



March 8, 2024

Bart Stepp, City Engineer
City of Silverton
306 S. Water Street
Silverton, OR 97381

Re: Silver Creek Dam (S- 66) and Pettit Reservoir (P-43) – Inspection Summary

These dams were inspected on June 27, 2023. I performed the inspections with District 16 Watermaster Greg Wacker and Mike Dahlberg. 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 and Pettit is a Significant Hazard. High hazard dams are typically inspected every year and significant hazard every three years.

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.

Silver Creek

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"/>	Adequate
Instrumentation/Monitoring	<input checked="" type="checkbox"/>	Excellent
Emergency Action Plan	<input checked="" type="checkbox"/>	Adequate

Details & Recommendations:

Reservoir

The reservoir level was at elevation 423.9 feet at the time of the inspection. The minimum freeboard was 10 feet, which is adequate.

Spillway

The spillway was flowing and looked to be in good condition during the inspection. Please keep an eye on any areas of turbulent water near the bottom of the spillway and monitor for any signs of spauling or cavitation damage to the concrete.



Flowing spillway

Seepage/Leakage

The usual area of seepage hasn't changed from the previous year. As always, please monitor this area in case of any changes in flow, water coloration, or sediment begins to build up. The weirs were all functioning with a minimal buildup of algae and debris. These should be periodically cleaned for the best reading and functionality.



Area of seepage



Two of the weirs on site

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

No issues with vegetation on the embankment. Short grass covered is maintained across both faces. There was some evidence of potential burrows which staff indicated were likely rats. If these areas appear to get any worse, a removal program will likely be needed for the animals.



Areas of apparent rodent activity



Downstream face of dam and spillway stilling basin

Emergency Action Plan

The last update for this EAP was completed in 2020. We will likely be reaching out about exercising and updating the EAP in 2024 or 2025.

Summary of Recommendations:

No additional recommendations at this time for Silver Creek Dam. This dam is well maintained and operated and in Satisfactory condition.



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: June 27, 2023	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: August 25, 2021	
Inspector(s): Arden Babb		Others on Site: Greg Wacker, Mike Dahlberg	
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 checked="" 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>423.9</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>10</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:		

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 checked="" type="checkbox"/> Flowing Water	4
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:	1 gpm	

Conduit		Rating
Control	<input checked="" type="checkbox"/> Manual <input checked="" type="checkbox"/> Power Hydraulic <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>Steel</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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	4
Detail:	18 and 42 inch conduits	

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 type="checkbox"/> Trails <input checked="" type="checkbox"/> Burrows <input type="checkbox"/> Deep Burrows Max Depth: <u>0.5 ft.</u>	4
Locations	Approximately center of the upstream face Extensive: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Detail:	Some rodent activity, staff indicated it was likely rats. There are trails along the upstream face of the dam that look like caved in burrows.	

Vegetation		Rating
Cover	<input type="checkbox"/> None <input checked="" type="checkbox"/> Low Grass <input type="checkbox"/> High Grass <input 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:		

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

Expedited Re-inspection Needed: No Next Inspection Date: 2024

Emergency Action Plan: Exists: Yes Onsite: No 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: