CITY AND BOROUGH OF SITKA

ASSEMBLY CHAMBERS
330 Harbor Drive
Sitka, AK
(907)747-1811

Meeting Agenda

City and Borough Assembly

Mayor Mim McConnell
Deputy Mayor Matt Hunter
Vice-Deputy Mayor Phyllis Hackett, Pete Esquiro, Mike Reif,
Benjamin Miyasato and Aaron Swanson

Municipal Administrator: Mark Gorman
Municipal Attorney: Robin L. Koutchak
Municipal Clerk: Colleen Ingman, MMC

Tuesday, May 13, 2014 **6:00 PM** **Assembly Chambers**

REGULAR MEETING

I. CALL TO ORDER

II. FLAG SALUTE

III. ROLL CALL

IV. CORRESPONDENCE/AGENDA CHANGES

AA 14-114 Reminders & Calendars

Attachments: Reminders & Calendars

BB 14-117 FLAP Grant Letter of Support

Attachments: FLAP Grant support ltr

CC 14-115 Public Works Report

Attachments: Public Works Report

DD 14-116 Electric Department Report

Attachments: Electric Dept. Report

V. CEREMONIAL MATTERS

EE **14-105** Proclamations: 1) Arbor Day, and 2) Building Safety Month

Attachments: Proclamations

VI. SPECIAL REPORTS: Government to Government, Municipal Boards/Commissions/Committees, Municipal Departments, School District, Students and Guests (time limits apply)

1) Representative Jonathan Kreiss Tomkins, 2) Detective Kyle Ferguson Illegal Drug Update

VII. PERSONS TO BE HEARD

Public participation on any item off the agenda. Not to exceed 3 minutes for any individual.

VIII. REPORTS

a. Mayor, b. Administrator, c. Attorney, d. Liaison Representatives, e. Clerk, f. Other

IX. CONSENT AGENDA

All matters under Item IX Consent Agenda are considered to be routine and will be enacted by one motion. There will be no separate discussion of these items. If discussion is desired, that item will be removed from the Consent Agenda and will be considered separately.

A 14-102 Approve the minutes of the April 22 & May 5 Assembly/Board of Equalization meetings

Attachments: Minutes

B 14-106 Appointments: 1) Patrick Williams - Health Needs and Human Services, and 2) Josh Arnold - Port and Harbors Commission

Attachments: Appointments

C 14-107 Acknowledge the earmarking of excess CPET funds for Kettleson Memorial Library Expansion Project

Attachments: Library local funiding earmark

D 14-109 Approve a transfer of $90,000 from Project 90652 - UV Disinfection Feasibility Study to Project 90673 - HPR Water Improvements

Attachments: Transfer HPR Water Improvements

E 14-108 Approve New Cingular Wireless PCS, LLC Amendment #1 - changing the lease to month-to-month

Attachments: Cinglular Lease

F ORD 14-14 Adjusting the FY 2014 Budget for known changes

Attachments: ORD 2014-14 Budget Adjust

First Reading

G 14-104 Award a Bulk Fuel Oil Contract to Petro Marine Services not to exceed $1,260,000 and execute agreement

Attachments: Bulk Fuel Motion

Bulk Fuel Oil Purchase

X. UNFINISHED BUSINESS:

H ORD 14-11 Authorizing the sale of Lot 1 South Sitka Sound Seafoods Subdivision to North Pacific Seafoods

Attachments: ORD 2014-11 SSS NPS

XI. NEW BUSINESS:

New Business First Reading

I ORD 14-12 Amending SGC 4.09.010 entitled "Levy of Sales Tax" which removes the Requirement of Registration and Filing of Tax Returns for Tax Exempt Long Term Residential Rentals

Attachments: ORD 2014-12 Residential Rentals Tax Returns

J ORD 14-13 Amending SGC chapter 4.12 entitled "Property Tax" to add SGC 4.12.045 entitled "Exemptions - Disaster Damage" to Allow Reassessment of Property Damaged by Disaster

Attachments: ORD 2014-13 Damaged by Disaster

Additional New Business Items

K 14-103 Sitka School District Budget Funding for FY15

Attachments: School District Funding

L 14-111 Consider waiving late filing applications for Senior Citizen Exemptions: 1) Jon Shennett and 2) Jeanette Williams

Attachments: SR. Citizen Property Tax Waivers

M 14-112 Approve a Purchase Agreement for Raw Water between the CBS and I Water, LLC

Attachments: Purchase Agreement for Raw Water

N 14-113 Approve two Lease Agreements between the CBS and I Water, LLC for Block 4, Lots 3, 6 & 7 Sawmill Cove Industrial Park

Attachments: SCIP Leases IWater LLC

XII. PERSONS TO BE HEARD:

Public participation on any item on or off the agenda. Not to exceed 3 minutes for any individual.

XIII. EXECUTIVE SESSION

XIV. ADJOURNMENT

Colleen Ingman, MMC
Municipal Clerk
Publish: 5-9-14

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-114	**Version:**	1	**Name:**	
Type:	Correspondence			**Status:**	AGENDA READY
File created:	5/8/2014			**In control:**	City and Borough Assembly
On agenda:	5/13/2014			**Final action:**	
Title:	Reminders & Calendars				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Reminders & Calendars				

Date	Ver.	Action By	Action	Result

REMINDERS

DATE	EVENT	TIME
Monday, May 12	Dinner Meeting with Sitka Tribe of Alaska Council Sheet'ka Kwaan Naa' Kahidi House	6:00 PM
Tuesday, May 13	Regular Meeting	6:00 PM
Tuesday, May 27	Worksession: Tour Edgecumbe Dr. Project	5:00 PM
Tuesday, May 27	Regular Meeting	6:00 PM
Thursday, May 29	Special Meeting: Fox Lawson Compensation Report and Approval	6:00 PM

Assembly Calendar

2013 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2015

May 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27 Apr Esquiro McConnell	28 Esquiro McConnell	29 Esquiro McConnell 1:00pm SCVB Board	30 Esquiro McConnell	1 May Esquiro McConnell 12:00pm Parks & Rec 12:00pm - 1:30pm SEDA Board Meeting 6:00pm 2nd Municipal Budget worksession	2 Esquiro	3 Esquiro
4	5 6:00pm Board of Equalization Hearing	6 7:00pm Planning 7:00pm School	7 6:00pm Police and Fire 7:00pm Library	8 12:00pm LEPC 6:00pm 3rd Municipal Budget worksession	9	10
11 Hunter	12 Hunter 6:00pm Govt to Govt Dinner Sheet'ka Kwaan Naa' Kahidi House	13 Hunter 6:00pm Reg Assembly Mtg	14 Hunter 6:00pm Historic Preservation 6:00pm Port & Harbors Commission	15 Hunter	16 Hunter	17
18	19	20 12:00pm Tree/Landscape 12:00pm Health Needs and Human Services Commission 7:00pm Planning 7:00pm School	21 6:30pm STA	22 6:30pm Hospital Board	23	24
25	26 Memorial Day	27 1:00pm SCVB Board 5:00pm Worksession: Edgecumbe Dr. 6:00pm Regular Assembly Mtg	28	29 6:00pm Special Meeting: Fox Lawson Compensation Report/Approval	30	31 Jun

Display: Month Block Navigation Bar: Absolute Relative Both Neither

Calendar: Add/Edit Options Settings *Time zone: America/Anchorage*

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Remove all advertisements, add more email features?

