

Dam Safety Inspection Report

Name: **Prison Pond**
State ID: **248.07** NID ID: VT00363
Hazard Class: **Significant Hazard Potential**

Town: **Windsor**
Watershed: Mill Brook
Stream: Hubbard Brook-TR

Inspection Details

Inspection date: 08/03/2023 14:18

Inspection type: Periodic

Weather: Sunny, Cloudy, 72F

Inspected by:

Andrew Sampsell, State of Vermont
Michael Hildenbrand, DuBois & King, Inc.

Others present:

Dam Safety Recommendations

The following recommendations and remedial measures describe the recommended approach to address current deficiencies at the dam. Maintenance level activities can be performed by the Owner, while Studies and Analyses and Remedial Repair Recommendations will require the services of a qualified professional engineer registered in the State of Vermont who is experienced in dam safety engineering design, permitting, and construction.

Overall dam condition:

Satisfactory Fair Poor Unsatisfactory Not Rated

**See General Information section at the end of report for further details*

Immediate Consideration

- The concrete crest wall to the left and right of the spillway is cracked resulting uncontrolled leakage. This is causing erosion of the downstream embankment and if left unchecked could potentially lead to dam failure. Additionally due to the deteriorated condition of this concrete wall, there is an elevated risk of the wall failing due to inadequate strength to resist loading conditions. A measure to maintain a lower water level which does not result in uncontrolled leakage under normal conditions should be implemented as soon as possible to mitigate the likelihood and potential risks of dam failure. The water level should be maintained at the lower level until remedial repairs are implemented and approved.

Maintenance level recommendations

General

- Consider posting warning signage restricting public access to the dam.
- On a regular basis and following the application of unusual or extreme loading conditions, perform monitoring of the dam and its appurtenances. Report any unsafe conditions to the Dam Safety Program.

Maintenance level recommendations	
<i>Emergency Action Planning</i>	<ul style="list-style-type: none"> Review/update Emergency Action Plan procedures and contacts at least every other year and provide the updates to all key contacts. The current EAP on file is from 2008 and the pdf does not include the inundation maps from the dam failure analysis.
<i>General embankment</i>	<ul style="list-style-type: none"> Establish and maintain vegetation clearing limits a minimum of 15 feet from all portions of the dam. Annually cut and remove grass, weeds, brush, and woody vegetation (but leave stumps) from the dam crest, upstream and downstream slopes, abutments, and downstream areas to near ground surface. Once tree stumps are suitably rotten, remove stumps and backfill resulting voids with compacted granular fill. Seed and mulch the ground surface to promote grass cover. Mow the grass surfaces of the embankment and auxiliary spillway once to twice annually.
<i>Upstream Slope</i>	<ul style="list-style-type: none"> Monitor the condition of the stone fill on the reportedly over-steepened upstream slope.
<i>Crest area</i>	<ul style="list-style-type: none"> Monitor the dam crest for signs of settlement. Monitor the condition of the concrete joints. Remove debris from the joints and re-install sealant.
<i>Concrete Walls</i>	<ul style="list-style-type: none"> Monitor the concrete surface conditions. Perform minor surficial repairs as needed. Monitor the upstream/downstream concrete/stone masonry walls for unusual movement, and changes in leakage.
<i>Downstream Slope</i>	<ul style="list-style-type: none"> Monitor the reportedly over-steepened downstream slope. Monitor the area of erosion along the outside of the principal spillway training walls. Repair/temporarily stabilize erosion by placing stone. Monitor wet area below right downstream slope for changes.
<i>Spillways</i>	<ul style="list-style-type: none"> Maintain the spillway free of debris to ensure free-flow conditions. Monitor and repair minor concrete cracking and deterioration. Monitor the condition of the concrete chute and training walls.

Studies and analysis	
<i>General</i>	<ul style="list-style-type: none"> Review findings of 2022 alternatives analysis report by DuBois & King, Inc. The report evaluates the dam's condition based on visual inspection and file review, includes a recent hydrologic and hydraulic analysis, and comments on deficiencies/uncertainties. The report also provides a series of conceptual alternatives for the owner's considerations along with corresponding cost/benefit information.

Studies and analysis	
<i>Hydrology and hydraulics/hazard classification</i>	<ul style="list-style-type: none"> • Consider re-evaluating the hazard potential classification of the dam since the impoundment no longer serves as the supply for a fire suppression system. If the dam is found to have LOW hazard potential, the technical standards which it will be required to meet will be lessor than current standards based on SIGNIFICANT hazard potential. • Identify alternatives to make the dam hydraulically adequate or capable of safely being overtopped during the Inflow Design Flood.
<i>Operation and maintenance</i>	<ul style="list-style-type: none"> • Develop an Operations and Maintenance Manual for the dam and provide a copy to the Dam Safety Program for record keeping purposes. • Investigate and document the location of all piping through the dam including the reported 15-18 inch low-level-outlet pipe and the 8-inch water supply / fire suppression system pipe. Determine if any pipes through the dam are perpetually pressurized. Evaluate the condition of the piping. Evaluate the condition/operability of the gate mechanism located on the principal spillway crest. Identify remedial measures to address any deficiency associated with the location/condition/configuration/operability of these outlets. • Currently it appears there is no readily available method to lower the impoundment in the situation where an unusual/unsafe condition is detected at the dam. Evaluate potential alternative measures to allow for the water level to be lowered.
<i>Structural/ Geotechnical</i>	<ul style="list-style-type: none"> • Evaluate concrete deterioration, cracking, and leakage. Develop repair solution(s) to address leakage through the concrete crest wall and subsequent erosion of the downstream slope. • Perform an engineered stability analysis of the dam and appurtenant structures such as the principal spillway training walls. • Evaluate the appropriateness of either temporarily partially breaching the dam or buttressing the dam and its appurtenant structures until it is possible to proceed with removal/rehabilitation/replacement.

Remedial repair recommendations
<ul style="list-style-type: none"> • Based on the studies and analysis recommended above, repair, rehabilitate, or replace the dam to bring it into compliance with current dam safety rules and guidance. Alternatively, consider pursuing dam removal.

Dam Information		
Type: Concrete Purpose: Fire Protection or Small Farm Pond	Status: In Service Height: 18 ft Length: 154 ft	Construction date: 1925 Foundation conditions: Concrete at left abutment extends to gravel access road about 1 ft higher than road, water would flow down road before overtopping dam crest.
Owner/Contact/Operator: State of Vermont - DFW		
Normal storage: 6 ac-ft	Max storage: 8 ac-ft	Dam has capability to impound more than 500k cubic feet (11.48 ac-ft)
Normal surface area: 1 ac	Drainage area: 0.32 sq mi	Max surface area: Not determined
Pool elevation during inspection: 2.5 inches above crest	Tailwater elevation during inspection: Normal no backwater	Normal pool elevation: Reportedly El. 1,059.4 (NAVD88 ft)
Dam has not been breached or overtopped.		
Dam does not have public road on crest.	Dam does not have public bridge.	Dam does not have associated dike.
Reservoir shape: Round	Reservoir average depth (ft): Unknown	Reservoir observations: Not Estimated
Shoreline development: <input checked="" type="checkbox"/> Undeveloped <input type="checkbox"/> Semi-developed <input type="checkbox"/> Developed <input type="checkbox"/> Unknown		
Reservoir slopes: <input type="checkbox"/> Mild <input checked="" type="checkbox"/> Moderate <input type="checkbox"/> Steep <input type="checkbox"/> Unknown		
Inspection history: Last periodic inspection was in 2022 and the dam's condition was rated POOR.		
Notes: none		

Access road to dam		
Type: Seasonal road	Road name: Pond Rd	Distance from access road to dam: 50 feet
Seasonal access: <input type="checkbox"/> Plowed winter <input type="checkbox"/> Sanded winter <input type="checkbox"/> Maintained in mud season <input type="checkbox"/> Passable in all weather conditions <input checked="" type="checkbox"/> Need high clearance vehicle		
Access of emergency/construction equipment: Fair, would be difficult for larger vehicles; work truck can access. Winter access is likely challenging. Outflow from dam has the potential to washout the access road at culvert crossing.		
Action required: <input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input type="checkbox"/> Engineer		

