

Morristown National Historic Park Hydrologic Assessment Report
Alan C. Ellsworth, NPS Northeast Region Hydrologist

Jeff Runde and Alan Ellsworth visited MORR with Natural Resource Specialist Robert Masson on 30 January 2003. The key components of this visit are reviewed below. Please address any questions or comments to Alan Ellsworth 570.296.6952 x20.

1) Delbarton development. MORR Technical Assistance Request (WRD FY03)

The Delbarton private boy's school lies adjacent to the Jockey Hollow Unit of MORR NHP. The school is attempting to develop approximately 50 acres for housing. This parcel is at the headwaters of the Whippany River Watershed and may include wetlands. MORR submitted a call for assistance reviewing technical information and reports concerning construction on wetlands, groundwater contamination and a review of an amended wastewater management plan. The request included an assessment of individual and cumulative effects of these issues and potential park actions to protect the park's water resources.

A review of the location of the proposed development and the area previously contaminated by a leaky UST (LUST) indicated that the LUST and affected area were located topographically downgradient from MORR. The topography of the area should not allow for migration of contaminated water towards the boundaries of MORR. The UST previously contained leaded gasoline, which was apparently used for Delbarton facility operations. Bob Masson of MORR collected well water samples from a park well located within the Whippany River Watershed. One of these samples was analyzed for VOC's by W.A.T.E.R. Works Laboratory, Inc of East Orange, NJ. Laboratory results indicated the sample was below detection limits for all constituents observed. Given these results and my assessment of the area, I do not believe further sampling will provide an indication of contamination to the MORR land or water associated with Delbarton's LUST.

I contacted Robert Steinhagen of NJ BUST (602.633.1472), NJDEP, to discuss the Delbarton LUST contamination issue. Currently, the state believes the contamination is confined on site given the subsurface contamination assessments, depth to bedrock, and hydraulic flow patterns. One of the eight wells established to examine site contamination exhibited free product in the latest report to NJDEP in spite of remediation activities. Delbarton has been required to establish a deeper well to examine vertical movement of contaminants, and is currently not in

compliance with that state mandate. I recommend the park maintain contact with NJDEP to remain abreast of the contamination issue.

If MORR wishes to continue with the examination of groundwater contamination from the Delbarton site, I suggest processing 2 or 3 samples from the NPS well sampled previously, which have been collected and analyzed by a professionally accredited lab. This sampling strategy will provide results that can be used in a court case if necessary. Garden State Labs of Union, NJ is accredited by both the state of NJ and NELAP for collection and analysis of VOC's. The contact for this lab is named Roman and may be reached at 908.688.8900 and the price was quoted as \$245 per sample. There does not appear to be a need for soil sampling within the park's boundaries.

The Delbarton development could potentially affect the park's waters via watertable drawdown if a significant quantity of wellwater was used as the water source for the community expansion. Surface water flows from the park into the Delbarton lands, therefore surface water contamination would not be an issue unless contaminated groundwater was shown to be flowing into the tributaries upstream from the contaminated area. The state of New Jersey has significant wetlands protections and any development affecting wetlands would need to be reviewed by NJDEP, which would involve a permit process that should be reviewed by MORR. The NJDEP is currently withholding the wastewater permit for the Delbarton development due to a neglected mandate for a wastewater plan for the Morris Township. MORR should remain abreast of the wastewater plan's development as it pertains to the park. Given this hydrologic assessment, it would seem that larger detriments to MORR due to the Delbarton expansion could be increased traffic, aesthetic degradation, and noise and light pollution.

2) Girl Scout camp development

The expansion of the currently operating girl scout camp apparently has strong congressional support. Construction of this facility should be monitored by park staff as the development process progresses. Best management practices should be utilized during the development and construction process to insure negligible degradation of the watershed. Potential surface runoff and subsurface impacts from septic systems, etc. should be addressed proactively.

3) Coliform contamination study

Mark Flora, NPS WRD, was involved in the design and review of this study plan. As such, I defer to Mark's experience with this project. My concern with the plan is that it is not apparent that one of the goals, i.e.

identification of sources, will be a result of the investigation. While the indicators should describe the source as human versus wildlife contamination, actual septic inputs will not be described. The inclusion of tracers from local septic inputs might be used to establish which septic systems, if any, are associated with stream contamination. The NJ DEP is currently working on TMDL listings and management strategies for fecal coliform. This process may prove helpful as MORR staff works to address fecal coliform issues in its streamwaters. Jill Aspinwall (jill.aspinwall@dep.state.nj.us) is a contact for this project.

4) Current park water quality monitoring program

Bob Masson and I spoke briefly about the current monitoring program at MORR. Jeff Runde agreed to review the existing water quality data. Bob indicated it would be helpful to have a simple model for parks to enter water quality data into to provide assessment of monitoring data. It did not appear that the MORR sampling locations were ascribed to any need in particular, e.g. the Cat Swamp Pond sampling location was being observed due to its proximity to a stream location. The data is apparently not being used for an immediate management purpose, but is being archived. This is a valuable process to provide baseline data describing potential water quality changes in the future. The spatial and temporal sampling strategy should be reviewed to determine when samples should be collected, frequency, and locations within the park.

5) Cat swamp pond berm assessment

The pond and berm were frozen and covered with snow during my visit. I indicated that I would be willing to visit the site in the spring or summer to assess the integrity of the berm, but that I can only provide an hydrologic assessment. The structural integrity of the berm would need to be determined by an engineer. There was no sign of a breach in the berm or lack of structural integrity noted during the site visit.