Assembly Calendar

2013 Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec 2015

June 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 Jun	2	3 7:00pm Planning 7:00pm School	4 6:00pm Police and Fire 7:00pm Library	5 12:00pm Parks & Rec 12:00pm - 1:30pm SEDA Board Meeting	6	7
8	9	10 12:00pm Health Needs and Human Services Commission 6:00pm Reg Assembly Mtg	11 6:00pm Historic Preservation 6:00pm Port & Harbors Commission	12 12:00pm LEPC	13	14
15	16	17 12:00pm Tree/Landscape 7:00pm Planning 7:00pm School	18 6:30pm STA	19	20	21
22	23	24 1:00pm SCVB Board 6:00pm Regular Assembly Mtg	25	26 6:30pm Hospital Board	27	28
29	30 McConnell	1 Jul McConnell 7:00pm Planning 7:00pm School	2 McConnell 6:00pm Police and Fire 7:00pm Library	3 McConnell 12:00pm Parks & Rec 12:00pm - 1:30pm SEDA Board Meeting	4 McConnell	5 McConnell

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-117 Version: 1	Name:	
Type:	Correspondence	Status:	AGENDA READY
File created:	5/8/2014	In control:	City and Borough Assembly
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Title:	FLAP Grant Letter of Support		
Sponsors:			
Indexes:			
Code sections:			
Attachments:	FLAP Grant support ltr		

Date	Ver.	Action By	Action	Result

United States Department of the Interior

NATIONAL PARK SERVICE
Sitka National Historical Park
103 Monastery St.
Sitka, Alaska 99835

1.A.2 Resource Management Planning

April 24, 2014

Mayor McConnell and Assembly Members
Mark Gorman, Municipal Administrator
City and Borough of Sitka
100 Lincoln Street, Room 305
Sitka AK, 99835

Dear Mayor McConnell, Assembly Members, and Mr. Gorman:

The National Park Service wholeheartedly supports the Federal Lands Access Program (FLAP) applications you are forwarding to the Federal Highways Administration.

The extension of the SeaWalk will provide an uninterrupted, grade-separated pedestrian route from the cruise ship lightering docks to the park, and eventually to the Lincoln Street business district, dramatically improving visitor safety and the quality of cruise ship passengers' experiences in Sitka. These are goals we share. We look forward to working collaboratively on an ongoing basis to increase the safety of pedestrian connections between Sitka's primary cultural sites, attractions, and amenities.

Although not physically connected to the extension of the Sitka Cross Trail, we support outdoor recreation in general, and see the Cross Trail as a major hiking amenity in the community and a feature that helps us attract highly-motivated employees and volunteers to serve at the park, as well as more adventurous and active visitors who will visit the community and the park. Connecting the Cross Trail to more outdoor attractions helps improve its functionality and appeal.

We appreciate the improvement that these two projects will bring to the community and look forward to their completion.

Sincerely,

Mary A. Miller, P.E.
Superintendent
Sitka National Historical Park

Legislation Details

File #:	14-115	Version:	1	Name:	
Type:	Correspondence			Status:	AGENDA READY
File created:	5/8/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Public Works Report				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Public Works Report				

Date	Ver.	Action By	Action	Result

PUBLIC WORKS ASSEMBLY UPDATE FOR WORK COMPLETED IN APRIL

Building Department – First Quarter 2014:

- Construction activity has been steady in Sitka with the first quarter statistics comparable to activity a year ago.
- We are seeing some removal of outdated housing stock with new homes being built to replace them.
- Several lots have sold in the Ethel Staton Sudivision on Alice Island and we will see new residential construction picking up there in the next quarter and beyond.
- 66 building permits were issued in the first quarter of 2014.
- The valuation of permitted construction in the first quarter is $3,354,748.
- 3 new single family dwellings were permitted.
- 2 single family dwellings are under permit for demolition.
- 20 fire and life safety inspections were performed under the authority of Sitka's deferral from the state fire marshal.
- 162 building inspections were performed.
- A draft building code regulating construction of float homes has been completed.
- Chris Duguay, Building Inspector, recently passed the International Code Council (ICC) exam and is now an ICC Certified Building Plans Examiner. This is a rigorous exam and is a required certification for the building inspector to attain.
- In March, William Stortz passed the ICC exam and is now an ICC Certified Building Official.

Centennial Hall Renovation:

Milestones This Period

- In the April 2, 2014 Building Design Committee (BDC) meeting, the Committee came to the consensus that the full renewal project, phase 1 and phase 2, should be funded and constructed now.
- In the April 21, 2014 Public Meeting, this proposal was presented by members of the BDC, the consultants, and city staff. It was unanimously supported (by show of hands) by the community members attending the meeting.
- In the regular April 22, 2014 Assembly Meeting, the Assembly approved the design and bid and committed to funding the full scope of Harrigan Centennial Hall remodel as described in Michael Harmon's April 16, 2014 memorandum. The exact mechanism of local funding (if needed) will be determined at a later date. Assembly further approved applying for additional grant funding from the Rasmuson Foundation to assist in the completion of all phases of this project.
- After receiving Assembly approval of the 35% design and full funding, Notice to Proceed (NTP) for the design development phase was issued to the Consultants for the Harrigan Centennial Hall Renewal Project.
- Design development (65%) phase is scheduled to run May through September 2014. Focus group and BDC meetings will occur during the design development phase. A schedule for Focus Group and BDC meetings is in development and will be publicized in early May 2014.

Future Milestones

- Construction Documents and 95% cost estimate due in late fall 2014.
- Project bidding winter 2014.

- Award construction contract winter 2014.
- Begin construction spring 2015.
- Complete construction summer/fall - before Alaska Day 2016.

Background

The current total estimated cost for this project is $16.2 million for the full scope of the remodel project. The approved funding plan includes three State grants totaling $8,230,000; a $1,991,271 FY10 Legislative Grant designated for a lightering facility visitor's center (previously planned for under the O'Connell Bridge), $1,175,000 FY 11 CPET Head Tax grant, $1,400,000 Marine Passenger Funds, $232,620 pending heat pump grant, pending $3,300,000 State CPET Grant, additional local funding if needed to be determined at a later date.

Centennial Hall & Crescent Harbor Parking Lot Development:

Milestones This Period

- Work began on Change order 6 for supplemental lighting. Four lighting bollards were removed and seven light-pole bases were installed.
- Change order 7 for minor electrical and grading work is being circulated for approval. Value of the change order is $9,500.

Future Milestones

- Remaining work includes the following: completion of Change order 6 and Change order 7 tasks, and completion of punch list tasks, consisting mainly of applying top soil and seeding as well as pavement "birdbath" repair.
- Final contract completion date was extended to July 1, 2014, by Change order 6.
- Outside-of-contract work scheduled for this summer includes installing a guard rail near the lightering dock and sealing the decorative pavers. Combined value is approximately $20,000.

Background

The project includes the complete reconstruction of the Centennial Hall Parking Lot and Crescent Harbor Parking lot. The improvements include storm drain, water, sewer, curb and gutter, paving, lighting, pedestrian plaza and landscaping. The project was accepted as substantially complete on September 30, 2013. S&S General Contractors was awarded the construction contract in the amount of $2,613,651. The total project budget is $3,950,000. There is an unencumbered balance of approximately $200,000, which accounts for the outside-of-contract work listed above

Edgecumbe Drive Street Reconstruction:

Milestones This Period

- CBS evaluation team reviewed the three proposals received on March 27, 2014. Hosted interviews for each of the teams. Issued Notice of Intent to Award the design-build contract to S&S General Contractors on April 16, 2014.
- Began negotiations with S&S to finalize scope and contract amount on April 24, 2014.

Future Milestones

- Expect to issue Notice to Proceed on this contract shortly after May 27, 2014, Assembly meeting.
- DOWL HKM, S&S's design consultant, is expected to complete geotechnical work and final design by December 2014.

- Public meeting to discuss progress of the design slated for August 13, 2014.
- Construction to begin in April 2015. Substantial completion date is August 21, 2015. Final completion date is October 30, 2015.

Background

The project includes drainage, sidewalk, curb and gutter, road subgrade and pavement improvements on Edgecumbe Drive from Peterson Street to Cascade Creek Road. The total project budget is $5.46 million.

Hollywood & New Archangel Design:

Milestones This Period

- Reached decision to rebuild Hollywood Way as a one-way street routing traffic from north (DeGroff Street) to south (Sawmill Creek Road), with a new sidewalk, curb and gutter. Presented decision to Police and Fire Commission on April 9, 2014, where it was unanimously endorsed.
- Circulating Change Order 1 for approval. It will extend the design contract schedule. Project was initially slated for summer 2014 construction, but has been rescheduled for summer 2015.