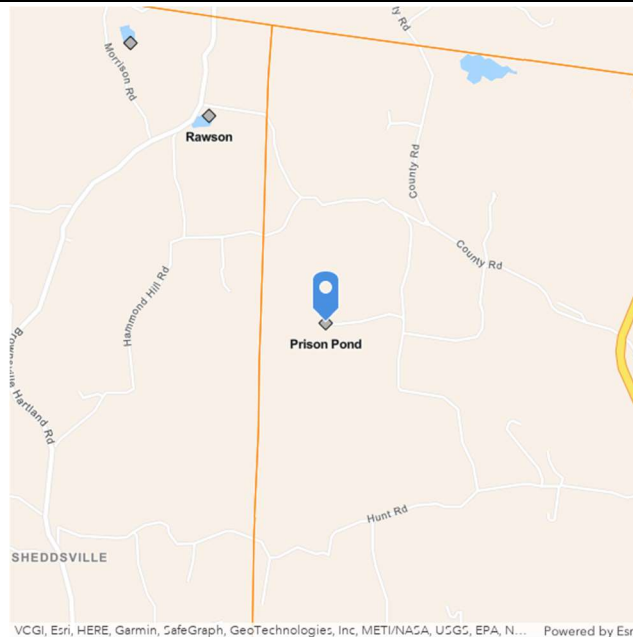
Security	
Device type(s): Welded metal plates and chain around outlet operating stem.	Dam has no sign of vandalism, trespass or unauthorized operation. File records indicate vandalism has been an issue in the past.
Action required: <input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input type="checkbox"/> Engineer	

Public/Inspection team safety at dam	
Confined space entry required: No	Fall protection required: Recommended in the vicinity of the spillway.
Other safety required: None Observed	Public safety consideration: Post warning signage, restrict public access.
Action required: <input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input type="checkbox"/> Engineer	

Dam Description/Background

Prison Pond Dam is a composite stone masonry, earth fill, and concrete dam with principal spillway and Low-Level Outlet (LLO). The dam is currently classified as a SIGNIFICANT hazard potential. The dam has a total length of approximately 154 feet and a height of 18 feet. The dam crest is a concrete wall which is 1.5 feet wide and runs the full length of the dam excluding the spillway sections. The upstream wall face has 5-7 feet of exposed surface, and the downstream wall face has 1-3 feet of exposed surface. The principal spillway is a 20-foot concrete ogee shaped weir with downstream training walls in the dam center; it includes a small concrete pier in the center to support the safety measures and operating stem of the LLO. The spillway discharges into a rock-lined channel. The LLO is reportedly a 15 to 18-inch diameter galvanized metal pipe operated by a slide gate which is accessible from the pier in the principal spillway. In addition, there is reportedly an 8-inch diameter pipe in the same vicinity that was/is used to provide water to fire hydrants at the former correctional facility. The Prison Pond reservoir has a surface area of approximately 1 acre, a normal storage of 6 acre-feet, a maximum storage of 8 acre-feet, and a drainage area of 0.32 acres. The dam was constructed in 1925 for fire protection at the State Prison and has undergone reconstruction in 1950 and 1989. The Vermont Department of Fish and Wildlife (F&W) acquired former "Windsor Prison Farm" property from the Vermont Department of Buildings and General Services (BGS) and converted the land in 2018 into the Windsor Grasslands wildlife management area (WMA).

Dam Location



Emergency Action Plan

EAP on file

EAP date:
January 31, 2008

Emergency Action Plan

As the dam is a SIGNIFICANT Hazard potential dam, an up-to-date EAP with dam failure flood hazard inundation map is required.

What issues are present with the EAP?	Action
<input type="checkbox"/> None <input checked="" type="checkbox"/> Revisions required <input type="checkbox"/> Not approved <input type="checkbox"/> No plan available <input type="checkbox"/> Inundation study required <input type="checkbox"/> Format out of date <input type="checkbox"/> Under review	<input type="checkbox"/> None <input type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Engineer
The 2008 dam failure analysis should be reviewed to determine if the current hazard potential classification is still appropriate and determine if any updates to the analysis are warranted. The EAP should be reviewed, and procedures/contact information updated as appropriate. The inundation maps are missing from the EAP the dam safety program has on file.	

