City & Borough of Sitka
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MONTHLY UPDATE FOR CITY ASSEMBLY

BLUE LAKE EXPANSION PROJECT

Report No. 21 Month ending August 31, 2014

SCOPE

- 83 ft. dam raise with modified tunnel system and new 15.9 MW powerhouse ($89 million)
- Eight supply contracts for Owner-Furnished equipment and materials ($16 million)

PROJECT HIGHLIGHTS DURING THIS MONTH

- August 6 – Authorized the start of the generation outage on August 16 based on the state of the work completed.
- August 8 – Completed dry testing of the fixed wheel gate.
- August 11 – No. 1 switchyard and transformer T1 were energized for the first time.
- August 11 – The FVU generating unit was taken off line for the last time. The dam's Howell Bunger valve opened to maintain flows in Sawmill Creek.
- August 12 – ST1 and the low voltage switchgear was energized for the first time.
- August 16 – The temporary water treatment plant operated 24 hours unassisted by Blue Lake.
- August 17 – Start of Generation Outage, intake gate closed and the tunnel drained.
- August 18 – Barnard entered tunnel at all portals.
- August 18 – Blue Lake Tunnelers (BLT) began excavation of the intake and surge chamber tie-ins.
- August 23 – Crux completed the curtain grouting at the dam.
- August 23 – BLT completed the excavation of both tunnel tie-ins.
- August 23 – Barnard began forming the tunnel plug that will seal off the existing intake.
- August 30 – Barnard completed the installation and grouting of the tunnel south portal steel liner.
- August 30 – The existing FVU turbine-generator was completely removed from the FVU powerhouse building.
- August 30- BLT completed the excavation of the rock trap.
- August 31 – Blue Lake water level reached the old dam spillway level at elevation 342 and is now starting to bear against the new, raised section of the dam.
- August – ASRC McGraw continued grubbing and clearing the burn area at the upstream end of Blue Lake. The burn area is now prepared to elevation 415.
- August – NAES performed the following tasks related to the turbine generator installation:
    - Unit 3 is fully installed and electrical equipment is terminated. Mechanical equipment is 90% complete.
    - UEE has performed 100% of the dry commissioning on Unit 3 and Unit 5.
    - Unit 5 is fully installed and electrical equipment is terminated. Ancillary equipment is 90% complete.
    - Generator exhaust ducts have been 70% installed.
    - The service and cooling water systems are being installed.

- August – Barnard crews completed 7 major concrete placements on the dam, including M3/410 and 417, M4/410, M5/410, M2 parapet wall, M6 crest slab and M7 crest slab.
  We expect that the surface finish on the lower spillway placements will have to be repaired.

COST SUMMARY - updated 8/31/2014

Project Element	Current Contract Total or Projected Amount	Payments	
		Paid this Month	Paid to Date*
Supply Contracts			
Contract 1 - Turbine Generator Equipment	$11,573,707	$272,553	$11,354,407
Contract 2 - Switchgear	$647,672	$0	$597,403
Contract 2A/2B - SS/Raw Water Switchgear	$300,000	$0	$208,547
Contract 3 - Gates and Hoist	$780,185	$0	$703,376
Contract 4 - Penstock	$836,315	$0	$795,778
Contract 5 - 69 kV Transformers	$603,406	$0	$543,130
Contract 6 - Bridge Crane Equipment	$270,518	$0	$272,298
Contract 7 - Steel Building	$1,145,712	$0	$1,090,788
Contract 8, Debris Management**	$2,258,714	$276,198	$568,726
Contract 9, General Construction	$94,616,735	$3,595,928	$76,634,973
Temporary Filtration**	$1,651,424	$50,839	$609,528
Diesel Fuel	$1,260,000	$0	$117,473
Remaining Project Costs			
License Amendment	$1,400,000	$0	$1,293,621
Engineering	$9,498,393	$27,283	$11,925,884
Construction Management	$8,076,201	$289,922	$6,714,722
City Performed Work	$1,495,000	$83,442	$2,126,552
Incentive Payment	$1,600,000	$0	$0
Cost of Bond Issuance/Reserve Account	$3,500,000	$0	$0
TOTALS	**$141,513,983**	**$4,596,165**	**$115,557,205**
ESTIMATED TOTAL PROJECT COST	**$145,256,725**		

*Paid to Date includes unpaid retainage

COST CHANGES THIS MONTH

- We have authorized a change item to install a rock trap in the lower tunnel.
  The generation outage with be extended 2 days to perform this work.

CONSTRUCTION SCHEDULE MILESTONES: PLANNED/ACTUAL

Construction Start	11-20-2012 / 12-03-2012	Sub. Comp. BLU #3	10-24-2014/
Drainage Tunnel Comp.	07-01-2013 / 05-05-2013	Sub. Comp. FVU	11-12-2014/
Tunnel ex. complete	08-19-2013 / 07-24-2013	Sub. Comp. BLU#5	11-22-2014/
Intake Structure complete	06-04-2014/06-04-2014	Substantial Completion	02-01-2015/

NOTES ON PROJECT SCHEDULE

- The most recent look-ahead schedule submitted by Barnard shows the following work to be performed in September:
    - Rewatering of the tunnel is scheduled for September 30. Barnard is planning to beat that date, planning to start the outage in late September.
    - Dam contraction joint grouting to elevation 403' will begin September 1.
    - The dam concrete is scheduled to be complete at the end of September.
    - The generation outage is scheduled to be completed October 18. Barnard expects to beat that date.

- The CM team and Electric Department continue working on the City-performed work tasks to ensure these activities are completed on time.
- ASRC and Barnard are installing the debris booms in the lake.
- The contract duration of the generation outage is now 65 days.

OTHER ITEMS OF INTEREST

- With good rains during the month, we were able to raise the water level by 16 feet in Blue Lake and 6 feet in Green Lake during August. This now means we likely will have a better than expected water level in Blue Lake, going in to the coming winter.
- Due to having adequate water in Green Lake we do not expect to require as much diesel generation during the Generation Outage.
- Slow, but reasonable progress on the dam work continued in August. The difficult spillway construction continued during the month. It is expected to be completed in September.
- The very important dam contraction joint grouting will be taking place beginning September 1.

PROJECT RISK PROFILE
A discussion of the major risk areas follows below. As a general rule risks are measured as follows:

LOW: Probability of less than 10%, or mitigation cost less than $1 million.
MODERATE: Probability of more than 30%, or mitigation cost up to $5 million.
HIGH: Probability of more than 60%, or mitigation cost likely more than $5 million.

The City's project team believes the following risk areas will dominate the potential for increases in overall Project cost. We also believe these areas pose the greatest risk for schedule delays.

Construction Schedule: In Barnard's most recent (August 31, 2014) schedule, the end of the generation outage is scheduled for October 18. Based on work progress to date we expect to beat this date. The completion of the balance of plant items (service water, cooling water, heating and ventilation, etc.) in the powerhouse are the biggest areas of concern for meeting this date.
CURRENT RISK: LOW

Weather and Lake Levels: Water levels in Blue Lake and Green Lake are nearly balanced at the end of August. We expect very adequate water levels during testing of the new turbine-generators in October 2014.
CURRENT RISK: VERY LOW

Temporary Water Filtration Plant: During the ongoing generaton outage of the Blue Lake tunnel, the City will is getting its drinking water from a temporary water filtration plant at Indian River. The City Water Department is operating the plant with assistance from CH2MHILL and the supplier.
CURRENT RISK: VERY LOW

Other: This is a broad combination of bad things that might happen such as: earthquakes; construction site accidents; floods; extreme winter weather; fire; labor unrest; etc. We expect that many of these risks would be covered by insurance at least in part.
CURRENT RISK: LOW

PROJECT PHOTO RECORD THIS MONTH

Photos are taken of each work area each month from a fixed location to document construction progress by work area. Relevant photos of the project for this month are provided on the following pages.

Figure 1. Dam and Left Abutment Area, Crux completed the curtain grouting at the dam. Barnard crews completed 7 major concrete placements on the dam, including M3/410 and 417, M4/410, M5/410, M2 parapet wall, M6 crest slab and M7 crest slab.

Figure 2. Intake Portal and Right Abutment, Blue Lake Tunnelers completed the excavation of both tunnel tie-ins. Barnard began forming the tunnel plug that will seal off the existing intake.

Figure 3. Gate House Location, Completed dry testing of the fixed wheel gate.

Figure 4. Dam Staging area, no change this month.

Figure 5. Fish Valve Unit and Upper Portals, Barnard completed the installation and grouting of the tunnel south portal steel liner. The existing FVU turbine-generator was completely removed from the FVU powerhouse building.

Figure 6. Lower Portal Area, The lower portal penstock was removed and installation of the new penstock continued.

Figure 7. Powerhouse Site, AMCL continued work on the raw water intake and after bay.

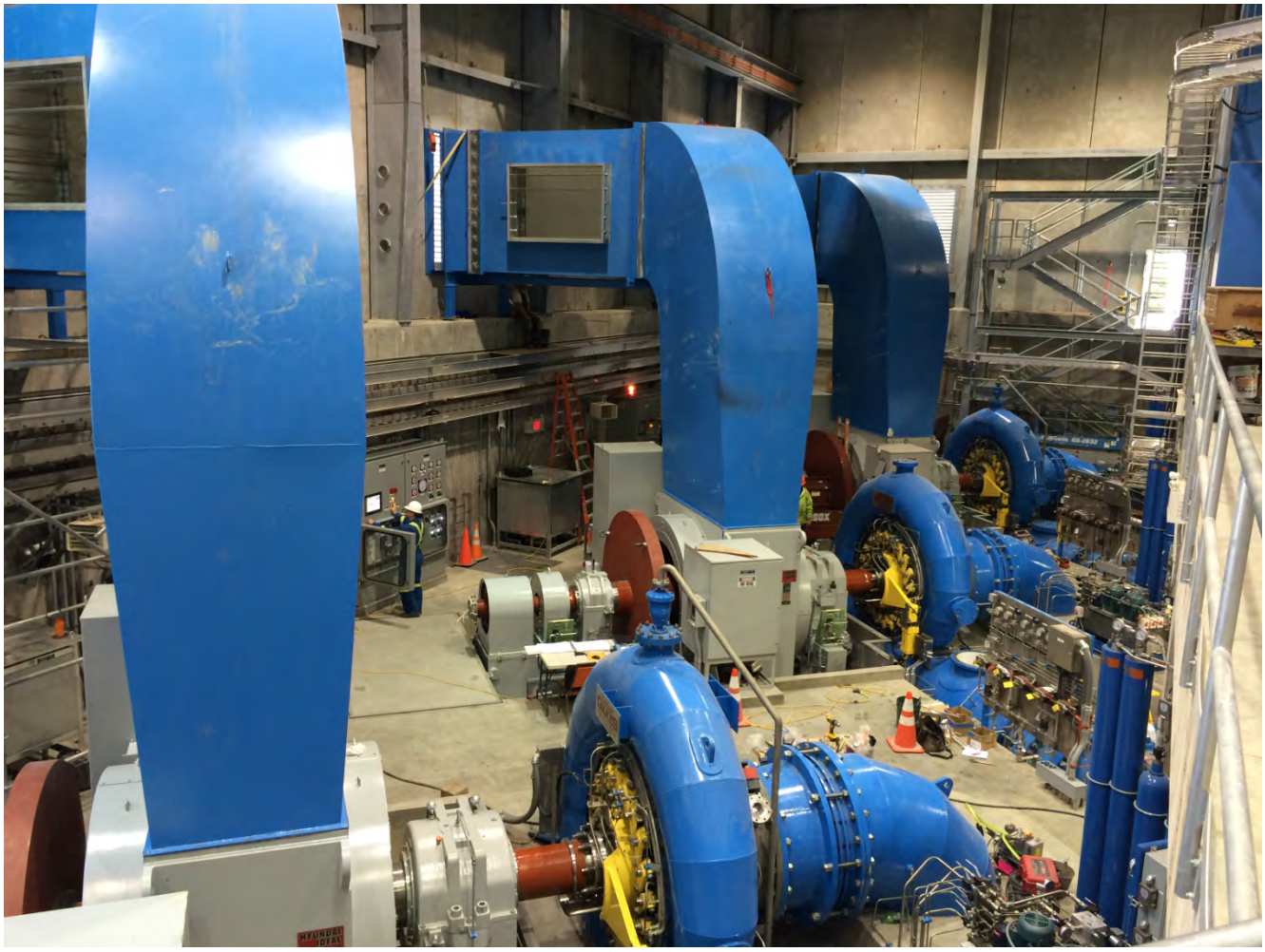


Figure 8. Powerhouse Interior, NAES performed the following tasks related to the turbine generator installation: Unit 3 is fully installed and electrical equipment is terminated. Mechanical equipment is 90% complete. UEE has performed 100% of the dry commissioning on Unit 3 and Unit 5. Unit 5 is fully installed and electrical equipment is terminated. Ancillary equipment is 90% complete. Generator exhaust ducts have been 70% installed. The service and cooling water systems are being installed.

