment	<input checked="" type="checkbox"/>	Maintenance
Instrumentation/Monitoring	<input checked="" type="checkbox"/>	Adequate
Emergency Action Plan	<input checked="" type="checkbox"/>	Adequate

*Additional information regarding the spillway will be included in consultants’ reports

Details & Recommendations:

Reservoir

The reservoir level was at 425.5 feet at the time of the inspection with the dam crest at 440 feet. The minimum freeboard was 11 feet, which is adequate.

Spillway

This inspection was done in coordination with the initial site visit set up by consultants Alden and Cornforth who are involved in spillway repair work. The spillway was flowing at the time of inspection preventing thorough inspection of the spillway slabs. As such a follow up visit is tentatively planned for August or September when the spillway is dry. This visit will be led by the consulting groups with someone from dam safety joining if

available. Additional information about the condition of the spillway will be available from their reports.



Flowing spillway

Conduit

The conduit controls on the dam should be cycled (fully opened and closed) annually to ensure they stay in working order. Note that if the valve has not been operated recently, it may become stuck in the open position. As a result, a licensed engineer should be consulted to develop a plan to cycle the valve if there are concerns. Also note that operating the valve could result in sediment release from the dam. Before operating the valve, please contact the Oregon Department of Environmental Quality (DEQ) to develop a plan and determine time of year for operation to ensure water quality standards are not violated.

Embankment

There was some evidence of rodent activity during the last inspection in 2023. This activity has progressed over the last year and should be addressed at this time. There is now an area approximately 20 feet long starting near the solar panels on the first terrace down from the crest of the dam. The trails and burrows appear to be from small rodents such as gophers or rats, and a removal program should be implemented. Once the rodents are managed, if there are deeper burrows, these areas can be filled and compacted down to prevent any areas of potential erosion or water infiltration into the dam.



Large area of burrows across downstream face

Emergency Action Plan

The emergency action plan is scheduled to be exercised toward the end of the year. If you are able, please coordinate with the local Emergency Manager and relevant new staff to find a time that works best for everyone. If you are not able to coordinate with the Emergency Manager, please let us know as we can help with that process. During the exercise, any updates needed for the EAP will be identified and changes can be made at that point. Since the EAP was last updated in 2020 there will likely only be updates needed to the contacts or notification flowchart if any.

Recommendations:

Manage the rodents and any deep burrows

Coordinate with local Emergency Manager and new staff for EAP exercise.

The following information is provided as a courtesy reminder to all dam owners. Per Oregon Administrative Rule (OAR) 690-020-0140, any modification to a dam requires review and approval by the State Engineer before starting construction. Similarly, per OAR 690-020-0160, removal of a dam requires that the removal plan be reviewed and approved by the State Engineer before starting construction. If you are considering modification to or removal of this dam, please reach out to our office for further information.

Please note that if any work is to be completed on the dam or surrounding areas which either directly or indirectly impacts the reservoir, downstream waterway quality, or fish passage, other state and federal agencies may have permit requirements or regulations for this work.

This dam is well maintained and operated and is in Fair condition. Minor maintenance is needed at this time. Please continue the good operation and maintenance of this dam.

We use a standard inspection form, and a copy of the field inspection form for this dam is attached. Thank you for your time. Please let me know if you have any questions about this inspection. We look forward to future inspections of this dam, which will be scheduled for 2025.

Sincerely,

A handwritten signature in black ink that reads "Arden Babb". The signature is written in a cursive style with a large initial "A".