Operation & Maintenance Manual

O&M Manual **not on file**.

Accessibility to outlets or low-level outlet (LLO): Inadequate, center of spillway, access bridge no longer present.	Frequency of outlet or LLO discharge: Unknown, currently not operable.
Frequency of mowing: Unknown	Seasonal drawdown? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Frequency of dam owner surveillance: Unknown	Owner surveillance during storm events: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Operating problems since last inspection: None reported	History of repairs since last inspection: None reported

What issues are present with the O&M Manual?	Action
<input checked="" type="checkbox"/> No plan available	<input checked="" type="checkbox"/> Engineer

Downstream Hazard Classification

Current classification: Significant Hazard Potential
 Reportedly the hazard potential classification was assigned Significant based on pond formerly serving as the fire suppression systems water supply for the prison. The prison reportedly closed in 2017. The results of the 2008 dam failure analysis performed by DuBois & King, Inc. indicate the following. Corresponding inundation maps were not available on DSP file.

- No homes flooded.
- No businesses flooded.
- 3 Roads Impacted: Marton Road, State Farm Road, County Road

Hydrologic/Hydraulic Data

Since the Prison Pond Dam is currently classified as a SIGNIFICANT hazard potential dam, the Inflow Design Flood (IDF) is considered the 1,000-year storm event in accordance with Federal Guidance currently used in the State of Vermont. Based on file review the most recent hydrologic and hydraulic (H&H) analysis for the dam was performed by DuBois & King, Inc. in 2022. This analysis involved an update of the 2008 H&H analysis that was performed as part of a hazard potential classification study and EAP development. All elevations listed are reportedly in reference to the NAVD88 feet vertical datum.

Flood Frequency	Precipitation (inches)	Peak Inflow (cfs)	Peak Outflow (cfs)	Maximum Pond Level (ft)	Freeboard (+) or Overtopping (-) Depth (ft)
2-yr (24-hr)	2.70	31.9	31.3	1,060.0	1.7
10-yr (24-hr)	3.90	78.0	77.3	1,060.5	1.2
50-yr (24-hr)	5.21	137.8	136.6	1,060.9	0.8
100-yr (24-hr)	5.80	166.7	165.2	1,061.2	0.5
500-yr (24-hr)	7.44	250.5	248.8	1,061.7	0
1000-yr (24-hr)	8.24	292.6	292.0	1,061.8	-0.1

Normal Water Level / Principal Spillway Crest EL.: 1,059.4 ft
 Dam Crest El.: 1,061.7 ft

According to State requirements the dam needs to provide a prescriptive minimum of 1.5 feet of freeboard between the peak water surface elevation of the IDF and the dam crest. According to results of the analysis the dam is overtopped by 0.1 ft during the IDF, and this requirement is not met.

According to State requirements the dam needs to provide a minimum of 3.0 feet of freeboard between the normal water level and the dam crest. According to the analysis this requirement is not met.

Upstream Slope

General slope inclination: Not measured, submerged, file records indicate that the upstream slope is over-steepened at 1H:1V. The top of the upstream slope is benched.

Upstream Slope

Additional comments: The upstream slope consists of stone fill which appears to include an approximately 5-foot-wide bench at the top of the slope. File records indicate the dam used to a stone fill structure. It is considered plausible that the current dam configuration may have been built on top of remaining portions of the original dam.

Upstream slope protections	Action
Stone fill along the upstream concrete wall face.	<input checked="" type="checkbox"/> Monitor