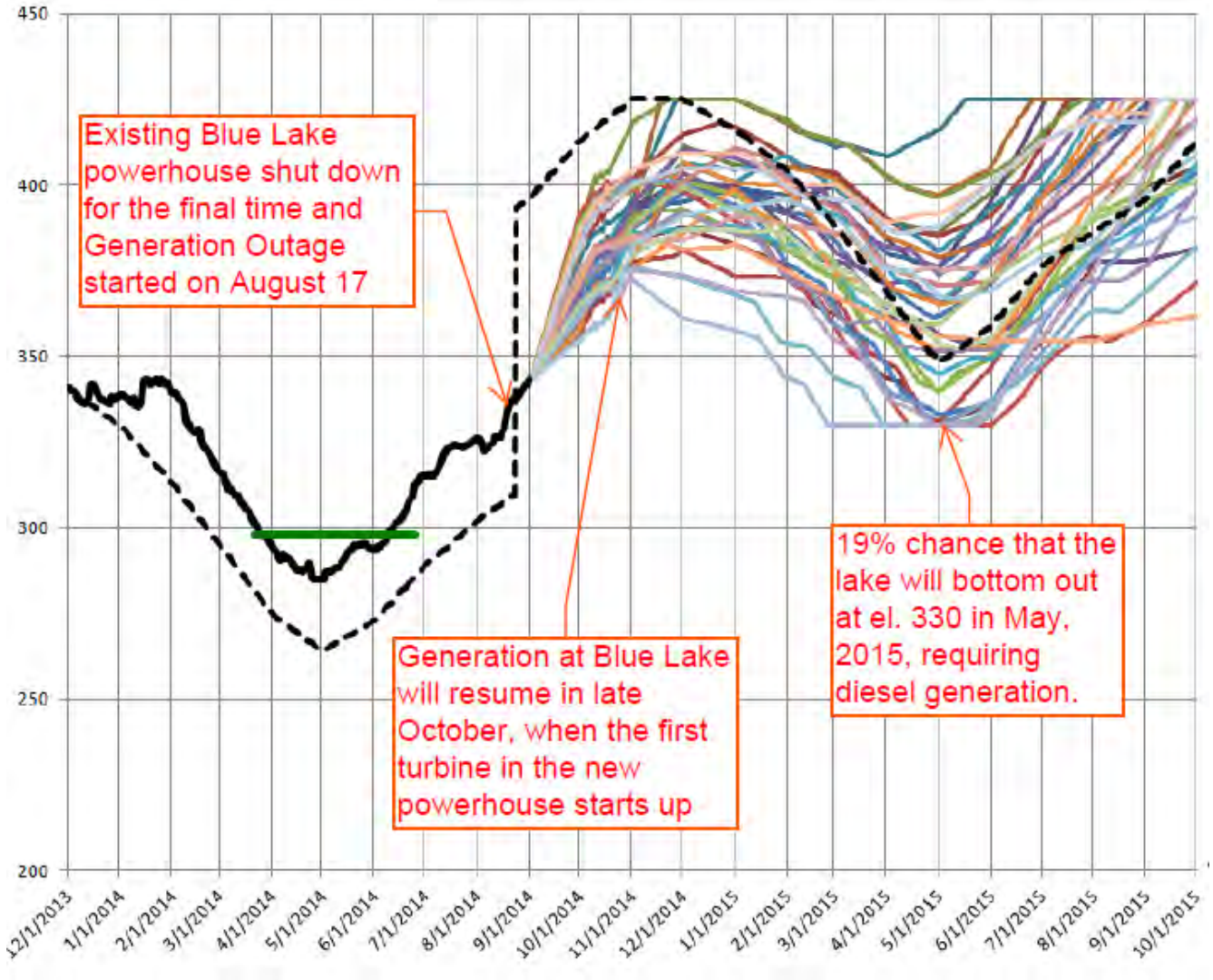
Other Items of Interest

ASRC McGraw continued grubbing and clearing the burn area at the upstream end of Blue Lake. The burn area is now prepared to elevation 415.

Lake Level Forecast

Case 28. Start September 2, 2014. Multi-year simulation using 36 year hydrologic record. 117,000 MWH system load until October 2015 along with dry year inflow conditions. We are now in the Generation Outage when the Blue Lake powerhouse is completely shut down and we await completion of the new powerhouse and tunnel system. In each of these 36 simulations, D4 diesel is run 10 hours each day during the Generation Outage at an average output of 3 MW.

