

4.0 GORGE FACE SEEP SURVEY

The bi-annual field survey of the accessible pathways along the Niagara Gorge between the New York Power Authority (NYPA) fence on the Lower Access Road and the Garfield Avenue Outfall Sewer was conducted by MSRM, along with representatives of the New York State Department of Environmental Conservation (NYSDEC) and the United States Environmental Protection Agency (EPA). The purpose of the survey is to monitor the status of previously identified seeps/wet areas and to identify new flowing seeps/wet areas. The team of survey members who participated on August 23, 2006 consisted of:

- Will Welling - NYSDEC;
- Don McLeod - GSHI;
- Tamara Raby - Earth Tech Consultants (for EPA);
- Jim Thornton - CRA; and

The weather was warm (~72° F), with partly cloudy skies.

4.1 SEEP SURVEY RESULTS

During the survey, all of the seep/wet areas identified during previous surveys were re-examined and a re-evaluation of the proposed remedial action was conducted. The seep locations are presented on Figure 4.1. It should be noted that NYPA added slope stability fence fabric along portions of the gorge face in the spring of 2000 to protect the access road.

A total of 29 seep locations and eight culverts, as well as the Garfield Street Outfall Sewer and the Bloody Run outlet, were visited and inspected for variations in flow and exposed wet areas. Descriptions of the observations from each remaining seep are listed in the following summary of survey results.

Due to vegetation and rock covering large portions of Seep 7 this seep is no longer composed of nine (9) distinct parts (labeled a through i). Therefore the summary has combined areas of this seep together under common descriptions.

It should be noted that during this inspection it was decided to only mention odor if it was present at this time. However no chemical odors were present at any seeps or culverts during this inspection.

	SEEP SURVEY RESULTS	
<i>Seep No.</i>	<i>Description</i>	<i>Notes</i>
1	Dry, normal vegetation, seep basin is clear and dry.	Seep conditions have not changed since 2000.
2 (Culv. 6)	Damp area 0 to 30 feet north of seep (from Lockport/Rochester contact). Steady drip, minor green algae and grass on face of Rochester Shale, several wet and dripping areas, seep basin totally full of rock.	No fence present. Same conditions as noted in 2000- 2004.
2.(Ditch line)	No odor, green moss, heavy vegetation. Heavy talus in ditch.	Same conditions as in 2002, 2003, 2004.
3 (Top)	Heavy phragmites reeds and other vegetation on north and south sides of Bloody Run concrete box culvert. Area is dry	Area fenced. Same conditions as in 2002, 2003, 2004
3 (Bottom) Culvert 5	Heavy vegetation. Seep basin is clear. Rocks are wet but no standing water in basin (deepest portion) at Bloody Run Culvert.	Remediated. Same as 2002, 2003, 2004
4	Steady dripping water (approx. 1 gpm). Very heavy vegetation.	Fence in place. Same as 2002, 2003, 2004.
5	Damp rock face, occasional dripping.	Remediated. Same as 2001-2004.
6	Moist rock face with slight dripping.	Remediated. Same as 2001-2004.
7 a,b	Covered with local rock. Vegetation.	Remediated. Same as 2001-2004.
7 c	Some exposed channel flow between rocks. Sparce vegetation	Remediated. Same as 2001-2004.
7 d	Wet and flowing (10 to 15 gpm) over top of Irondequoit (waterfall). Algae on face of rock.	Remediated. Same as 2001-2004.
7 e,f,g,h,i	Flowing water beneath rocks. Some vegetation. Some exposed channel flow.	No action required.
8	Approximately .5 gpm flow. Some vegetation.	No action required.
11a	Inlet area at water's edge covered with local rock. Sediment infilling. Dry.	Remediated. Same as 2000 - 2004
11b	Dry (south of Bloody Run Fence)	Same as 2000 - 2004
12	Steady flow out of culvert from NYPA south tunnel. Flow approximately 10 to 20 gpm. Noticeable algae in pipe.	Sampling discontinued after 2001 due to history of non-detects.
14	Approximately 80' to 100' south of the south fence line of seep 3. Moist face on Reynales approximately 30' wide. Some wet areas originates from the Irondequoit/Reynales contact.	No action required. Same conditions as 2000-2004.

16	Approximately 320' north of the north fence line of seep 1. Slightly moist rock face at north and south ends. Moisture is from the Lockport/Reynales contact.	No action required. Same conditions as 2000-2004.
17a	North - area approximately 150' north of the north wall of seep 2. Slightly dripping at the Irondequoit/Reynales contact. Portion of Irondequoit is damp.	No action required. Basically same conditions as previous years.
17b	South - dry	No action required.
18	Seep is 0 to 75' north of the north wall of seep 3. Vegetation on moist rock face (Upper Grimsby). Ditch line is dry.	Basically the same conditions as 2003.
19	Approximately 120' south of the south end of the wing wall. Queenston/Whirlpool rock face damp. No visible flow in ditch. Heavy vegetation.	No action required. Basically the same conditions as in 2002, 2003, and 2004.
20	Area 80' to 100' north of the north fence line of seep 4 at the base of the Grimsby Sandstone down into the Power Glen Shale. Rock face damp.	No action required. Basically the same conditions as in 2002, 2003, and 2004.
21	Area 375' south of seep 7 (Devil's Hole Stairs) by the river - dry.	Same as 2001 - 2004.
Bloody Run	Fenced-in area by the river shoreline. No visible flow, no odor, heavy talus. Fence is in place and in good condition.	Same as in 2000 through 2004.

During the seep survey, the following culverts were also inspected and the observed conditions were as follows:

CULVERT SURVEY RESULTS		
<i>Culvert No.</i>	<i>Description</i>	<i>Notes</i>
1	Picks up ditch flow to Drop Inlet at bottom of NYPA access road. Dry.	No action required. Same as 2000 -2004.
2	Inlet is buried. Outlet has significant vegetation, no flow, damp.	No action required. Same as 2000 -2004.
3	Inlet is open. Dry soil. Outlet is damp, moss, no flow.	No action required. Same as 2000 -2004.
4	Inlet is open and dry. Could not find outlet.	No action required. Same as 2000 -2004.
5	Inlet is open. Slightly flowing. Outlet is open and has standing water, no visible flow.	No action required.
6	Standing water at the outlet, water is clear, no odor, no flow. Inlet buried at Seep 2.	No action required. Same as 2000 -2004.
7	Dry, no flow, inlet buried. Outlet not observed due to heavy vegetation.	No action required. Same as 2000 -2004.
8	Inlet and outlet clear and dry. Well vegetated.	No action required. Same as 2000 -2004.
Garfield Avenue Sewer	No flow at exposed original outlet, typical sewer odor, continual caving into former archway (Whirlpool Sandstone). No standing water in pipe. Additional washouts since 1998. Parks Dept built a pedestrian walkway (with two 36" diameter culverts) across the path in the summer of 1999. One culvert inlet completely buried and the other is approximately 95% buried. Walkway is broken and deteriorated.	No action required.

Figure 4.1 shows the general locations of all the seep/wet areas and culverts discussed in this report. Figures 4.2 and 4.3 show some specific details about Seeps 5 and 6 as well as 7 and 8, respectively.

4.2 SEEP SAMPLING

Due to the number of non-detect samples at all seeps 7d it has been decided to suspend sampling of this seep for 2006. Further sampling will be evaluated at a later date.

4.3 RECOMMENDATIONS

Based upon the 2006 seep and culvert survey no remedial actions are warranted at this time. The next inspection will be scheduled for August of 2008.