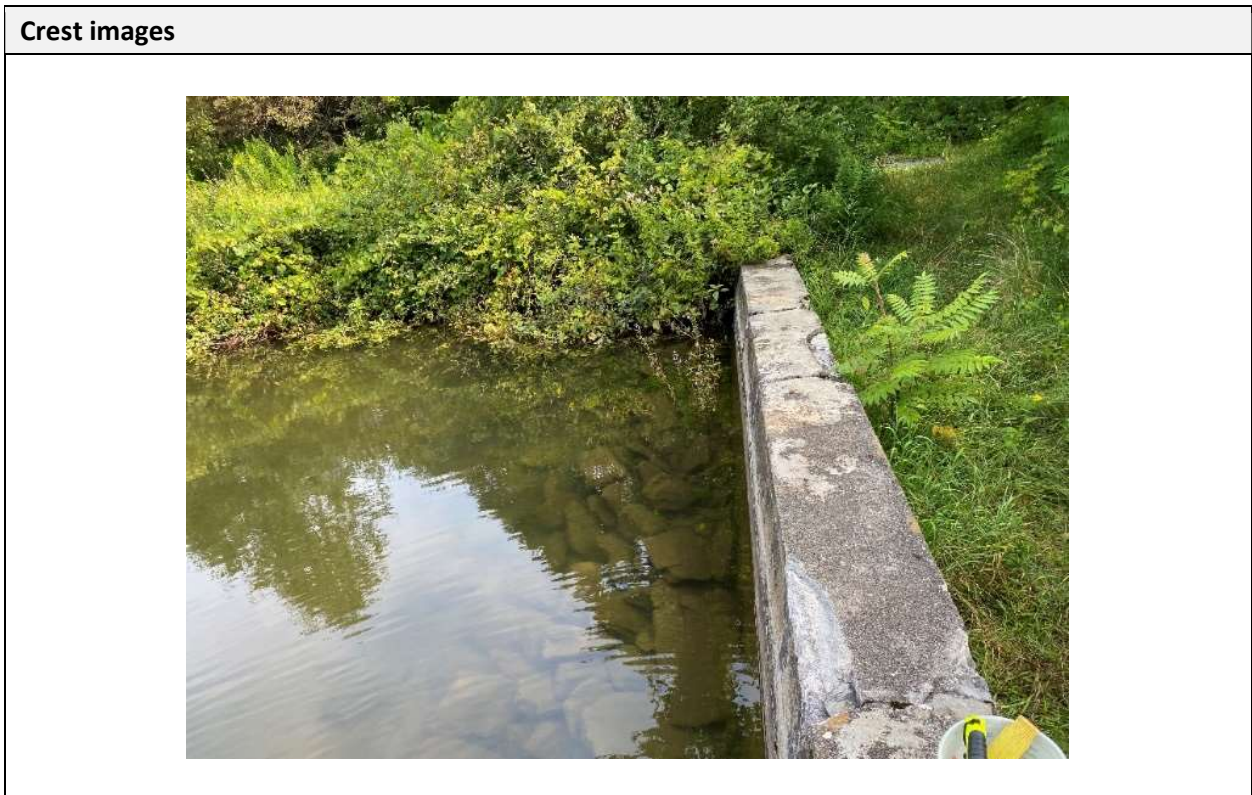
Upstream slope issues	Action
No upstream slope issues were observed during the inspection.	<input checked="" type="checkbox"/> None

Upstream slope images



Crest	
Length: 154 ft	Width: 1.5 ft
Freeboard: Principal spillway crest to dam crest: 2.3 ft	
Additional comments: It is unknown how far down the crest wall extends into the embankment. At the left abutment a concrete wing-wall extends upstream towards the impoundment. Reportedly this wingwall was installed to prevent the adjacent access road from being washed-out during rare flood events. Several joints along the top of the crest wall are deteriorating and missing material. There is evidence of past repairs made to address concrete spalling along the crest of the wall.	

Crest issues	Action
Brush Coverage: Dense Location: Right End, Middle	<input type="checkbox"/> None <input type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Engineer
Missing Joint Material/Expansion of Joints Location: Entire Surface	<input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Engineer



Crest images



Concrete Wall		
Wall type: Concrete Length: 154 ft		
Wall height (exposed): 5 to 7 ft above submerged rockfill (upstream) 1 to 3 ft above earth fill (downstream)	Horizontal wall alignment: Good	Vertical wall alignment: Good
Unusual wall movement: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Additional comments: Wall has been noted to be deteriorating, resulting in leakage since at least 1993.		Surface condition: Poor condition, cracks, spalling.
Joint condition: Poor condition, missing material and expanding.		Abutment contact condition: Left abutment fair, higher than adjacent grade, right good, level with adjacent grade.