Blue Lake water level simulation

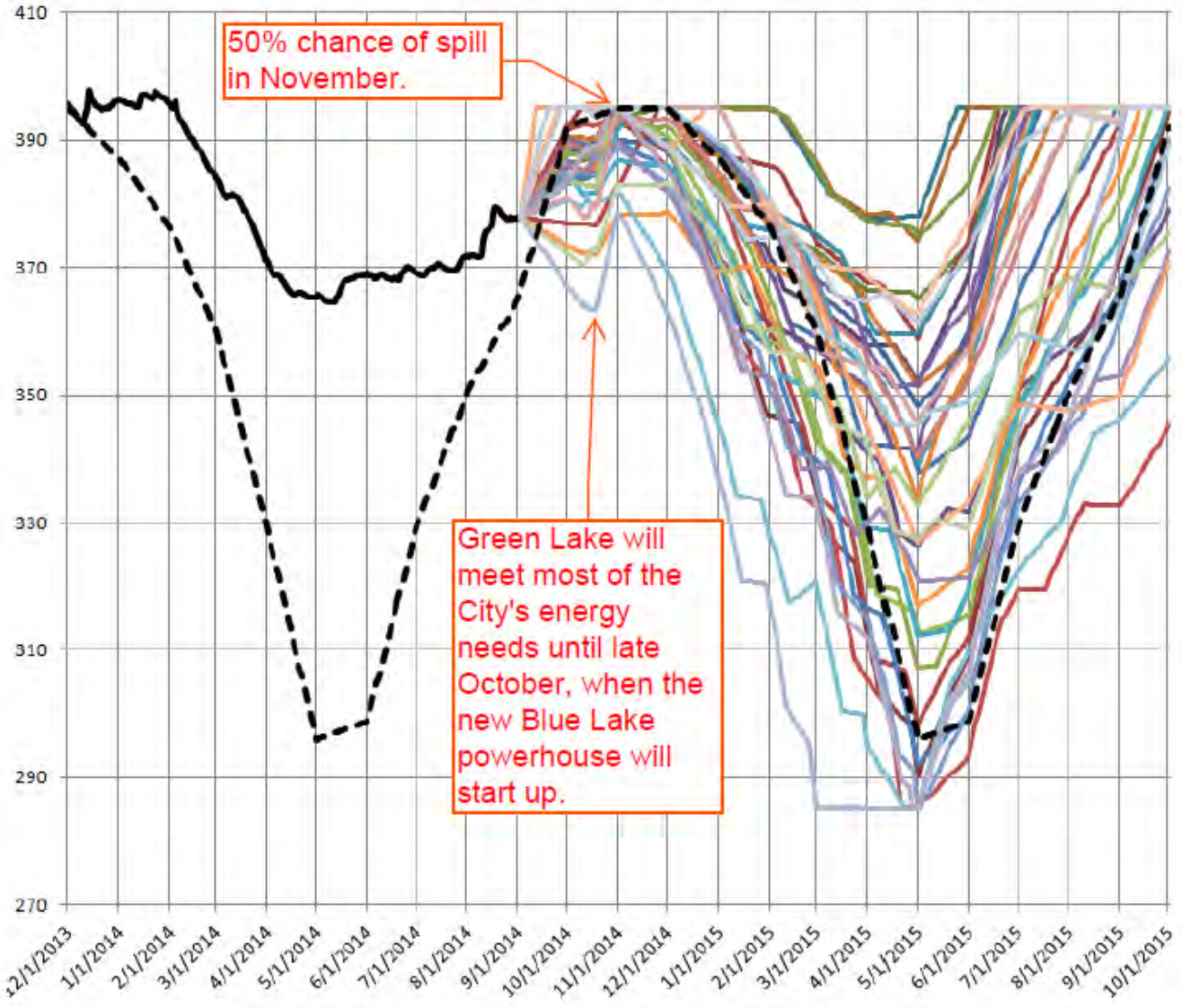


Total diesel generation predicted by this simulation:

Period	Dates	MWH of diesel	Cost at $0.45 per kWH
Spring 2014	-	0	$0
Generation Outage	Aug 17 – Oct 18, 2014	1,626(1)	$732,000
Spring 2015	Mar 30 – June 16, 2015	704 (ave)	$316,000 (ave)

(1) Assumes approx 30 MWH per day for daily peaks, scheduled manually in model

Green Lake water level simulation



Note to Assembly

Water levels in the two lakes are currently quite favorable and should be very adequate for testing of the new powerplant in October 2014. If we have average precipitation in the winter of 2014-2015 we may need very little supplemental diesel generation in the spring of 2015.

Appendix 1 to Monthly Update for City Assembly

August 31, 2014

Summary of Temporary Filtration Project Status

Alternative Water Source Filtration System (Blue Lake Project):

The Temporary Filtration Plant is on line, providing the City's municipal water.

Summary of Titan 130 Diesel Turbine Project Status

- Completed testing of unit including load rejection & load acceptance tests. Final commissioning report & punch list from Solar is pending.
- Titan met all manufacturers guarantees for noise, < 83dB at 3 M, and emissions <65 ppm NOx (18ppm measured in SoLoNOx mode)
- Final fuel piping to tie bulk fuel tank to Titan fuel system is only remaining major item. This has no impact on Titan operations.
- Safety rails for concrete retaining wall remain to be installed.
- Formal notification to EPA and ADEC of unit operation & commissioning will be completed the week of September 8, 2014.
- CG Power confirms 15/20MVA GSU transformer is wired to wrong standard. CG Power will be in town spring 2015 to rewire transformer. Present wiring does not impact operations of Titan.

The bottom line is: The Titan turbine is suitable for service if it is required.

BLUE LAKE EXPANSION PROJECT MONTHLY CONSTRUCTION REPORT

For Period Ending: AUGUST 31, 2014
Prepared by: BARNARD CONSTRUCTION COMPANY, INC.

1. Progress of work

Environmental Protection

Barnard continues to install erosion and sediment control measures as required at the dam site, storage yard at Sawmill Cove Industrial Park and powerhouse area as ground disturbing activities continue. BMP maintenance and repair is ongoing as needed throughout the project site.

Gate Chamber

Barnard completed the installation of the fixed wheel gate and hoist. The hoist was "dry" commissioned by Linita in early August. The air bubbler system was also commissioned in August.

Gate House

See above for commissioning completed in August. Barnard crews also completed the sack and patch on the exterior of the structure and installed the retaining wall handrail.

Dam Raise

Barnard crews completed 7 major concrete placements on the dam, including M3/410 and 417, M4/410, M5/410, M2 Parapet Wall, M6 Crest Slab and M7 Crest Slab. BCCI began rebar installation and formwork for the left abutment cutoff wall. Barnard installed the staff gauge and also installed the hydraulic line covers for the sluice gate.

Barnard and Crux Subsurface installed and tensioned the upper debris boom anchor and installed some of the debris boom. Crux completed the curtain grouting on the dam abutments and demobilized from the jobsite.

Scour Wall

Barnard completed the backfill behind the scour wall and also placed concrete around the drainage tunnel portal. The Howell-Bunger valve was opened in mid August for the Generation Outage.

Powerhouse

NAES Power Contractors has continued installation and commissioning of the electrical gear in the powerhouse. NAES completed the major electrical installations on Unit #5 and began dry commissioning this unit as well as other balance of plant electrical items. NAES installed and commissioned the station service transformers and, with the assistance of CBS, brought permanent power into the new powerhouse.

NAES also continued installation and commissioning of all three units. NAES and Gilkes continue to work on punchlist items on all three units. NAES also began installation of the generator exhaust ducts for all three units.

ASRC continued to work on interior finishes in the powerhouse control room, break rooms, and bathrooms. ASRC also installed and commissioned the standby generator in August. ASRC started building the afterbay retaining wall.

Generation Outage

The generation outage was started on August 17. The existing intake gate was closed and sealed with dive assistance from Associated Underwater Services. Work completed in August includes:

- South Portal
  - Removed existing penstock
  - Completed liner installation and grouting
- North Portal
  - Removed Existing Penstock
  - BLT completed tie-in of new intake tunnel
  - BCCI formed the tunnel plug and placed approximately 2/3 of concrete plug.
  - BCCI began liner installation
- Lower Portal
  - Demo existing penstock
  - BLT completed shaft tie-in
  - BLT completed excavation for new rock trap
  - BCCI completed excavation of the Anchor Block #5
  - BCCI installed and grouted 10 rock anchors for AB#5.
  - BCCI began rebar installation
  - BCCI started selective demolition of existing tunnel concrete for liner installation
- Fish Valve Unit
  - BCCI salvaged existing equipment
  - Completed demo of existing concrete
  - Started demo of existing draft tube.
  - Began fitup of new TIV.
- Water Treatment Building
  - Completed demo of existing equipment.
  - Began installation of new equipment.

Switchyard

No work in the switchyard in August

Temporary Filtration Plant

The temporary filtration plant was commissioned and brought into service in mid-August for the start of the generation outage.

2. *Status of Construction*

Status of Ongoing Major Construction Activities

- Powerhouse Excavation – 99% complete
- Powerhouse Steel Building – 99% Complete
- Powerhouse Roof – 99% complete

- Precast Wall Panels – 99% complete
- Dam Raise –53 of 53 monolith blocks placed.
- Dam Spillway – 4 of 9 placements
- Dam Parapet Walls and Crest Slab – 4 of 15 placements
- Left Abutment Thrust Block and Cutoff Wall – 8 of 9 placements completed.
- Powerhouse Concrete – 3320 CY placed to date.
- Gate Chamber Concrete – Complete.
- Intake Structure Concrete – Complete.

See Section 1 above for construction work completed in August 2014.

3. *Construction Issues*

No major construction issues in August 2014.

4. *Contract Status*

Barnard's key subcontractors for the Blue Lake Project are as follows:

Name	Scope
ASRC McGraw Constructors, LLC	Powerhouse Construction
Southeast Earthmovers, Inc.	Excavation
Blue Lake Tunnelers	Underground Construction
Crux Subsurface	Foundation Grouting, Micropiles, PRW's
O'Neill Surveying and Engineering	Land Survey
Baranof Materials Test Lab	Quality Control
NAES Power Contractors	Turbine-Generator Installation/Electrical

Barnard's key material suppliers for the Blue Lake Project are as follows:

Name	Scope
ASRC McGraw Constructors, LLC	Concrete Supply
Gerdau Reinforcing Steel	Concrete Reinforcing Steel
Haskell Corporation	Misc. Metal Fabrication

5. *Critical Events and Dates*

Please see attached summary progress schedule updated August 31, 2014.