Future Milestones

- 65% design drawings and cost estimate due May 2014.
- 95% design drawings and cost estimate due June 2014.
- Construction drawings and final cost estimate due July 25, 2014.

Background

The project includes design for water, sewer, storm drain, pavement, curb and gutter and sidewalk improvements on Hollywood Way and New Archangel Street from Halibut Point Road to Marine Street. Funding for design is available from ADEC Loans (Hollywood Water $250,000, Hollywood & New Archangel Sewer $500,000), General Fund budget for streets ($5,000), and Enterprise Funds (Hollywood Water $25,000, Hollywood Sewer $25,000, New Archangel Sewer $25,000). Project will require an additional $55,000 contribution from the general fund to address Hollywood Way road rebuilding and drainage.

O'Cain Water Main Replacement:

Milestones This Period

- Issued Purchase Order for survey of the northwest segment of O'Cain Street, a looped roadway.

Future Milestones

- Complete design for replacement of water main and services on this stretch of O'Cain Street in June 2014.
- Complete construction by September 2014.

Background

The water main was installed in 1968 and is in need of replacement. Some water services provide service to multiple residences; this project will provide a dedicated service to each residence. The $100,000 project will be funded from the Drinking Water Enterprise Fund.

Lake Street / Monastery Street Lift Station Improvements:

Milestones This Period

- Issued purchase order for survey of the property surrounding these two lift stations.

Future Milestones

- Survey due by mid-May 2014.
- Will pursue replacement/repair of these lift stations by September 2014.

Background

The Lake Street and Monastery Street lift stations require an inordinate amount of maintenance and repair by the Wastewater staff and are in need of immediate replacement or repair. Pumps are outdated and difficult to find replacement parts for, and access to the Lake Street lift station is dangerous due to the location of the ladder rungs. Current available funding is from the Wastewater Enterprise Fund ($350,000 for Lake Street and $30,000 for Monastery Street). ADEC has made a loan commitment for repair/replacement of Channel, Lake Street and Monastery Street lift stations for $1,379,170, which will be available in July 2014.

Blatchley Middle School:

Milestones This Period

- The door correction change order work is underway and should be complete by summer 2014.
- The one-year warranty is in effect and the contractors are addressing issues as required.

Future Milestones

- Sitka School District is working on prioritizing the list of uncompleted major maintenance items that may be completed with the remaining project funding.

Background

The project's (combined Fund 704 now closed out, and Fund 706) funding including the Assembly approved accumulated interest of $12,863,000 for major maintenance is nearly complete. There remain encumbered funds for the remodel project and remaining funds for additional major maintenance needed at the school.

Ultra Violet (UV) Disinfection Facility:

Milestones This Period

- The 100% design was received in April and is under review.
- The conditional approval to construct was received in April 2014

Future Milestones

- The project is planned to be bid for construction in May 2014.
- The project award for construction is planned for June 2014.
- Project construction could start in July depending on contractor schedule.
- The project construction is planned to be complete November 2014.
- ADEC approval to operate is planned to be received December 2014.

Background

The Blue Lake drinking water system is a surface water system, which must comply with the EPA Enhanced Surface Water Treatment Rules (ESWTRs). The subject UV Disinfection Facility will provide the additional microbial and disinfection controls required under the ESWTRs.

The current project cost estimate is $8,966,000. Funding for this project is provided by State of Alaska Department of Environmental Conservation (ADEC) loans and grants:

- $4,000,000 FY 2011 ADEC Loan. Includes $2,500,000 financed with $1,500,000 subsidized.
- $2,550,000 FY 2012 ADEC Loan
- $3,500,000 FY 2012 ADEC Grant (30% local match requirement).
- $2,061,000 FY 2013 ADEC Grant (30% local match requirement).
  $12,111,000 Total Project Funding.

The grants and loans indicated as pending are grants and loans listed on the Alaska Drinking Water Fund intended use plans, for which CBS has submitted appropriate paper work to have the grant or loan finalized.

Library Development Design:

Milestones This Period

- The 65% design has been reviewed by City staff. The related cost estimate came in with an estimated total base bid matching that of the conceptual design estimate of $4.26 million. Bid alternates have been refined and total an additional $352,000 should additional funding become available or construction bids come in lower than the estimate. Contingency for construction remains intact.
- The City has submitted its application to the Rasmuson Foundation for this project. The amount of the grant request was $353,668 and will primarily be used to offset the costs for equipment and furnishings. The approximate timeline for the award notification, if selected, is July 2014.
- The City has begun working with the State for the use of the Stratton Library as a temporary library facility during construction. This space provides an opportunity to continue many of the current library programs and services. The State is committed to supporting the Kettleson project by making this facility available for the costs of utilities and maintenance required during the temporary occupancy. We are in the final negotiation phase of the draft MOA with the State.

Future Milestones

- Rasmuson Foundation scheduled for project review site visit second week in May.
- Design completion May/June 2014.
- Advertisement for bids July 2014.
- Construction begins August 2014.
- Construction Compete August 2015.

Background

The design phase is expected to take 12 months at a minimum with the earliest advertisement for construction planned for late summer/fall 2014. The project construction may be completed in 2015, depending on the phasing plan that is developed. The State funding of $5.7 million awarded to CBS is a direct appropriation with no funding match requirements. A private donation of $400,000 has also been given to the project by the John J. and Eleanor Brust Family and $350,000 of the budget was allocated to the Centennial Hall Parking Lot Project to relocate the Swan Lake storm drain, leaving a current project budget of $5.75 million for the expansion and renovation of the Library.

Storm Water Management Plan:

Milestones This Period

- Revised rainfall intensity curves have been developed based on additional CBS collection locations at Blue Lake water plant, Old Sitka Rocks Lift Station and the Magnetic Observatory.

Future Milestones

- Storm Water Ordinance is currently under development and is due at the end of May 2014.
- Work session with Planning Commission and local contractors planned for June 2014.
- Work session with Assembly Planned for July 2014.
- Approval of Storm Water Ordinance by Assembly Planned for August 2014.

Background

The first phase of the Storm Water Master Plan was completed in late June 2012 with Tetra Tech Alaska, LLC gathering existing infrastructure data and condition inventory to include in our GIS system along with precipitation analysis and drainage basin delineation as part of the first phase of the project. The second year grant funding (FY13) was approved by the Alaska Department of Environmental Conservation and the grant agreement was authorized by the Assembly in July 2012. The grant amount of $43,388 requires a forty percent CBS match of $28,925. This phase included collecting more field data, preparing the Storm Water Management plan, Sitka specific rainfall intensities, recommended Best Management Practices, Capital Improvement Plan and an example Storm Water Ordinance.

Alternative Water Source Filtration (Blue Lake Project):

Milestones This Period

- CBS, CH2MHill and the State of Alaska Department of Conservation Drinking Water team are working closely together to obtain final approval to construct.
- CH2MHill had been reviewing and approving material and equipment submittals from Barnard Construction.
- Chlorine disinfection contact tanks have been delivered to the site.
- Onsite piping for the project is ongoing.
- Standby generator has been delivered to the site
- Pall filtration units have been shipped from the factory
- Long lead items are being ordered by Barnard Construction.
- CORP of Engineers permit for work in the pond has been received

Future Milestones

- Barnard Construction's activities are ongoing
- DEC Loan for the project is being finalized.
- Cleaning of and testing of chlorine disinfection contact tanks for VOC.
- Testing of chlorine disinfection contact tanks for required residual.
- Installation of Pall Filtration units when received .
- CBS personnel are scheduled to grade the existing pond, clean out the intake pipes and place the temporary diversion wall when required to bring the system online in July 2014.
- Meeting with DNR for additional water take from Indian River for project duration.
- The system is planned to be operational in July 2014.

Background
The proposed schedule has the design completed in October 2013, Alaska Department of Environmental Conservation permitting completed in March of 2014, construction of the piping and pumping completed in April 2014 and final installation of the filter units in June 2014 for operation in July 2014. The preliminary design cost estimate has a projected design and construction cost of $3,000,000. Due to the lack of well potential in the Indian River Valley, temporary surface water filtration will need to be utilized during the Blue Lake Project outage. Award of the design contract to CH2MHILL, was approved by the Assembly on February 12, 2013.
A temporary filtration system has been designed to treat Indian River water to serve the public during the Blue Lake penstock outage in 2014. We continue working closely with CH2MHill, the designer, reviewing details for the temporary filtration system and answering specific questions about the site and old facilities.

ANB Harbor Replacement (Project # 90674):
Milestones This Period
- Bedrock was encountered consistently deeper than anticipated during pile installation across the harbor. Post-installation structural analysis of the float system indicates that eight (8) piles will exceed deflection criteria under worst case design loading. Excessive pile deflection could cause damage to the float system if remedial action is not taken thereby potentially voiding the warranty on the floats. A change order was initiated to complete a dewatering test program to determine which methodology of concrete infilling the piles would be required.
- A change order was initiated to install GFI breakers at each pedestal in the harbor in accordance with NEC requirements.
- ANB Harbor sign is now under fabrication.
- Transpac Marinas began installation of supplemental floatation billets to trim the floats. Another trip to Sitka is anticipated to complete this work.

Future Milestones
- Complete concrete infilling of 8 piles which are shown to exceed deflection criteria under worst case design loading.
- Complete installation of GFI breakers.
- Complete asphalt repairs in the ANB Harbor parking lot and Katlian Street prior to May 31, 2014.
- Close out grant agreement with the State of Alaska.

Background
CBS received a FY13 State of Alaska Municipal Harbor Facility Matching Grant, for the ANB Harbor Replacement Project, which will cover 50% of eligible construction costs not to exceed $4,250,000 in match funding. CBS has received bond proceeds from the Alaska Municipal Bond Bank in the amount of $4,300,000 for this project. On January 10, 2013, the Assembly awarded a Professional Services Contract to Moffatt & Nichol for the ANB Harbor Replacement Project. On June 25, 2013, the Assembly approved award of the Procurement Contract to Transpac Marinas, Inc. for $2,698,870. On October 22, 2013, the Assembly approved award of the Installation Contract to Pacific Pile & Marine L.P. for $3,639,319. The total project cost is currently estimated at $7,500,000.

Swan Lake Restoration / Dredging Project (Project # 90747):

Milestones This Period

- A preconstruction meeting was held which was attended by CBS, the contractor and the CBS consultant.

Future Milestones

- The contractor is planning to begin dredging in May and complete all work in 2014.
- Purchase of a refurbished aquatic weed harvester was included in the grant funding. These floating machines cut and remove the vegetation to improve recreational opportunities and water flow through the lake. The search for a suitable harvester is on-going with several suppliers.

Background

The Assembly approved award of a construction contract to Island Enterprises, Inc. in the amount of $399,806 for the Swan Lake Restoration – Lake Dredging project on April 23, 2013. The project includes dredging prioritized selected locations to improve water flow through the lake, winter habitat for fish, access and recreation in general. The City and Borough of Sitka received $771,236 in Federal funds through the Coastal Impact Assistance Program (CIAP) for this restoration project on Swan Lake. The grant is administered through the Wildlife and Sport Fish Restoration Program, CIAP Branch and runs through December 2015.

Baranof Warm Springs Dock Replacement (Project # 90741):

Milestones This Period

- A preferred site plan was developed by the State of Alaska based on feedback from CBS staff and users of the BWS dock.
- The State designers have begun work on design of the float system with feedback from CBS Harbor Dept. and PW staff.

Future Milestones

- Provide timely review/comment for State of Alaska as needed to keep project moving forward.
- Design development during summer/fall 2014.
- Construction is anticipated in fall 2015.

Background

The City and Borough of Sitka (CBS) received a $1,900,000 FY2013 Alaska Legislature Grant to reconstruct the Baranof Warm Springs Dock. The funding was provided with the understanding that CBS would assume ownership and maintenance responsibilities for the dock once it is reconstructed. The Assembly approved the Administrator to execute a Memorandum of Agreement with the Alaska Department of Transportation and Public Facilities (ADOT&PF) for completion of the Baranof Warm Springs Dock Reconstruction and Ownership Transfer. ADOT&PF will be reimbursed the cost of designing and constructing the improvements from the FY13 Legislative Grant.

Seaplane Base (Project # 80242):

Milestones This Period

- Contacted upland property owners to gauge potential for possible tidelands access for new Seaplane facility.

- FAA recently informed Public Works (PW) that entitlements of $450,000 are available for the project currently. There may also be a possibility of getting additional funds to complete design and environmental process - perhaps up to $700,000. In order to secure any additional funds above our entitlements, PW would need to prepare a high level scope and schedule as well as provide confirmation that the site identified in the planning study has been selected as the site for development. It should be cautioned; however that FAA also stated that the entitlements of $450,000 may not be protected should CBS choose not to move forward with the project this year.

Future Milestones

- Face to face meetings with upland property owners to discuss potential for them to provide tidelands access for new Seaplane facility.

Background

In August 2002, the Sitka Seaplane Base Master Plan was completed to include a Condition & Needs Assessment and Master Plan Alternatives Report. The plan considered 12 alternative sites for a new seaplane base and concluded that the north end of Japonksi Island, between the Coast Guard Base and the cove behind the SEARHC buildings along Seward Avenue was the preferred alternative. In February 2009, the CBS Assembly unanimously approved Resolution 2009-35 "Supporting the Development of the City and Borough of Sitka Seaplane Base." This resolution approved staff applying for and executing an Federal Aviation Administration Airport Improvement Program grant for up to $500,000 to develop the siting plan, issues resolution, design, environmental, and permitting phases of the project. Utilizing proceeds from that grant, in June 2012, an updated Sitka Seaplane Base Siting Analysis was completed which considered another new site and redevelopment of the existing site in addition to the previously recommended Japonski site. The Japonski site was again selected as the preferred site. The findings of this study were presented to the Port and Harbors Commission on April 11, 2012 where they unanimously approved further study of the Japonski Island site. Due to a high workload within Public Works (PW) and limited staffing, the project has not been advanced since the completion of the Siting Analysis.

Airport Water Main Repairs – US Coast Guard Housing Project (Project # 90731):

Milestones This Period

- Obtained State Fire Marshall and Federal Aviation Administration project approval. Alaska Department of Environmental Conservation approval pending. All these permits are required to obtain Airport Permits.
- Obtained Alaska Department of Transportation Utility permit for the work.

Future Milestones

- Construction is anticipated in July/August 2014.

Background

The existing 8-inch cast iron (CI) water main which serviced the Sitka Rocky Gutierrez Airport and associated outbuildings experienced a break in 2012. As part of the repair effort, a section of the pipe was removed and an old valve was opened to provide water to the airport from an old 10-inch asbestos cement (AC) water main which also services the US Coast Guard housing on Lifesaver Drive. The 10-inch AC pipe is fed from a 16" ductile iron (DI) water main in Airport Road. The US Coast Guard contracted with ANC

Research & Development, LLC to upgrade the water system within Lifesaver Drive. As part of this work, they will be replacing the 10-inch AC water main with High Density Polyethylene (HDPE) pipe within Lifesaver Drive from the 16" DI water main in Airport Road. With a Contractor already contracted to complete work for the US Coast Guard in the immediate vicinity, it was advantageous to contract with them to complete repairs for the City and Borough as well to avoid additional mobilization fees. On August 13, 2013, the Assembly approved award of a Construction Contract to ANC Research & Development, LLC in the amount of $56,425 to install a new section of 8-inch water main to service the airport and remove the vintage 10-inch AC pipe from service. Funding for this project is provided from a FY 2013 Water Fund Capital Budget Item: Repair, Airport Water Main near USCG Housing for $75,000.

Federal Land Access Program (FLAP) Grant:

Milestones This Period

- National Environmental Protection Act (NEPA) process has been finalized.
- Working with Corps of Engineers to get nationwide permit for installing two culverts on the Cross trail in phases 4&5.

Future Milestones

- Compensatory Mitigation negotiated with a restrictive covenant (conservation easement) on a tract of City land located near the cross trail project - April 1, 2014.
- Start ordering materials for the construction phase.
- Start construction of first section of Cross trail from Indian River to end of Yaw Drive June 1, 2014.
- The completion date is estimated around May 2015.

Background

The City and Borough of Sitka has been awarded a $916,897 MAP-21 Federal Lands Access Program (FLAP) Grant for Phase 5 Cross Trail multimodal pathway (Cross TMP), Baranof Street and Yaw Drive connectors, by Western Federal Lands (WFL). The Assembly approved submission of the grant in Resolution 2013 - 03 in February 2013.

Phase 4 of the project, a $926,000 STIP Grant for a multimodal pathway reconstruction and re-routing from Yaw Drive to the CBS property was funded by the Department of Transportation in the 2009 STIP. DOT planners, with the concurrence of Western Federal Lands (WFL) and CBS, initiated action to combine the two projects as a single $1.8 M grant and have the project managed by Western Federal Lands for greater efficiency and cost savings.

Solid Waste Management Plan:

Milestones This Period

- A work session with the Assembly, Public works Staff, and the CB&I Consultant Team was completed just before the March 11, 2014 Assembly Meeting to talk about the Solid Waste Management Plan.
- March 10 thru March 14, 2014 was the kick-off week for the CB&I Consulting Team, this was developed for meetings with various entities for data collection and evaluation.

- The Consultant Team has been collecting current data for an existing conditions analysis.
- The SWAC committee will be meeting May 28, 2014 at Centennial Hall.

Future Milestones

- Updated Solid Waste Division under the public works section of the CBS website. This will include all of the current information from the SWAC Group meeting to include the minutes, presentation, and a copy of the scope of work.
- Proposed Project Schedule:
    - March – May; Existing conditions analysis
    - May; SWAC Meeting to present background and existing conditions information/ discuss alternatives to be evaluated.
    - June – July; Alternatives Evaluation.
    - July; SWAC Meeting to present Alternatives evaluation findings.
    - August – September; Plan drafting and presentation.
    - August; SWAC meeting to present plan.

Background

The City and Borough of Sitka (CBS) currently does not have a Solid Waste Management Plan to address the current or future needs of the Solid Waste Fund and general operations. As we approach the end of the current collection and off-island disposal contracts in 2015, we believe it is in the best interest of the CBS to be better prepared with a plan that details the goals and direction of our solid waste management backed with data and a financial plan.

At the June 6, 2013 Assembly Meeting, the Assembly approved advertising for a Request of Qualifications and select a consultant to assist Public Works in developing a Solid Waste Management Plan.

The funding for a Solid Waste Management Plan will come from the working capital of the Solid Waste Fund which is approximately $1.3 M. The Solid Waste Management Plan is a time and materials, not to exceed $250,000 contract. The total amount is dependent on the complexity of future goals and the amount of public process exploring options.

Sawmill Cove Industrial Park Dock (Project #90748):

Milestones this Period

- The firm of Moffatt & Nichol (M&N) has been awarded a contract to provide the design for the SCIP Dock Project. The "not-to-exceed" amount of that contract is $790,114. The work to be completed by M&N includes site investigations, filing for and obtaining the necessary permits for construction and operation, and detailed design. The end result of M&N's work will be bid-ready construction documents, to be delivered no later than the end of December 2014.
- M&N's Project Manager (Shaun McFarlane, P.E.) visited Sitka for two days, April 28 and 29, 2014. He was introduced to the public at a special meeting of the SCIP Board of Directors on the evening of April, 28, 2014, where he asked for input from the Board and from the public regarding potential uses of the new dock facility. Mr. McFarlane spent some time at the SCIP site in the company of the SCIP Executive Director (Mr. Garry White) and the CBS Project Manager (Mr. John Flory, P.E.). This trio also met with representatives of several public

and private entities, to gather additional information regarding potential uses of the dock.

Future Milestones

- Boundary and bathymetric surveys of the site are scheduled for the two week period in the middle of May. Geophysical/geotechnical subsurface investigations will follow, during the first two weeks of June. Geotechnical work cannot start sooner due to fish-related time restrictions on in-water work.
- When the data from the above-described onsite work is available, the design engineers will use it to finalize their Alternatives Analysis Report, which will be presented to CBS at the end of June. This document will give the engineers' opinion of the three or more design types being considered – i.e., (1) concrete deck on piles, (2) anchored sheetpile bulkhead, and (3) cellular (sheetpile) cofferdam. The Consultant will recommend the best structure type for the site conditions, and for the available funding.

Background

The project is funded by a Designated Legislative Grant, administered by the State of Alaska, Department of Commerce, Community & Economic Development, and Division of Community & Regional Affairs. The total amount of the Grant is $7.5 M. On the local level, the project is administered by Public Works and the Sawmill Cove Industrial Park Director (Mr. Garry White).

Water Service Calls; Leaks/Locates/Routine Repairs & Maintenance:

- The Water Division, continued this month to function with two of the three operators and April was another extremely busy month with operators responding to 33 different calls for assistance: 12 calls for locates (mostly for QAP on SMC Rd and Coastal Excavation on HPR, the DOT projects); six for inspections of new or repaired services, eight leaks were found – six on the customer side and two on the city side of the properly line; six requests for water shutoffs/turn ons; and one for dirty water (associated with the DOT HPR project).
- Water operators completed inspections on the new water system addition in Arrowhead Estates. Operators witnessed the flushing, pressure testing, disinfection and microbiological testing of the new 8" private main.
- Water Operators worked with Coastal Excavation (DOT job) and completed the relocation of water mains: around the piling for the new bridge on No Name Creek and the installation of a new section of water main on to Cascade Creek Bridge. The old cast iron main was under the creek; the creek bed continues to erode resulting in nearly half of the water main being exposed and unprotected – a troubling situation.
- Late in April the water operators isolated and pressure tested the 30" transmission main between Thimbleberry Trail Head and the water plant. This test mirrored a test preformed prior to the SMC Rd DOT project that damaged our pipe lines in the vicinity of blasting. The static pressure test held steady during the test period indicating no leaks in this section of 30" main.
- Water operators worked on a Sunday with DOT's SMC Rd. contractor, QAP, to replace a section of 12" main that had the interior liner damaged during the first blasting incident, a hydrant was replaced and a 12" valve that had been damaged was relocated. The interior of the 12" main was inspected with a

disinfected CCTV mini push camera in both directions; the liner was intact. This work required isolation of a section of the main along Silver Bay which turned off the water to the SMCIP and a few residences near Whale Park.

- The damaged hydrant at the Baranof/SMC Rd. intersection was repaired.
- Water operators with assistance from the WW group researched in detail and confirmed each connection attached to the old 8" cast iron (CI) main between Davidoff and Cascade Creek Rd on the water side of HPR. After seeing the condition of this old CI main it appears it is very near the end of its useful life. This in depth investigation will allow the contractor to provide a price quote for our evaluation of what is involved to abandon this old unlined CI main and have all services/hydrants attached to the newer 16" ductile iron main on the upland side of HPR.
- As discussed last month, ADEC has changed Sitka's "Drinking Water Population". Unlike typical population numbers, the drinking water population includes transients like cruise ship passengers and summer workers. This results in our DW population being over 10,000 which is a significant step up in DW regulation requirements. Operators modified our sampling plan to include two new sampling locations and more Blue Lake Raw water samples. In April we took our first set of disinfection by-products (TTHM & HAA5). We are now required to monitor for these compounds at four locations per quarter, rather than one per quarter. Results were received and as usual the concentration of disinfection by-products in our treated Blue Lake water is significantly below regulatory limits. This additional monitoring will result in a cost increase to our DW fund operational budget of $6,000-10,000 annually.
- Work on two annual reports for the public (and ADEC) is underway: the Watershed Report is being updated with new information related to the dam project and changes that will occur in the watershed as the lake fills to a new elevation. Public access will be controlled in the future by a new gate. It is critical for our filtration avoidance that human activity at the lake be monitored, related to associated changes in water quality and that if water quality is adversely effected that particular human activity must be controlled. The second annual report is the Consumer Confidence Report (CCR) also referred to as the Water Quality Report is being updated with new monitoring results for 2013. These reports are due by July first.
- In mid-April water operators began working on a near daily basis with the Barnard Construction group who is assembling the temporary water treatment equipment at the old Indian River Water Plant site. The emergency generator has arrived and is in place. The two settling tanks for clarifying the membrane back wash water are in place. All six chlorine contact (CT) tanks are in their final location and the contractors are busy fabricating the piping headers to and from these tanks. In early May our operators will work closely with the contractors to disinfect these 6, ~20,000 gallon tanks and to do some preliminary water quality testing required by ADEC.

Wastewater (WW) Operations:

- Dan Berlad has been hired as WWFO1. Dan has experience working in the CBS Harbor Department as well as the Finance Department where he is currently employed. Dan has worked alongside the WW Operators during the last few years at our twice annual household hazardous waste collection events. Dan has a very positive attitude and excellent communication skills. We are excited to have Dan join our WW group on May 5, 2014.
- WW operators continued performing locates for and inspections of the work by ASRC's subcontractor, Coastal Excavation on the DOT HPR project. Several locates were also performed for DOT's SMC Rd contractor, QAP as they install guard rail along Jamestown Bay.
- WW operators located and CCTV inspected the service line from the library as part of the library renovation project.
- The experiment on the BIHA LS up Indian River road using "micro-bugs" continues and preliminary results are promising. These are enzymes that reduce the accumulation of fats, oils and grease (FOG). FOG is a significant problem in this LS, causing level control issues and pumping problems. This trial is expected to last through the summer.
- The backflow preventer testing in our lift station system that began in March continues as time allows. This is a time consuming task and it must be done by a person certified in back flow preventer testing which is not an easy certification to achieve. Water and WW Divisions try to keep at least two operators certified.
- WW operators completed pressure testing of the new storm drain lines installed on the Baranof Sreet project last summer. This testing was a new ADEC requirement. To perform these tests several thousand dollars of new test equipment was needed. The storm lines passed.
- Near the end of April the WW crew cleaned, installed pumps and readied our three seasonal lift stations for the summer season; Vilandre Field, Whale Park and the Lightering Facility are ready to go.
- WW operators assisted Crescent Plumbing who installed a new pump for Silver Bay Seafoods by using our "camel" vacuum truck to clean out the wet well. While the camel was in use they also cleaned the Lightering Facility, LS #6 and Crescent LS wet wells.
- Pump #1 at the BIHA LS was removed from service needing a bearing and seal replacement. The pump was back in service the next day. Also pumps at LS #5 were found plugged and were dismantled and cleaned during April.
- The WWTP 'concentrated scum line' was dismantled and cleaned – it was nearly blocked off with accumulated grease. Household grease dumped into the sanitary sewer is a continuous problem.
- WW Operators found a leaking private sewer line, CCTV inspected and located the service which had many turns and bends and advised the owners on needed repairs. This was brought to the owner's attention by a house inspection prior to a potential sale of the home.

Sawmill Cove Industrial Site – Wastewater (WW) Update:

- The force main (FM) from the new SMCIP lift station (LS) to the municipal collection system at Whale Park was that was removed from service for QAP's

retaining wall work has been put back into service. Sanitary sewer flows at the SMCIP site are split between the on-site extended aeration secondary treatment plant and the LS pumping to town. We plan to keep the on-site operating until we are positive all the SMC road work has been completed in case the FM needs to be isolated again. After we are positive the DOT project is completed, we plan to discontinue the operation of the small extended aerating plant and the monitoring and reporting involved and pump all the sanitary WW from the SMCIP to the municipal system.

Legislation Details

File #:	14-116 Version: 1	Name:	
Type:	Correspondence	Status:	AGENDA READY
File created:	5/8/2014	In control:	City and Borough Assembly
On agenda:	5/13/2014	Final action:	
Title:	Electric Department Report		
Sponsors:			
Indexes:			
Code sections:			
Attachments:	Electric Dept. Report		

Date	Ver.	Action By	Action	Result

City & Borough of Sitka
Electric Department
105 Jarvis Street, Sitka AK. 99835
Telephone: 907-747-4000 Fax: 907-747-3208

BLUE LAKE EXPANSION PROJECT

MONTHLY UPDATE FOR CITY ASSEMBLY

Report No. 17 Month ending April 30, 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

- April 6 – Gave first public tour of the season.
- April 8 – AUS performed first dive to inspect existing bulkhead gate.
- April 11 – AUS completed repairs and reinstalled the bulkhead gate.
- April 27 – Plunge pool was dewatered for scour wall installation.
- April 28 – Isolated and locked out No. 1 switchyard for NAES and ASRC begain switchyard work to install the 12.47 kV main transformers.
- April 29 – Crux arrived on site to begin curtain grouting and scour wall construction.
- April – Barnard, NAES, and Schmolk begain the buildout of the gate house.
- April – Barnard completed the intake rock bolting.
- April – Barnard completed the intake chamber concrete work and have set the trash rack frame and begun work on the intake structure concrete.
- April – Schmolk continued the mechanical buildout of the powerhouse
- April – ASRC completed 90% of the control room buildout.
- April – Conducted multiple commissioning meetings with contractors and suppliers
- April – NAES performed the following tasks related to the turbine generator installation:
    - Placed secondary concrete around BL5&3 draft tubes
    - Completed alignment of all 3 turbine spirial cases
    - Set all 3 turbine inlet valves
    - Completed alignment of BL5&3 generator sole plates
    - Installed generator stator, rotor, and bearings on BL5
- April – NAES continued with installation of conduit and cable tray in and ouside the powerhouse.
- April – NAES began installing electrical panel boards.
- April – NAES moved low voltage and medium voltage switchgear to powerhouse.
- April – Barnard installed the new penstock from the turbine inlet pipes up to the water treatment plant access road.
- April – Barnard showed good progess on the dam construction completing 9 block placements
- TO DATE – 37 of 53 blocks placed on the Dam Raise, 8 of 9 placements completed on the Left Abutment and Cutoff Wall and 3230 CY of 3350 CY have been placed at the powerhouse. Concrete tests have been better than required by the specification.

COST SUMMARY - updated 4/30/2014

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	$89,681	$10,678,129.76
Contract 2 - Switchgear	$647,672	$0	$584,488
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	$245,246
Contract 7 - Steel Building	$1,139,321	$0	$1,084,397
Contract 8, Debris Management**	$2,258,714	$0	$1,412
Contract 9, General Construction	$93,901,406	$2,907,805	$59,965,698
Temporary Filtration**	$1,651,424	$1,622	$236,899
Diesel Fuel	$1,260,000	$0	$0
Remaining Project Costs		$0	$0
License Amendment	$1,400,000	$16,181	$1,230,324
Engineering	$9,498,393	$13,269	$11,854,240
Construction Management	$8,076,201	$399,229	$5,523,044
City Performed Work	$1,495,000	$36,991	$1,847,710
Incentive Payment	$1,600,000	$0	$0
Cost of Bond Issuance/Reserve Account	$3,500,000	$0	$0
TOTALS	**$140,792,262**	**$3,464,777**	**$95,502,419**
ESTIMATED TOTAL PROJECT COST	**$145,256,725**		

*Paid to Date includes unpaid retainage

COST CHANGES THIS MONTH

- We issued change order No. 9 for Contract 9, for $483,555. This change order was for extra work by Barnard for repairs to the sluice gate valve and trash rack at the dam.
- A change work directive was issued to provide a dam release pipe at the dam. The pipe has been installed and the flanges are on site ready for installation.
- A change work directive will be issued to install a rock trap in the tunnel during the generation outage.

We do not expect these change items to impact the overall project schedule.

CONSTRUCTION SCHEDULE MILESTONES: PLANNED/ACTUAL

Construction Start	11-20-2012 / 12-03-2012	Sub. Comp. BLU #5	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#4	11-22-2014/
Ready for Generation Outage	08-24-2014/	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 May:
    - Finish construction of new intake structure – June 4
    - Complete new penstock installation up to a point near the existing penstock – May 7
    - Continue turbine generator installation in Unit 3, 4, 5
    - Continue buildout of powerhouse interior
    - Continue placing monolith blocks on dam
    - Begin scour wall construction in plunge pool
    - Begin curtain grouting at dam
    - Continue switchyard construction
- All of the Owner furnished materials and equipment are now on site.
- The CM team and Electric Department continue working on the City-performed work tasks to ensure these activities are completed on time. Preliminary testing of automation equipment (SCADA) has been done. Bruce Belley has installed control panels in the switchyard building and will continue wiring them in.
- Project commissioning plans must be completed. This is a high priority.

OTHER ITEMS OF INTEREST

- The warmer than normal weather this winter has been good for construction and put more water in the reservoirs. We are managing the reservoirs to store additional water in Blue Lake for use following the generation outage. This additional water will decrease the amount of diesel generation required substatially.
- The progress on the dam work has improved this month.
- The contractor has progressed well on the intake construction this month. This will set us up well for water management related to the generation outage.

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 (April 25, 2014) schedule, the critical start of the 2014 Generation Outage is shown starting on August 24, 2014, zero days ahead of schedule. However, the work completed and started this month give a higher level of comfort for being prepared for the Generation outage.
CURRENT RISK: MODERATE

Generation outage schedule: The commissioning plans must be prepared to properly execute the generation outage and the current schedule calls for only 10 days of wet commisionin. This is optimistic. The additional water we now have in the lakes may mitigate the impacts of this risk.
CURRENT RISK: MODERATE

Weather and Lake Levels: Now that we have achieved the intake work window elevation we have decreased the water wasting at Blue Lake.There is ample water in both lakes. There is now zero need for added diesel generation in the spring and early summer of 2014.
CURRENT RISK: VERY LOW

Temporary Water Filtration Plant: During the August through September 2014 outage of the Blue Lake tunnel, the City will get its drinking water from a temporary water supply. This temporary system remains to be installed at Indian River. This system must be in place and fully operational prior to the Generation Outage. Any delay in the filtration plant beyond August 23, 2014, will delay the hydro expansion Project. Barnard will be providing the filtration project as a change order to Contract 9. The filtration project is being managed by McMillen LLC and CH2M Hill has completed the final design. The City Water Department will operate the plant with assistance from CH2MHILL and the supplier.
CURRENT RISK: MODERATE [*The current status of the filtration system design and planned construction is described in Appendix 1. If the filtration system is constructed as planned, we will be on track for the Expansion Project.*]

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.

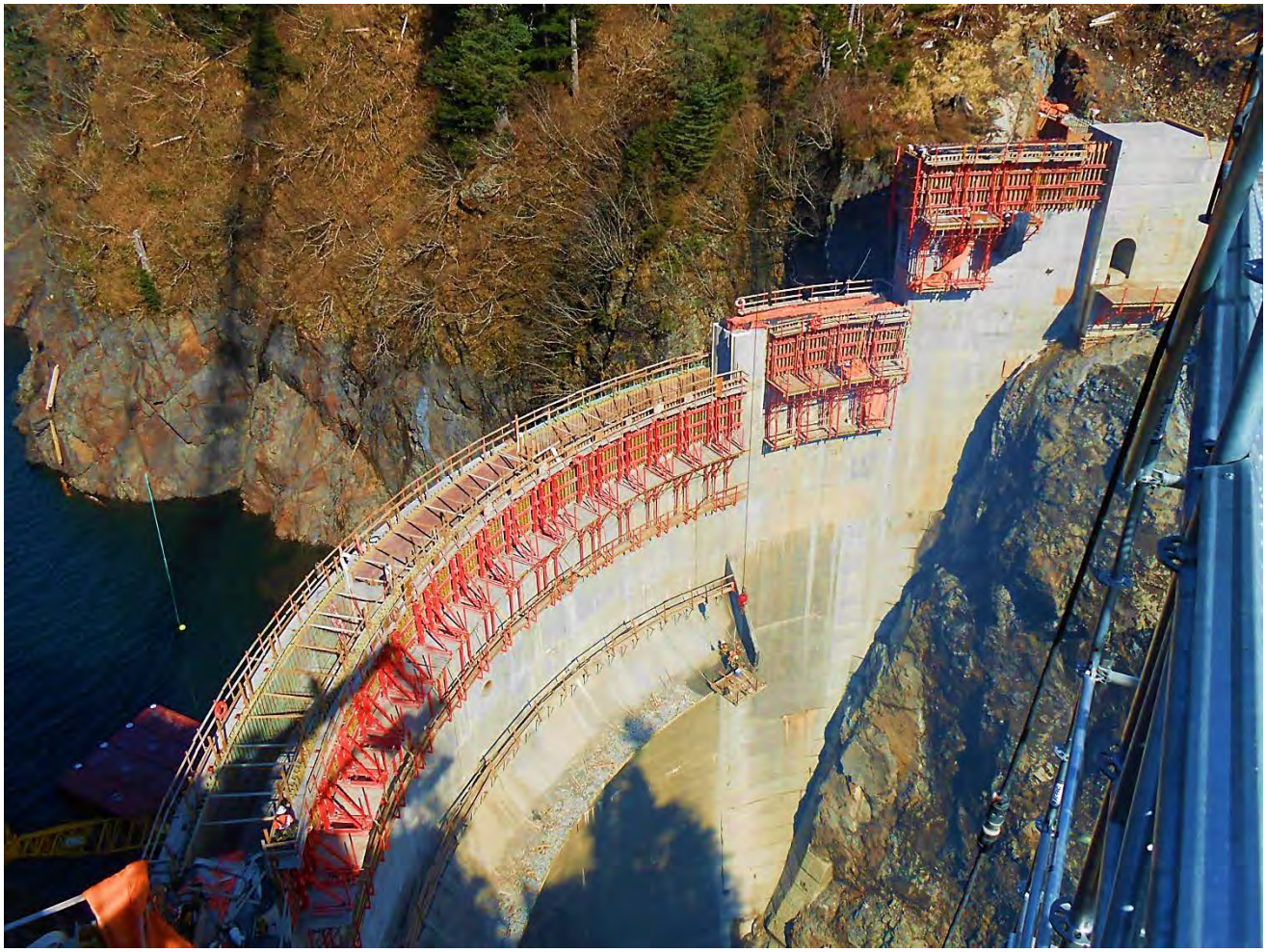


Figure 1. Dam and Left Abutment Area, – Barnard showed good progess on the dam construction completing 9 block placements.

Figure 2. Drainage Tunnel and Scour Wall, Plunge pool was dewatered for scour wall installation. Crux arrived on site to begin curtain grouting and scour wall construction.