Concrete wall issues	Action
Concrete Deterioration While portions of the concrete seem solid based on sounding; there are areas of severe deterioration which result in leakage. These areas require an engineered repair solution.	<input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Engineer
Leakage Flow rate: 8 GPM+ Location: To either side of spillway along concrete wall. Through deteriorating concrete joints and cracks in wall. Leakage resulting erosion of downstream slope along outsides of principal spillway training walls.	<input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Engineer

Concrete wall images



Near intersection of left concrete wall with left spillway training wall.



Concrete wall images



Near intersection of right concrete wall with right spillway training wall.

Downstream Slope

General slope inclination: Not measured, appeared to be over-steepened. File records indicate the downstream slope is approximately 1V:1H.

Additional comments: Downstream slope consists of earth fill located below the concrete wall portions of the dam. The downstream slope was densely vegetated which prevented thorough inspection. While no engineered stability analysis available exist on file, the presence of the downstream material is likely critical to the overall stability of the dam, and similarly the condition of the concrete crest wall and its ability to function as a hydraulic cutoff is likely critical to the stability of the downstream slope.

Downstream slope protections	Action
<p>Vegetation Condition:</p> <p> <input type="checkbox"/> Adequate <input type="checkbox"/> Bare <input checked="" type="checkbox"/> Too tall <input type="checkbox"/> Improper <input type="checkbox"/> Sparse <input type="checkbox"/> Too short </p> <p>Comments: Overgrown, lack of maintenance.</p>	<p> <input type="checkbox"/> None <input type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Engineer </p>

Downstream slope issues	Action
<p>Trees Location: Entire Surface</p>	<p> <input type="checkbox"/> None <input type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Engineer </p>
<p>Wet Areas Location: Toe of right downstream slope.</p>	<p> <input type="checkbox"/> None <input checked="" type="checkbox"/> Monitor <input type="checkbox"/> Maintenance <input type="checkbox"/> Engineer </p>

Seepage Collection Systems	Number
No seepage collection systems were observed during the inspection.	0

Downstream slope images



Instrumentation
No instrumentation found.

Principal Spillway	
Spillway type: Weir	Primary material: Concrete Weir: Ogee
Spillway location: Center of dam	Gate: Unknown
Water level measured against principal spillway crest: 1-inch above crest	Erosion control structures: Plunge Pool, Impact Basin, Rock-Lined Channel
Spillway components:	
<input type="checkbox"/> Anti-vortex plate	<input type="checkbox"/> Filter Diaphragm <input checked="" type="checkbox"/> Training Walls
<input type="checkbox"/> Flashboard	<input type="checkbox"/> Trash rack <input type="checkbox"/> Other:
<p>Additional comments: Water seeping through dam crest wall is running along the outside of the principal spillway training walls and eroding material. The base of the left concrete spillway training wall is being undermined. The left spillway training wall is more deteriorated than the right wall and has several cracks of considerable size. It appears the right wall was replaced or resurfaced more recently than the left wall. The surface of the spillway chute is slowly being eroded; deterioration is concentrating at vertical lift joints.</p>	