Arden Babb, P.E.
Dam Safety Civil Engineer
(971) 719-0412

C: Tony Janicek Ph.D., P.E., State Engineer
Greg Wacker, Watermaster District 16
Dam Safety File S -66



Oregon Dam Safety Inspection Form

Name of Dam: SILVER CREEK			File #: S-66
Height: 65 ft.	Storage: 1,300 ac. ft.	Permit:	NID #: OR00622
High Hazard Dam	Condition Assessment: Fair	District: 16	
Date: April 11, 2024	Weather: <input checked="" type="checkbox"/> Dry <input type="checkbox"/> Rain <input type="checkbox"/> Snow <input checked="" type="checkbox"/> Now <input type="checkbox"/> Recently	Prior Inspection: September 06, 2022	
Inspector(s): Arden Babb		Others on Site: Nate, Malcom, Brent, Jacob with city	
Issues from Prior Inspection:			

Rating Criteria: 5: Exemplary; 4: Adequate; 4-: Minor Maintenance; 3: Maintenance Action Needed; 2: Corrective Action Needed; 1: Unsafe Condition

General		Rating
Vehicle Access	<input checked="" type="checkbox"/> All Weather Road <input type="checkbox"/> Dirt Road <input type="checkbox"/> None	4
Access Control	<input checked="" type="checkbox"/> Gate <input type="checkbox"/> Locked and Secured <input checked="" type="checkbox"/> Fencing <input checked="" type="checkbox"/> Signage <input type="checkbox"/> None <input type="checkbox"/> Other	4
Detail:		

Reservoir		Rating
Pool Level: <u>424.5</u> ft.	<input type="checkbox"/> Approximated <input checked="" type="checkbox"/> Measured <input type="checkbox"/> Other <input type="checkbox"/> Crest <input checked="" type="checkbox"/> Gage <input type="checkbox"/> Other	
Minimum Freeboard	Vertical distance from debris line to lowest place on crest: <u>11</u> ft.	4
Condition	<input checked="" type="checkbox"/> No Issue <input type="checkbox"/> Floating Debris/Trash <input type="checkbox"/> Log Boom <input type="checkbox"/> Unusual Condition <input type="checkbox"/> Other	4
Detail:		

Spillway		Rating
Structure	<input type="checkbox"/> Earth <input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Culvert <input type="checkbox"/> Rock <input type="checkbox"/> Trickle tube <input type="checkbox"/> Other	
Approach Channel	<input checked="" type="checkbox"/> Clear <input type="checkbox"/> Trees/brush <input type="checkbox"/> Debris <input type="checkbox"/> Erosion <input type="checkbox"/> Other	4
Control Section	<input checked="" type="checkbox"/> Concrete <input type="checkbox"/> Rock <input type="checkbox"/> Soil <input type="checkbox"/> Culvert <input type="checkbox"/> Other <input type="checkbox"/> Unstable	4
Spillway dimensions	Width: ft. Depth: ft. <input type="checkbox"/> Survey Attached	
Flashboards/Gate	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> In place <input type="checkbox"/> Operational <input type="checkbox"/> Deteriorated	N/A
Discharge Channel	<input checked="" type="checkbox"/> Clear <input type="checkbox"/> Trees/brush <input type="checkbox"/> Leakage <input type="checkbox"/> Headcutting feet from spillway control section, depth: feet.) <input type="checkbox"/> None	4
Stilling basin	<input type="checkbox"/> None <input checked="" type="checkbox"/> Functional <input type="checkbox"/> Minor Erosion <input type="checkbox"/> Severe Erosion <input type="checkbox"/> Undercutting <input checked="" type="checkbox"/> No Issue	4
Aux. Spillway	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (use "Detail" box below)	N/A
Detail:	Check for dewatering specs 2 summers ago debris in channel not an issue	

Seepage/Leakage		Rating
Serious Conditions	<input checked="" type="checkbox"/> None <input type="checkbox"/> New Seepage <input type="checkbox"/> Leakage <input type="checkbox"/> Piping <input type="checkbox"/> Discolored Water <input type="checkbox"/> Boils <input type="checkbox"/> Other	N/A
Seepage Locations	<input type="checkbox"/> Center <input type="checkbox"/> Left <input type="checkbox"/> Right <input type="checkbox"/> Around Pipe	
Flow	<input type="checkbox"/> Wet Vegetation <input type="checkbox"/> Spongy <input type="checkbox"/> Standing Water <input type="checkbox"/> Flowing Water	N/A
Toe Drains	<input type="checkbox"/> None <input checked="" type="checkbox"/> Working <input type="checkbox"/> Damaged <input type="checkbox"/> Buried <input type="checkbox"/> Other	4
Flow (gpm)/Detail:		