Critical Dates for the Blue Lake Project are as follows:

Milestone	Date	Required Status of Construction
1	07/01/2013	Drainage Tunnel Complete – Completed May 6, 2013
2	08/19/2013	Initial Intake Excavation Complete – Completed July 21, 2013
3	06/04/2014	Intake Structure Complete – Completed June 4, 2014
4	08/24/2014	Ready for Generation Outage – Completed August 16,2014
5	61 days after start of	Substantial Completion of 1st Blue Lake Turbine Generator

	Generation Outage	
6	91 days after start of Generation Outage	Substantial Completion of 2nd Blue Lake Turbine Generator
7	80 days after start of Generation Outage	Substantial Completion of Fish Valve Unit

6. Reservoir Filling

The reservoir is approximately 1 foot below the top of the existing dam. The new dam will see water very soon.

7. Foundations

Not applicable for this report.

8. Sources of Major Construction Material

The City and Borough of Sitka will be providing most of the major construction materials for this project. Please see list below.

Contract No.	Vendor	Scope of Supply
1	Gilbert Gilkes and Gordon, Ltd.	Turbines and Generators
2	Myers	12.47 kV Switchgear
3	Linita Design and Manufacturing	Bulkhead Gate, Fixed Wheel Gate and Hoist
4	T Bailey, Inc.	Penstock and Manifold
5	WEG Electric	69kV Transformers
6	Benchmark Industrial Services	Powerhouse Bridge Crane
7	CHG Building Systems	Powerhouse Building

Materials Received this Period:

9. Material Testing and Results

Concrete testing is ongoing for the dam raise, gate chamber and powerhouse concrete.

No issues have been encountered to date.

10. Instrumentation

Not applicable for this report.

11. Photographs

Figure 1: Spillway Formwork

Figure 2: Rebar and Formwork for M4/410

Figure 3: Right Abutment Curtain Grouting

Figure 4: South Portal Liner Installation

Figure 5: Penstock Excavation

Figure 6: Powerhouse Parking Area

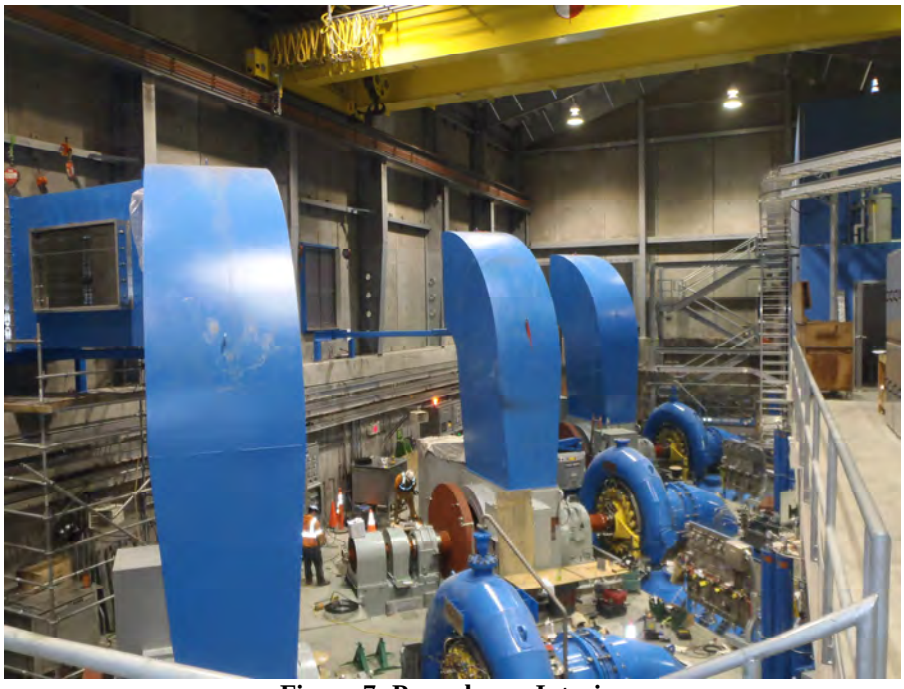


Figure 7: Powerhouse Interior

12. Erosion Control and Other Environmental Issues

Barnard is continuing to install the required environmental protection measures on the project site ahead of ground disturbing activities. Ongoing maintenance of dewatering system at powerhouse excavation site will be required to maintain water quality in Sawmill Creek.

13. Other Items of Interest