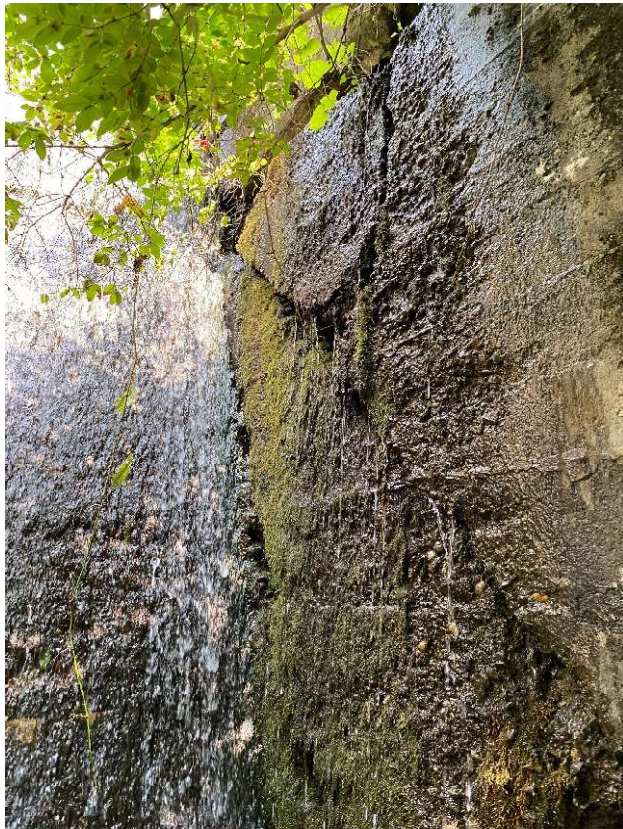
Principal spillway issues	Action																
<p>Deteriorating concrete</p> <p>Issues:</p> <table border="0"> <tr> <td><input type="checkbox"/> Bug holes</td> <td><input checked="" type="checkbox"/> Pop outs</td> <td><input type="checkbox"/> Isolated crack</td> <td><input type="checkbox"/> None</td> </tr> <tr> <td><input checked="" type="checkbox"/> Hairline crack</td> <td><input type="checkbox"/> Honeycombing</td> <td><input type="checkbox"/> Exposed rebar</td> <td><input checked="" type="checkbox"/> Monitor</td> </tr> <tr> <td><input checked="" type="checkbox"/> Efflorescence</td> <td><input checked="" type="checkbox"/> Scaling</td> <td><input type="checkbox"/> Disintegration</td> <td><input type="checkbox"/> Maintenance</td> </tr> <tr> <td><input checked="" type="checkbox"/> Spalling</td> <td><input type="checkbox"/> Crazed/Map cracks</td> <td><input type="checkbox"/> Other:</td> <td><input checked="" type="checkbox"/> Engineer</td> </tr> </table> <p>Location: Entire Surface</p>	<input type="checkbox"/> Bug holes	<input checked="" type="checkbox"/> Pop outs	<input type="checkbox"/> Isolated crack	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Hairline crack	<input type="checkbox"/> Honeycombing	<input type="checkbox"/> Exposed rebar	<input checked="" type="checkbox"/> Monitor	<input checked="" type="checkbox"/> Efflorescence	<input checked="" type="checkbox"/> Scaling	<input type="checkbox"/> Disintegration	<input type="checkbox"/> Maintenance	<input checked="" type="checkbox"/> Spalling	<input type="checkbox"/> Crazed/Map cracks	<input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Engineer	
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<input checked="" type="checkbox"/> Spalling	<input type="checkbox"/> Crazed/Map cracks	<input type="checkbox"/> Other:	<input checked="" type="checkbox"/> Engineer														
<p>Vegetation & Debris</p>	<input type="checkbox"/> None <input type="checkbox"/> Monitor <input checked="" type="checkbox"/> Maintenance <input type="checkbox"/> Engineer																

Principal spillway drains	Number
No drains were observed during inspection.	0

Principal spillway images









Principal spillway images**Outlets**

The dam reportedly includes a low-level-outlet which can be accessed from the middle of the principal spillway crest. The walkway which formerly provided access to this outlet has been removed and metal plates have been welded to the operator stem to “discourage vandalism”. The size of the pond drain is reportedly 15 to 18 inches in diameter. The dam also reportedly includes an 8-inch pipe which supplies water to the former prison facility. It is unclear if this pipe is also controlled by the same operating mechanism. Neither pipe was observable during the inspection, pipes are assumed to have been buried.

Outlet images**GENERAL INFORMATION**

Website: <https://dec.vermont.gov/water-investment/dam-safety>

The Dam Safety Program conducts periodic safety inspections of non-federal, non-power dams to determine their condition and the extent to which they pose a potential or actual threat to life, property, and the environment. The condition rating reported herein was based on available data and visual inspection. Detailed investigations/analyses were beyond the scope of this report. It should be realized that the reported condition was based on observations of field conditions at the time of inspection, along with data available to the inspection team. The condition of the dam depends on numerous and constantly changing internal and external conditions and is evolutionary in nature. It would be incorrect to assume that the reported condition of the dam will continue to represent the condition of the dam in the future. Only through continued care and inspection can there be any chance that unsafe conditions are detected.

Hazard Potential Classifications:

HIGH: Dams where failure or mis-operation will probably cause loss of human life.

SIGNIFICANT: Dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

LOW: Dams where failure or mis-operation results in no probable loss of human life and low economic and environmental losses.

MINIMAL: A dam that meets the LOW hazard definition, above, but is only capable of impounding less than 500,000 cubic feet.

Condition Ratings:

SATISFACTORY: No existing or potential dam safety deficiencies are recognized. Acceptable performance is expected under all loading conditions (static, hydrologic, seismic) in accordance with the applicable regulatory criteria or tolerable risk guidelines.

FAIR: No existing dam safety deficiencies are recognized for normal loading conditions. Rare or extreme hydrologic and/or seismic events may result in a dam safety deficiency. Risk may be in the range to take further action.

POOR: A dam safety deficiency is recognized for loading conditions which may realistically occur. Remedial action is necessary. POOR may also be used when uncertainties exist as to critical analysis parameters which identify a potential dam safety deficiency. Further investigations and studies are necessary.

UNSATISFACTORY: A dam safety deficiency is recognized that requires immediate or emergency remedial action for problem resolution.

NOT RATED: The dam has not been inspected, is not under state jurisdiction, or has been inspected but, for whatever reason, has not been rated.

Definitions:

Upstream: The side of the dam that borders the impoundment located up gradient of the dam.

Downstream: The side of the dam opposite the upstream side, located down gradient of the dam.

Right: The area to the right when looking in the downstream direction (also known as “river right”).

Left: The area to the left when looking in the downstream direction (also known as “river left”).

Structural Height-of-Dam: The vertical distance from the lowest point in the stream bed or native ground surface at the downstream toe of the dam to the elevation of the lowest non-overflow section of the dam crest.

Embankment: An artificially constructed feature usually consisting of earth and rock with sloping sides and a flat crest, intended to provide a permanent barrier that impounds or is capable of impounding water.

Dam Crest: The top of the non-overflow portion of the dam.

Abutment: The part of a valley side against which a dam is constructed. An artificial abutment is sometimes constructed at the interface with a concrete gravity section.

Normal Pool: The water elevation, reservoir surface area, and reservoir storage capacity that is prevalent at the site or typical under normal, non-storm conditions. Typically, this level is controlled by the principal spillway.

Maximum Pool: The highest water elevation, reservoir surface area, and reservoir storage capacity that could be impounded by the dam, including accumulated sediments, with the water or liquid level at the top of the lowest non-overflow part of the structure or dam crest.

Principal spillway: A structure that maintains normal pool conditions and over which daily non-storm related and flood flows are discharged. Also called a primary or service spillway.

Auxiliary Spillway: The secondary spillway not in use under normal conditions but used when needed to pass flood flows that exceed the capacity of the principal spillway.

Low-level outlet or “LLO”: An installed pipe and operable gate or valve typically located in or near the foundation of a dam that can be used to alter water levels, drain the reservoir, or otherwise meet operational or safety needs. Also called a pond drain.

Spillway Design Flood or “IDF”: The storm event which the dam is designed and required to safely pass. Dam safety rules under development are considering the following prescriptive IDF’s, Low and Minimal = 100-year Storm, Significant = 1,000-year storm, High = PMF. The use of incremental consequence analysis or risk-informed decision making to evaluate the potential of selecting a smaller/site specific IDF is permitted.

Emergency Action Plan (EAP): A written plan that identifies the area that would likely be inundated by the failure of a dam and identifies the actions that should be taken by the Owner to protect life, property, lifelines, and the environment in the event of a dam failure or threatening condition at the dam. The plan is usually implemented in cooperation with the local, regional, and state emergency personnel.

Operation and Maintenance Plan or “O&M”: A plan that provides guidelines for the necessary, regular operation and maintenance activities at a dam.

Complete list of definitions from the Vermont Dam Safety Rule:

<https://anrweb.vt.gov/DEC/IronPIG/DownloadFile.aspx?DID=185352&DVID=0>