Conduit		Rating
Control	<input checked="" type="checkbox"/> Manual <input type="checkbox"/> Power <input type="checkbox"/> None	4
Inlet	<input checked="" type="checkbox"/> Submerged <input type="checkbox"/> Debris on trash rack <input type="checkbox"/> Deterioration	N/A
Control/Stem	<input type="checkbox"/> Missing <input checked="" type="checkbox"/> Operable <input type="checkbox"/> Damaged <input type="checkbox"/> Inoperable <input type="checkbox"/> Unknown	4
Valve(s) Cycling	<input type="checkbox"/> Frozen <input type="checkbox"/> Unknown <input type="checkbox"/> Past Year <input checked="" type="checkbox"/> Frequent <input type="checkbox"/> During Inspection	4
Principal Conduit	Diameter/Size: <u>42in.</u> Material: <u>CMP</u> Condition: <u>Fair</u>	4
Primary Outlet	<input type="checkbox"/> Overgrown <input type="checkbox"/> Clean <input type="checkbox"/> Buried/Obstructed <input type="checkbox"/> Pressurized <input type="checkbox"/> Leaking: gpm	4
Other Outlet(s)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	N/A
Detail:	42 outlet 18 outlet both under platform hand hydraulic pump	

Structure of Dam	<input checked="" type="checkbox"/> Earth <input type="checkbox"/> Rock <input type="checkbox"/> Concrete <input type="checkbox"/> Other	Rating
Detail:		
Deformation	<input checked="" type="checkbox"/> None <input type="checkbox"/> Cracks <input type="checkbox"/> Landslide(s) <input type="checkbox"/> Sinkhole(s) <input type="checkbox"/> Movement	4
Crest	<input checked="" type="checkbox"/> No Issues <input type="checkbox"/> Settlement/Low Spots <input type="checkbox"/> Narrow <input type="checkbox"/> Wave Erosion	4
Erosion	<input checked="" type="checkbox"/> None <input type="checkbox"/> Trampling <input type="checkbox"/> Surface Erosion	4
Aux. Dam (s)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Number:	N/A
Detail:		

Animals		Rating
Evidence	<input type="checkbox"/> No Evidence <input checked="" type="checkbox"/> Trails <input checked="" type="checkbox"/> Burrows <input type="checkbox"/> Deep Burrows Max Depth: <u>1</u> ft.	4-
Locations	Rodent control needed especially for downstream face Extensive: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Detail:	8 inch deep burrows in some places 4 inches diameter 20+ feet wide patch of burrows on ds face starting close to solar array near first terrace	

Vegetation		Rating
Cover	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low Grass <input type="checkbox"/> High Grass <input checked="" type="checkbox"/> Brush <input type="checkbox"/> Small Trees <input type="checkbox"/> Large Trees	4
Locations	Impairs Inspection <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	4
Detail:	Some scotch broom starting but not a concern at this time	

Monitoring		Rating
Instrumentation	<input type="checkbox"/> None <input checked="" type="checkbox"/> Weir <input checked="" type="checkbox"/> Piezometer <input type="checkbox"/> Camera <input type="checkbox"/> Reservoir level <input type="checkbox"/> Other	5
Monitoring	<input type="checkbox"/> None <input type="checkbox"/> Continuous <input checked="" type="checkbox"/> Frequent <input type="checkbox"/> Past year <input type="checkbox"/> Unknown	5

Expedited Re-inspection Needed: No Next Inspection Date: 2025

Emergency Action Plan: Exists: Yes Onsite: Yes Current: Yes

- Maintenance action - First Notice
- Maintenance action - Subsequent Inspection with Deficiency
- Corrective action - Unsafe or Potentially Unsafe Condition

Other Issues or Additional Detail Needed: