



NYSCPG Newsletter

2016 Edition
Volume 1

January-February 2016
www.nyscp.org

President's Message

The past few months have been a busy and interesting time for the Council. The period of calm and relief that followed the initial passage of the bill has been replaced with discussions, meetings, and negotiations about the details of implementation. Thus far, our conversations with the State Education Department have been in an advisory role to help provide initial feedback on the tentative wording of the regulations. Generally, these preliminary drafts go through our legislative subcommittee (which includes members from most of the regional organizations) as well as the Council's BOD. Our advisory role places us in a somewhat awkward position because we are not at liberty to discuss the details of early drafts with the entirety of our membership. Rather, we must wait until final language is released by State Ed.

Because of this, there has been a lot of "we have been working on it" and "more details will follow." The November 2016 deadline is looming and things are about to change because State Ed. and the Board of Regents have no choice but to build upon the foundation that we helped them to construct and to finalize the details of implementation. We hope to provide frequent updates as these details are released to the public. Although you may have the opportunity to provide individual feedback, we encourage you to also share your concerns with the Council so that we can accurately share the opinion of our membership. We are confident that all of the background work will result in reasonable guidelines, there is always room for improvement. The Council can make sure that your concerns are given careful consideration by State Ed.

As you will read in the legislative update, the corporate side of things has proven to be a bigger challenge than anyone anticipated. The issue is that NYS business law is extremely complex and there is presently no pathway for geologist-owned general business companies to transition professional corporations. To date, no profession that has been established in the New York has had to contend with this issue. It was not covered in detail in the initial law due to the complex nature and potential pitfalls with any suggested language. It falls to the Council to come up with a conversion process. As described in the legislative update, the Council has proposed a path forward that State Ed. is willing to consider, but they strongly suggested that we hire a corporate attorney and corporate accountant to ensure that the conversion plan is sufficiently detailed. They have given us until June to accomplish this.

Change of this magnitude is destined to cause some concern, inconvenience and paperwork – the Council is doing everything we can to make this process as easy as possible for both businesses and individuals. The Council is an all-volunteer organization that works very hard just to cover the \$25,000 per year that we need to maintain a lobbyist. Hiring a lawyer and accountant is likely to cost as much as \$10,000 and we do not presently have the funds to cover it. If you want to help, please be sure to read our updates, provide us with feedback, consider volunteering your time, and most importantly renew your membership and/or corporate sponsorship. Spread the word and see if you can convince a friend or colleague to do so as well. We are 90% of the way there, the last 10% might just be the hardest. We can't do it without you!

Sincerely,

Michael Rygel
2015/2016 NYSCPG President

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January-February 2016 Newsletter

Table of Contents

<i>President's Message</i>	1
<i>2015-2016 Officers and Directors</i>	2
<i>Legislative Update</i>	3
<i>CNYAPG Announces Student Grant Winner</i>	4
<i>Outreach Committee Report</i>	7
<i>Fundraising Report</i>	9
<i>Events</i>	9
<i>Project Spotlight:</i>	11
<i><u>Engineering in Challenging Geologic Conditions - Niagara Falls, NY; Building a Winter Storage Dock For the Maid of the Mist Tour Boats</u></i>	
<i>NYSCPG Sponsors—Thank You!</i>	12
<i>NYSCPG Supporters—Thank You!</i>	14
<i>Membership Application Renewal Form</i>	20
<i>Corporate Sponsorship Letter</i>	21
<i>Advertising Letter</i>	22

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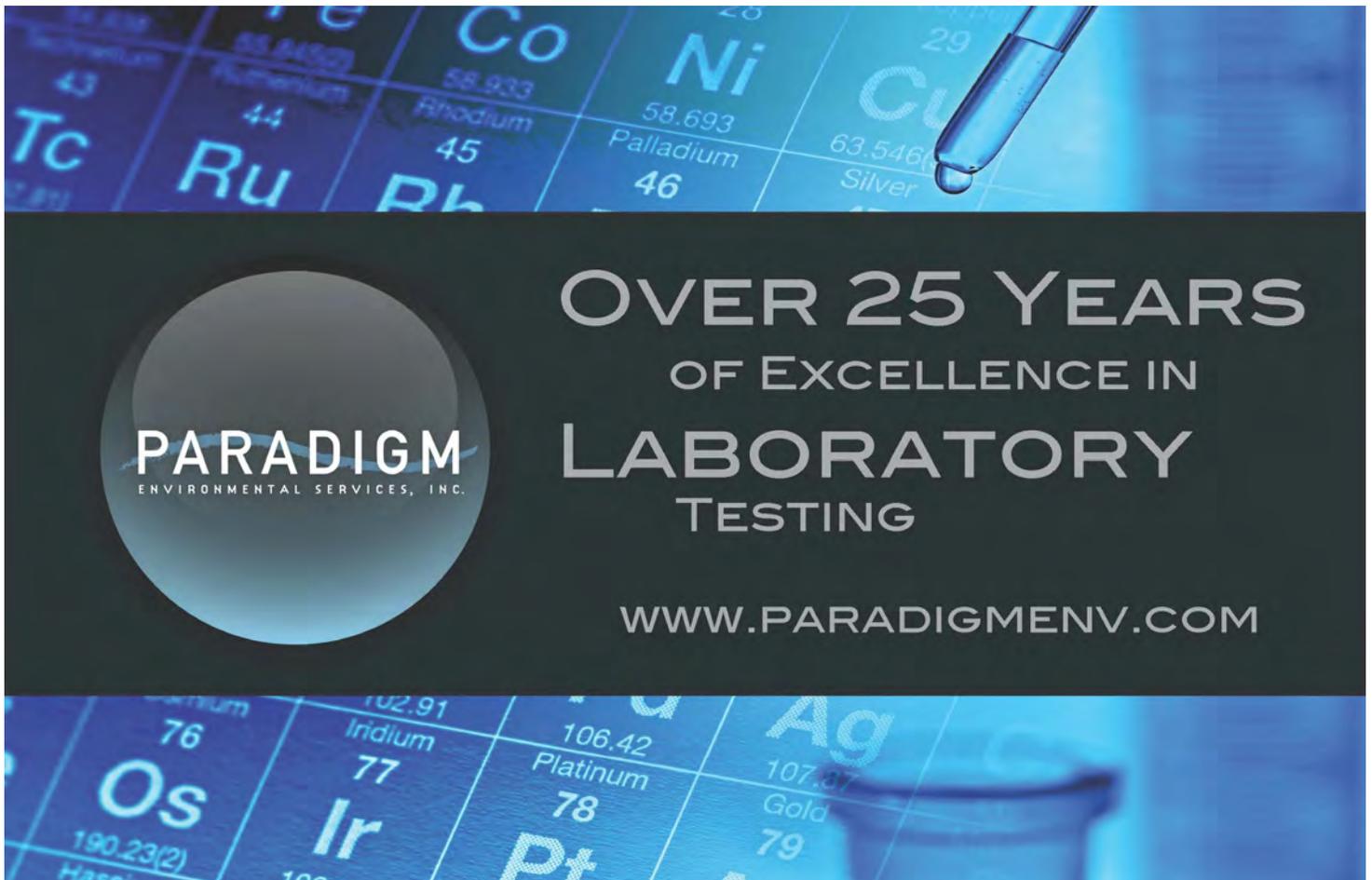
LEGISLATIVE UPDATE

As we begin the 2106 calendar year, we look ahead to the work that is needed to complete the pathway to begin licensing professional geologists in New York. The draft regulations are being prepared by the legal staff of the State Education Department (SED). The current timetable is that these draft regulations will be submitted to the Regents for their review followed by a 45-day public comment period. If there are no comments that require significant revisions to the draft language, the Regents and SED will finalize the regulations. Any significant revisions to the draft may require an additional comment period once the changes are incorporated. After the regulations are approved, SED will prepare the application forms and upload the regulations and documentation to the web portal (<http://www.op.nysed.gov/prof/geo/>). It is the Council's hope that the application documents will be available by the end of this summer.

Members of the Legislative Committee and our lobbyist, Peter O'Connell, have met with SED representatives multiple times over the last three months to work on the issue of corporate restructuring. There are various specific requirements for professional companies in New York. This issue has become more complicated than originally thought by multiple stakeholders. This is because the conversion of a general business corporation (GBC) to a professional corporation (PC or DPC) has never occurred with the creation of a new licensed profession in New York. I have been asked by members why this was not handled during the writing of the bill language and the simplest answer is we did not know as this was uncharted territory. The inclusion of business concerns in our licensure bill also may have made passage of the bill into law even more difficult. We recognized that there were flaws in the language when the bill was promoted, but it was able to pass the Legislature.

We continue to work on drafting language that will provide pathways for current businesses within New York that offer geology-related service to transition to professional corporations. This will result in multiple potential pathways that each company will need to assess for themselves to decide which path will work best for them. NYSCPG will provide further details as these pathways continue to be developed and the potential language for additional Chapter Amendments to facilitate these paths is crafted. The overall goal is to make the transition of businesses, both geologist owned and current engineer and land surveyor owned firms, occur on a common footing.

(Continued on page 5)



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Central New York Association of Professional Geologists Announces Winner of 2016 Grant for Student Research

The Central New York Association of Professional Geologists (CNYAPG) is pleased to announce Emily Baker of Syracuse University as the winner of the 2016 CNYAPG Grant for Student Research. Her project, entitled *"Infrared Imaging and Modeling of Proglacial Stream Temperature in the Cordillera Blanca, Peru"* was ranked first among qualified applicants and earned her an award of \$1,000 to assist in the continuation of her research.

Emily is from Ellington, CT and received her BA at Mt. Holyoke College with a major in geology and minor in statistics. Currently a graduate student at Syracuse University, Emily is a participant in the National Science Foundation Research Traineeship **Education Model Program on Water-Energy Research (EMPOWER) providing students with the tools to** advance understanding of hydrocarbons, the primary energy source for current societies, and linkages to water quality and availability. Emily expects to complete her MS in Earth Science in May 2017 and to pursue a career in environmental consulting or working for the USGS.

CNYAPG is a not-for profit organization with the general mission to strengthen the geologic sciences as a profession in Central New York. The CNYAPG Grant for Student Research was established in 2015 to provide assistance to Central New York Earth Science students for research and to help disseminate the results of that research through conference travel. The award is designed to promote continued progress toward student research goals and acquiring advanced Earth Science degrees. On behalf of the membership of CNYAPG, congratulations to Emily!

To learn more about CNYAPG and the CNYAPG Grant for Student research, visit www.cnyapg.org.

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(Continued from page 3)

The current potential path for this to occur is to allow a pre-qualification period for both individuals and corporations. This pre-qualification period may result in the current effective date of the law, November 21, 2016, being pushed a short distance into the future. I admit that the initial thought of delaying the effective date was a hard pill to swallow for members of the committee, but as time as progressed and issues were scrutinized, it appears to be in our best interest in the long term. We have waited decades for the passage of this law and an additional 12 to 18 months to ensure this is done correctly is a small price to pay.

We have noted with each version of language that is proposed, that verbiage is critical. In our last discussions with SED, it was suggested we consult a corporate attorney to help us ensure that the final language of any Chapter Amendment does not have any unintended consequences. NYSCPG has also reached out to corporate accountants for guidance on the ramifications of all the upcoming changes. NYSCPG is entirely a volunteer organization and the current budget of the Council does not support hiring additional professionals for consultation, so we need to increase our fundraising. Please consider renewing your membership today or convincing friends, co-workers, or your businesses to become members or sponsors.

The committee is working hard to achieve the goal of preparing draft language that can be approved by the various stakeholders (NYSCPG, SED, Department of State, sister professions, etc.) by the end of March, so that we can work on passing that language through the legislature by June of this year. We also are attempting to meet with state agencies and departments to evaluate the ramification of geologic licensure on current contracts held by companies. The goal is to develop a pathway to convert these existing contracts without losing significant time or incurring potential costs to businesses. We need to ensure that the establishment of this profession will not result in undue hardship or disenfranchisement of current companies in New York.

Thank you for your patience and continued support. As always, you are welcome to contact me at jnadeau@alphageoscience.com with any questions regarding the process of the Law's establishment and implementation.



John M. Nadeau, CPG
2015-2016
Legislative/Transition Chairman
NYSCPG Past President



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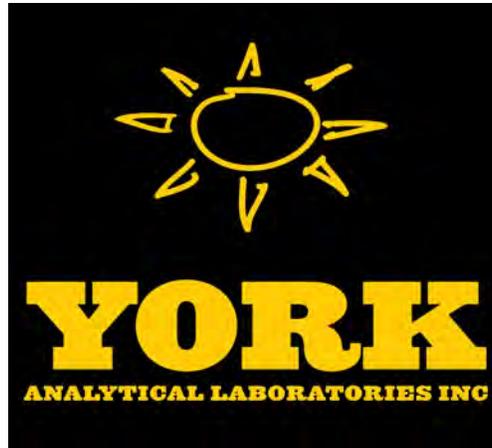
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OUTREACH COMMITTEE REPORT

It is our responsibility as Outreach to disseminate the proper facts about our profession and organization. The committee can only be effective when there are numerous members all working together to achieve the common goal. If you are interested in participating on this committee, please contact me at cheryl@islandpumpandtank.com or read on, you may recognize one of the leads in your region to contact!

The purpose of the Outreach Committee is to advocate on behalf of the Council with other professional and regulatory organizations within the State of New York. So what does this mean? Simply that committee members act as liaisons between other professional organizations, such as engineers, lawyers and surveyors, and the regulatory agencies, such as Health and Environmental at the various levels of government, such as State, County, City and Town and inform them about what NYSCPG is doing and our mission.... right now we have licensing but what does it mean.?

Since the last report we have prepared a written letter and sent it to various regulatory and professional organizations as an introduction to our organization and of the impact licensing of geologists may have on the regulatory or other professional organizations.

The Outreach Committee has been on a slight hiatus with the holidays but will be running strong in the following months. Our next meeting is on February 25, 2016 @ 6:00 pm. We are meeting at the office of GEI in Melville. If you are interested email Nick Recchia for the call in information @ nrecchia@geiconsultants.com

We have several people that have volunteered as leads for the various Regions. Please feel free to contact them if you are interested in being an effective part of the organization:

Region 1 – Cheryl Neary

Region 2 – Nick Recchia / Scott Yanuck

Region 3 – Patrick Diggins / David Hannam

Region 4 – Marcia Wolosz

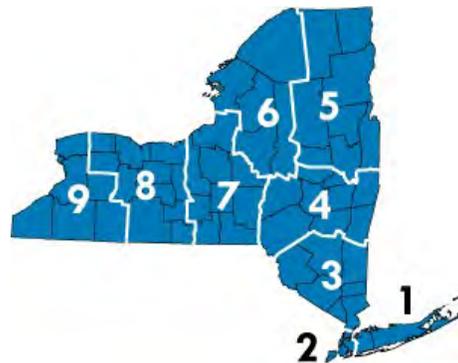
Region 5 – Marcia Wolosz

Region 6 – Scott McDonald

Region 7 – Marty Merriweather

Region 8 – Gene Florentino

Region 9 – Gene Florentino



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FUNDRAISING REPORT

2016 is continuing to be an exciting year for the council as we move closer to the date of our licensure bill going into effect. The council would like to thank all the organizations that have supported us over the years and those who continue to do so. The Council asks our Corporate Sponsors and Advertisers to continue renewing their pledges of support. We need to generate additional revenues that will enable NYSCPG to move into the next phase of licensure, to ensure that the final regulations best serve the needs of the profession of geology and our members. Fundraising efforts by the Committee are ongoing, but renewals are very important and they set the stage for activities in 2016.

The existing cost structure for Corporate Sponsors for 2016 is as follows:

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Members of the 2016 NYSCPG Fundraising Committee include Michael Rygel, Cheryl Neary, Gene Florentino, Lenny Rexrode, Matt Dupee, Pete Smith and I.

New members are always welcome to join the Fundraising Committee!

Best Regards,

Todd G. Bown, P.G.

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Engineering in Challenging Geological Conditions - Niagara Falls, New York; Building a Winter Storage Dock for the Maid of the Mist Tour Boats

The geology of a site is an important factor in most civil engineering projects. Particularly, geotechnical engineers work with engineering geologists to tailor foundation and excavation designs to the subsurface conditions. This is the story of one such engineering project to build a new dry dock for the iconic Maid of the Mist boats in the Niagara River gorge.

The Maid of the Mist (the Maid) has operated boat tours at Niagara Falls since 1846. The company traditionally has provided trips from both the U.S. and Canadian sides of the Niagara River. A dry dock in Canada served as the winter storage facility for the Maid boats, where the boats were stored about 20 feet above the lower Niagara River to protect them from ice build-up at the base of the falls. The Maid lost access to the Canadian dry dock in 2013, requiring development of a new dry dock on the American side of the river.

The site of the former Schoellkopf electric power plant was identified as a possible location for dry dock construction. The site was chosen because it was located within about a half mile of the falls, and there was buildable space. Several geological and geotechnical conditions had to be evaluated before construction in order to tailor the project to the conditions. The evaluations included: studying the cause of a 1956 rockfall that destroyed part of the Schoellkopf power plant; evaluating the condition of the Schoellkopf remains; evaluating whether or not the new dry dock could be protected from future rockfalls; and, determining whether a new dry dock and marine crane could be founded in the unique geological conditions at the base of the Niagara Gorge.

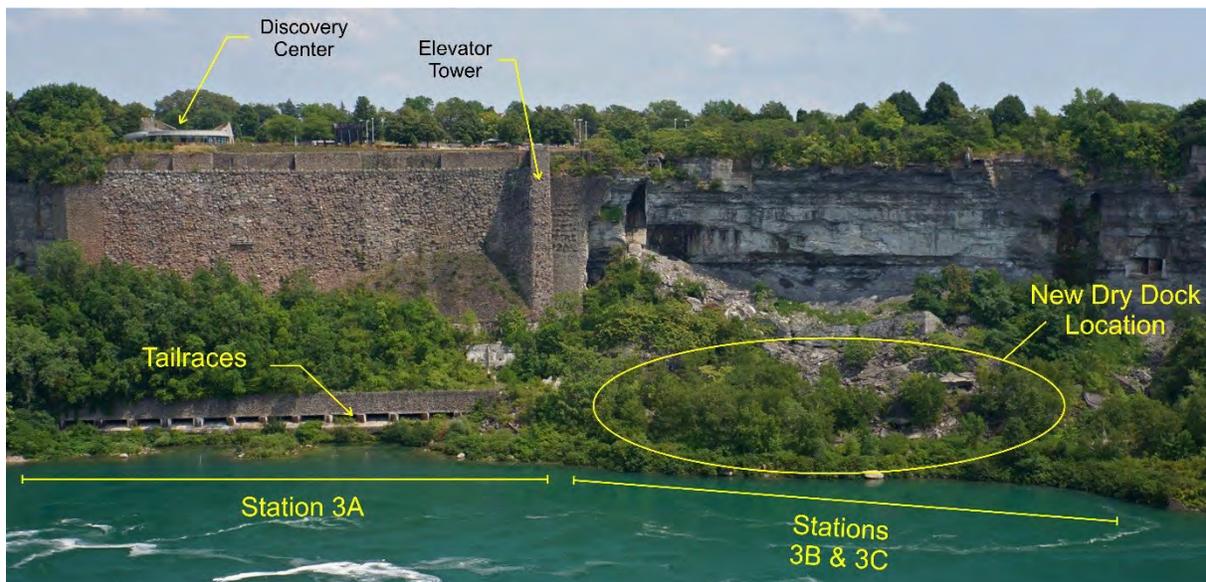


Figure 1 – View of the Schoellkopf site looking east from Canada, prior to dry dock construction. Note the locations of the former Schoellkopf power plant stations.

History of Development

The Niagara River gorge has a long history of industrial development. By 1880, canals delivered water from the upper Niagara River to plants that lined the edges of the gorge. Many of the plants made excavations into the edge of the gorge to accommodate hydropower generation structures. By 1924, the Schoellkopf Station 3 power houses (see Figure 2) were built at the bottom of the gorge, below a previously heavily developed section of the gorge.

(Continued on page 13)

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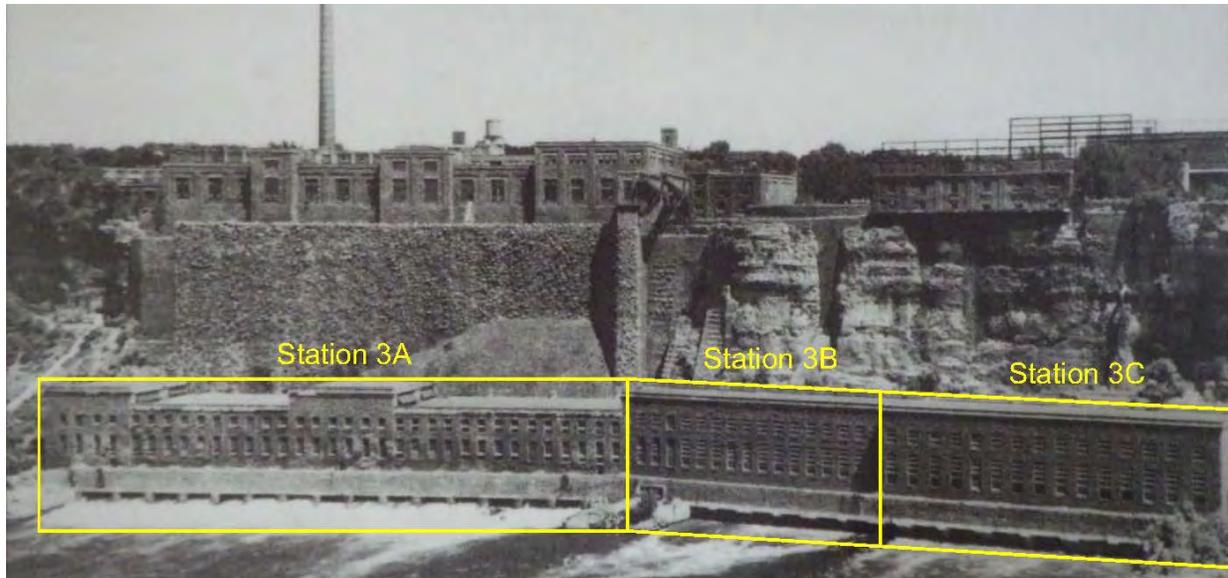


Figure 2 – View of the Schoellkopf Station 3 power plant during operation. Schoellkopf Station 3 included three subset stations 3A, 3B, and 3C.

The Schoellkopf power plant was constructed in three parts during the early 1900s. Station 3A was built by 1905 and was the first alternating current, electric-generating facility in the United States. Stations 3B and 3C were constructed between 1918 and 1924, using newer and different construction techniques than those for Station 3A. Stations 3B and 3C were an addition onto the south side of Station 3A. Water was delivered to Stations 3B and 3C through tunnels that exited the bottom of the gorge slope directly into the back of the power houses, whereas water was delivered to Station 3A through pipes that were anchored to the gorge slope and covered with a masonry façade.

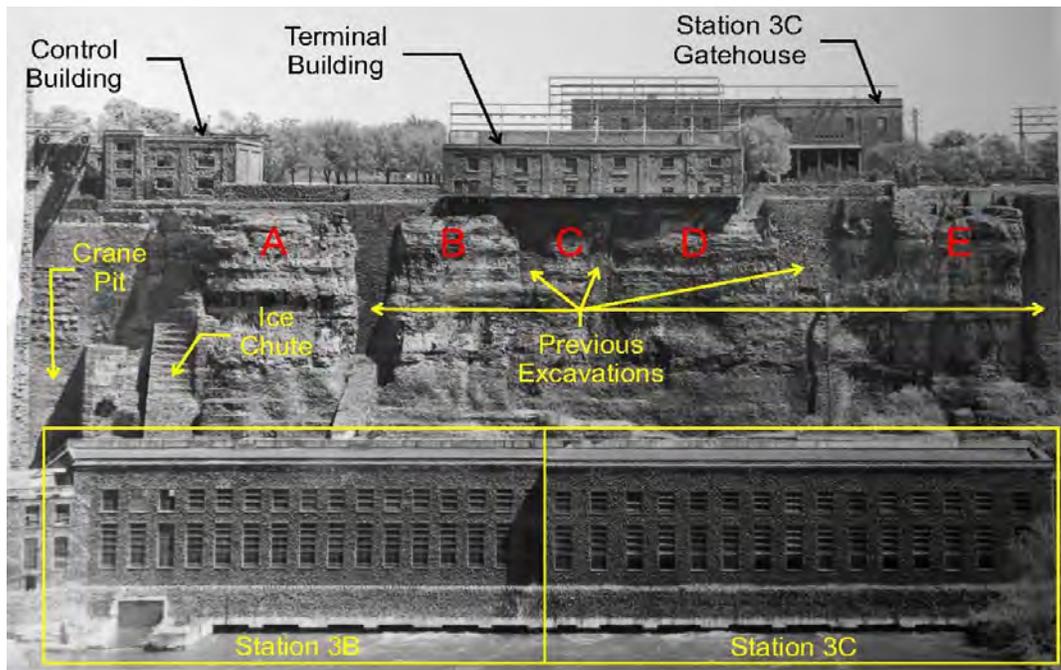


Figure 3 – Closer view of Schoellkopf stations 3B and 3C in operation. Note that the previous industrial excavations resulted in columns of rock (columns labelled A-E).

(Continued on page 15)

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Statement of Purpose

The NYSCPG strives to strengthen and advance the geologic sciences as a profession, promote the protection of public health and welfare and the environment through the professional practice of geologic sciences, and create high standards of ethical conduct among its members and within the profession of geology, as well as the legal standing of geologists and their ability to practice geology in New York State by promoting the licensing of geologists in New York State through statutory regulation.



Figure 4 – View of Schoellkopf Station 3 in the days after the 1956 rock fall. Note that the tunnels continued to convey water to the plant – it took several days to stop the flow through the tunnels due to the high hydraulic head pressure from the upper Niagara River.

The different methods of water delivery systems, as well as the presence of previous industrial excavations led to the rockfall that destroyed Stations 3B and 3C in 1956 (see Figure 4), but the geological conditions were ripe for a rockfall. Let's take a closer look at the more distant past.

(continued on page 16)



Regional Geology

The Niagara River gorge is the type location for many of the Silurian rock formations in western New York (see Figure 5). Important Silurian rock formations related to this project include the Whirlpool sandstone, the Grimsby sandstone, the Rochester shale, and the dolomites of the Lockport Group. The Ordovician aged Queenston shale is also an important unit. All of these rock formations were deposited on the bottom of an ocean beginning about 450 million years ago. Dolomite and sandstone are considered hard rock in geotechnical terms, and shale is considered soft and highly susceptible to erosion.

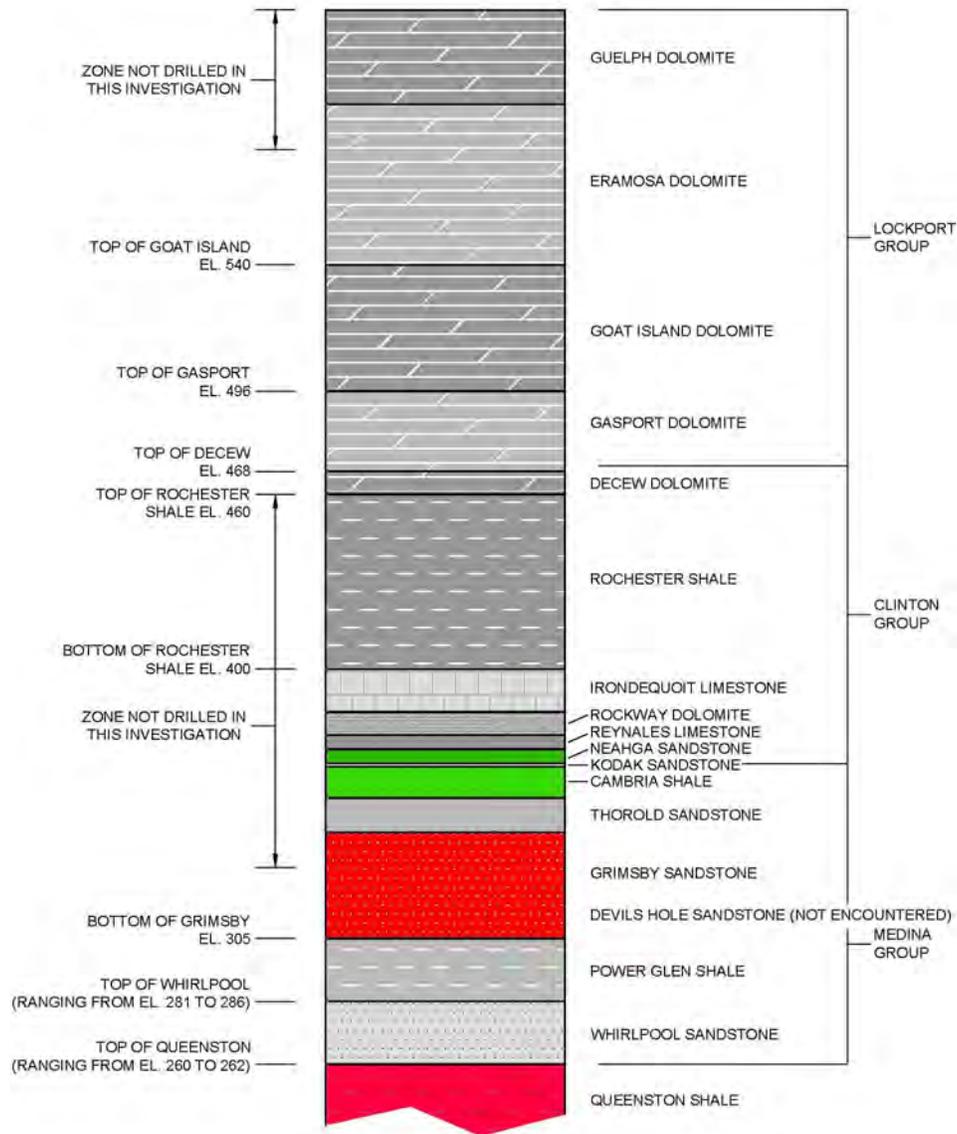


Figure 5 – Stratigraphic column in the Niagara River gorge (after Brett, et.al. 1995), modified to illustrate the conditions encountered during explorations for the new Maid of the Mist dry dock.

(Continued on page 17)

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Western New York was then lifted out of the sea when Africa and North America collided in the tectonic event that formed the Pangea supercontinent. The bedrock in western New York was not folded during the collision, but the compressional forces were strong enough to cause the rock to fracture into several sets of joints.

Energy from the compressive forces is stored within the rock mass, even to this day. When the rock is exposed in excavations, new joints form due to the release of stress toward the excavation. This phenomenon is referred to as rock squeeze, and there are numerous documented examples in projects around Niagara Falls, including the Niagara River gorge itself.

Rifting began by about 200 million years ago, and the Atlantic Ocean began forming. The processes of geomorphology began reshaping the land in western New York. Drainage patterns formed on the exposed bedrock surfaces. Those drainage patterns were later carved into the Great Lakes and Finger Lakes when a glacial ice sheet flowed over the land. The glacier repeatedly advanced into and out of western New York over the course of more than 100 thousand years. The Lockport dolomite resisted the erosive power of the glaciers, and the Niagara Escarpment was formed. Glacial ice permanently retreated to the north by about 15 thousand years ago, and the Great Lakes began to outlet through the St. Lawrence lowlands and out to the Atlantic Ocean. At this time, Lake Erie began to spill over the Niagara Escarpment, initiating Niagara Falls in Lewiston, NY.

Niagara Falls began cutting southward from Lewiston by the process of headward erosion. As sediment and water descends the falls, it erodes the soft shale beds (Rochester and Queenston shales), causing undermining of the resistant beds (Lockport dolomite and Whirlpool sandstone). Headward erosion carved the 6-mile long gorge between Lewiston and the current location of the Niagara Falls. The process continues today.

Local Geology

There is a significant difference between the slope conditions below American Falls and the conditions below Horseshoe Falls. The differences demonstrate an important question that needed to be answered before designing the new dry dock and crane foundations. At American Falls, the Grimsby Sandstone forms a bench upon which talus has accumulated. The talus is made up primarily of large boulders from the Lockport dolomite. The bedrock bench extends a considerable distance away from the bottom of the falls. At the Horseshoe Falls, the rock slope continues vertically all the way down into the Queenston Shale and talus is not present. This difference led the geotechnical engineering team to proceed cautiously during preliminary planning for the new dry dock and crane, and it required a thorough subsurface exploration program to determine the extent of bedrock beneath the new dry dock and crane.

A cross section on the historic design plans of the Schoellkopf site showed sandstone below the former plant, but the section did not extend as far out into the river as the proposed dry dock and crane. The question the design team had to answer was; does the sandstone continue toward the river, or does it end at a talus-covered cliff? The subsurface exploration program demonstrated that the Grimsby sandstone ended between the development and the river (see Figure 6), but the Whirlpool sandstone was present below the proposed crane location. The program also identified a thick talus covering over the rock.

(Continued on page 18)



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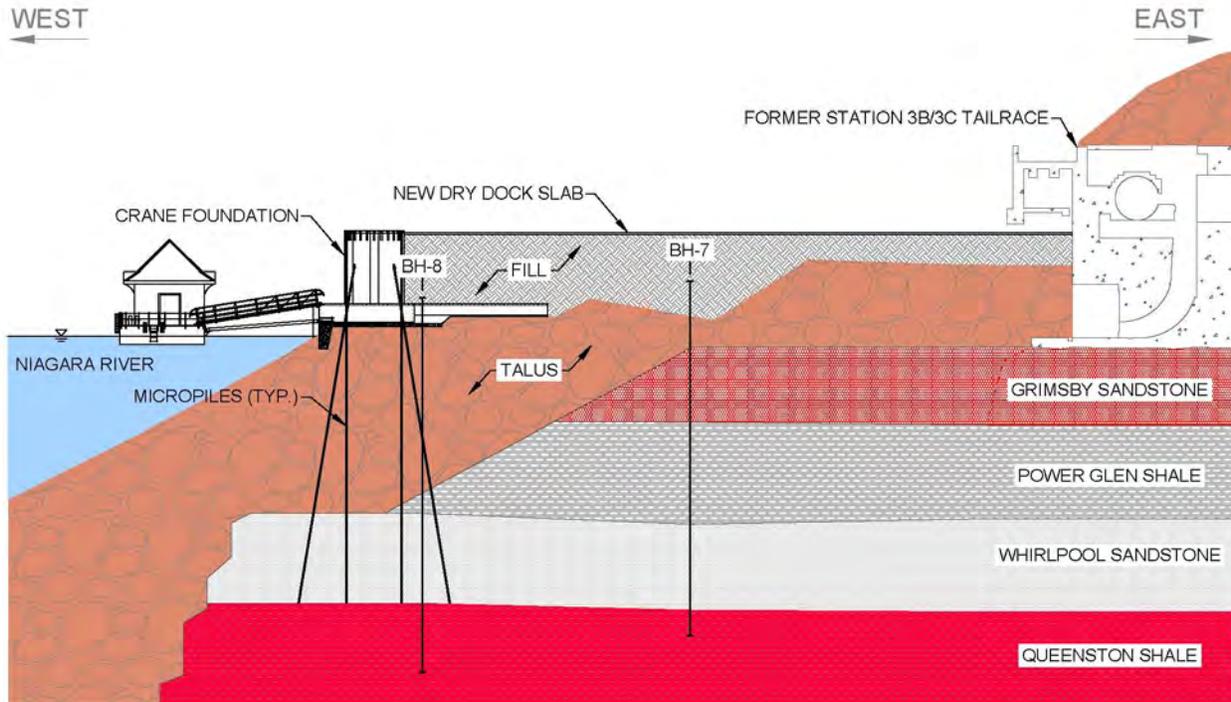


Figure 6 – Subsurface conditions at the bottom of the Niagara River gorge at the new dry dock and crane location.

The properties of the talus are key parameters with respect to slope stability because potential slope failures would extend through it and not through the underlying intact bedrock. Because of the large and variable particle sizes, soils laboratory tests are not appropriate for measuring the strength characteristics of talus. The design team decided that the crane foundation would require micropiles that were drilled through the talus and anchored into the Whirlpool sandstone.

The rock slope above the dry dock and crane is comprised of the Lockport dolomite and the Rochester shale. The shale is eroded, leaving the dolomite overhanging by as much as 20 feet. There is a talus slope that extends from the Rochester shale down to the river level. The slope above the northern part of the development is a masonry wall that was built as part of the Schoellkopf Station 3A. The masonry wall covers the same rock formations mentioned above, but the design team was able to access the back side of the masonry wall and view the rock slope behind the masonry. The rock appeared unweathered and debris had not accumulated at the base, indicating that the masonry wall had effectively protected the rock from erosion. The design team concluded that the masonry wall and the slope it covered could be left intact without major maintenance, but the rock slope above the dry dock and crane required additional investigation.

Considering that the 1956 rock fall destroyed the Schoellkopf power plant, it was imperative that the remaining rock slope above the dry dock and crane was explored in detail. Rock core holes oriented at an angle to the slope revealed the presence of vertical joints within the Lockport dolomite. The joints found in the rock cores were vertical and they were oriented approximately parallel to the slope. Test pits at the top of the gorge also exposed joints approximately parallel to the slope. But all of the joints found during the exploration were tight and unweathered. The design team decided that a large rockfall like the one that destroyed the Schoellkopf power plant was not likely, but that smaller rock falls would continue. The design team recommended scaling loose rock from the slope and allowing it to rest on the talus slope to cover up the exposed Rochester shale, and they recommended a rock catchment fence on the talus slope above the dry dock to prevent smaller rock falls from impacting the new development.

(Continued on page 19)



Figure 7 – View of the Maid dry dock and crane prior to lifting the boats in October 2013

In Closing

A perfect storm of conditions combined to cause the rockfall that destroyed the Schoellkopf power plant in 1956. The juxtaposition of easily erodible shale beneath resistant beds combined with the jointed rock mass to setup the natural conditions for a rock fall. The history of industrial development along the gorge and the construction methods at Schoellkopf stations 3B and 3C increased the likelihood of a rock fall. The design team was cautious and considered all the natural and man-made conditions when evaluating the site and preparing the designs for the new dry dock and crane.

The exploration program conducted at the site adequately characterized the subsurface conditions, and the design was adjusted to suit the conditions that were encountered. The project was substantially completed in time to store the Maid boats at the end of the 2013 tourist season, an accomplishment that was made possible in part because of the work past geologists have done in western New York.

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