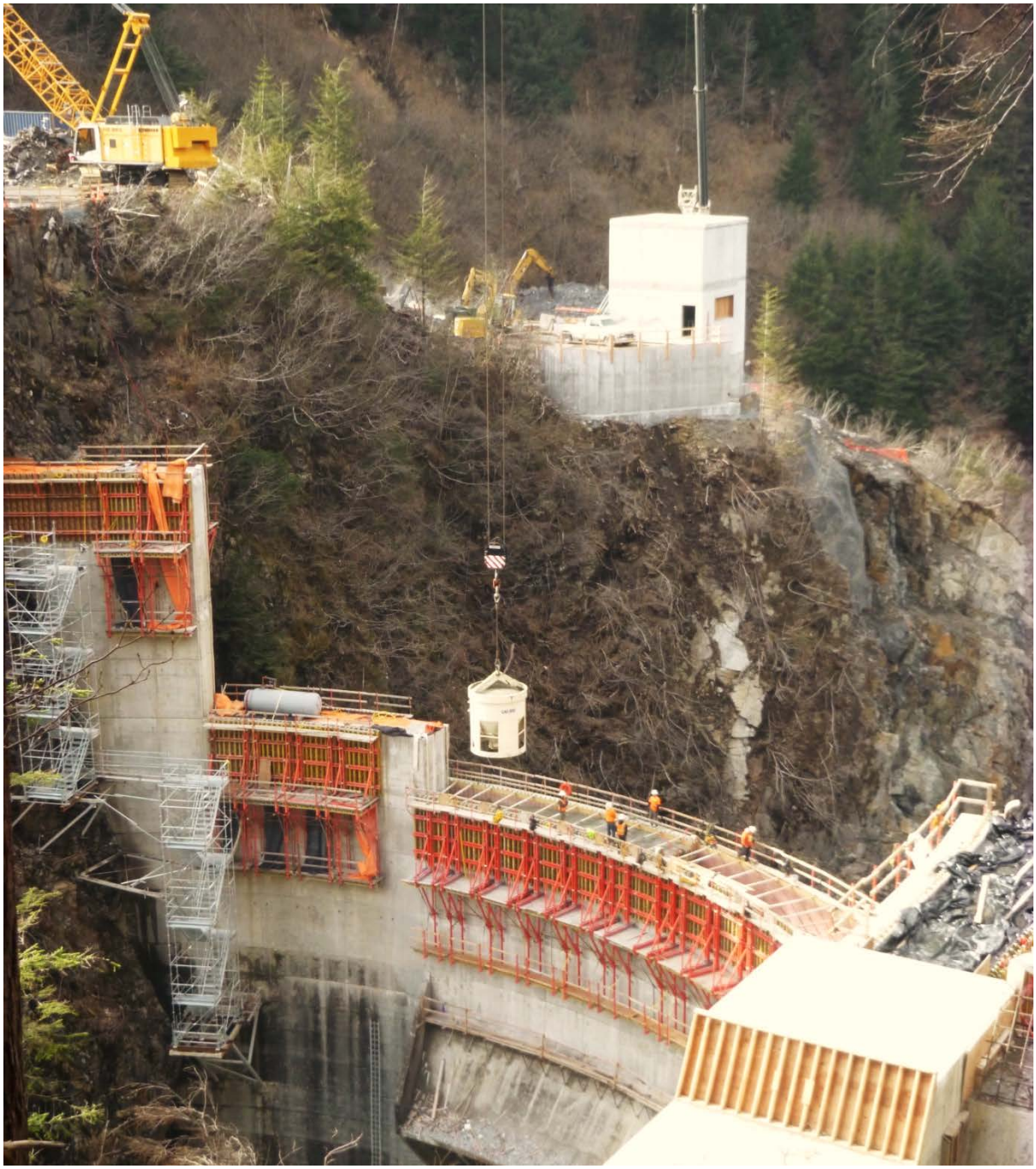


Figure 3. Intake Portal and Right Abutment, Barnard completed the intake rock bolting and the intake chamber concrete work. They have also set the trash rack frame and begun work on the intake structure concrete. (Not seen in this picture due to the new height of the dam.)

Figure 4. Gate House Location, Barnard, NAES, and Schmolk begain the inside buildout of the gate house.

Figure 5. Dam Staging area, no change this month.

Figure 6. Lower Portal Area, Barnard installed the new penstock from the turbine inlet pipes up to the water treatment plant access road.

Figure 7. Powerhouse Site, no change this month.

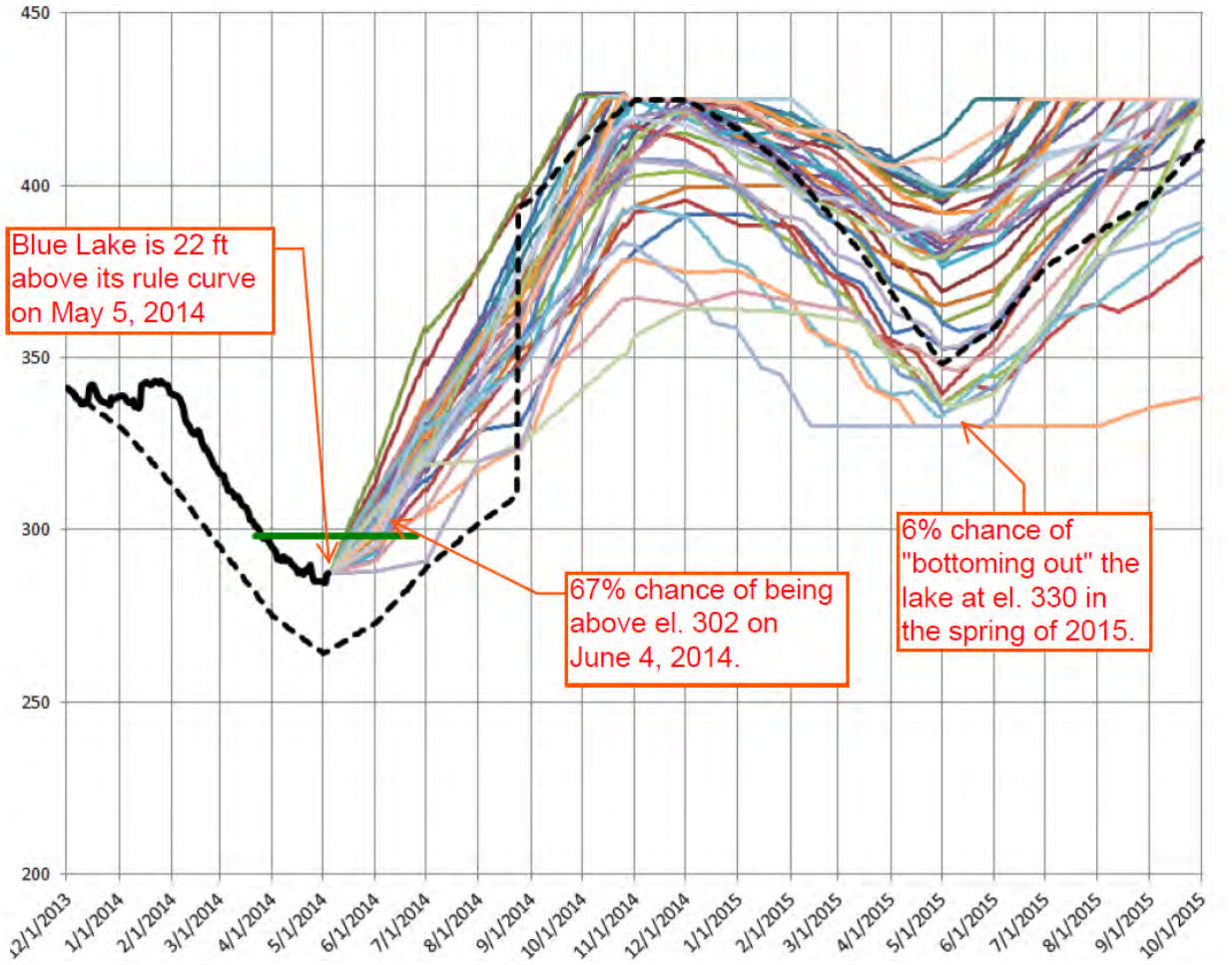
Figure 8. Powerhouse Interior, ASRC completed 90% of the control room buildout. NAES placed secondary concrete around BL5&3 draft tubes, completed alignment of all 3 turbine spirial cases, set all 3 turbine inlet valves, completed alignment of BL5&3 generator sole plates and installed generator stator, rotor, and bearings on BL5. NAES also continued with installation of conduit and cable tray in and ouside the powerhouse and began installing electrical panel boards.

Lake Level Forecast

This May 6, 2014 forecast reflects the recent shift to stop water wasting at Blue Lake and to cut back on generation at the Blue Lake powerhouse, all done in order to store water in Blue Lake. The simulation below actually shows the lake filling faster than we want during May, 2014. We will likely increase the generation at Blue Lake during May (from what is simulated below) to reduce the risk of high lake levels before the Contractor finishes the tunnel intake structure in early June.

Case 22. Start May 5, 2014. Multi-year simulation using 36 year hydrologic record. 117,000 MWH system load until August 26, 2014. Interrubtible load remain on. No water wasting and Blue Lake powerhouse cut back to one turbine starting May 2. 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.

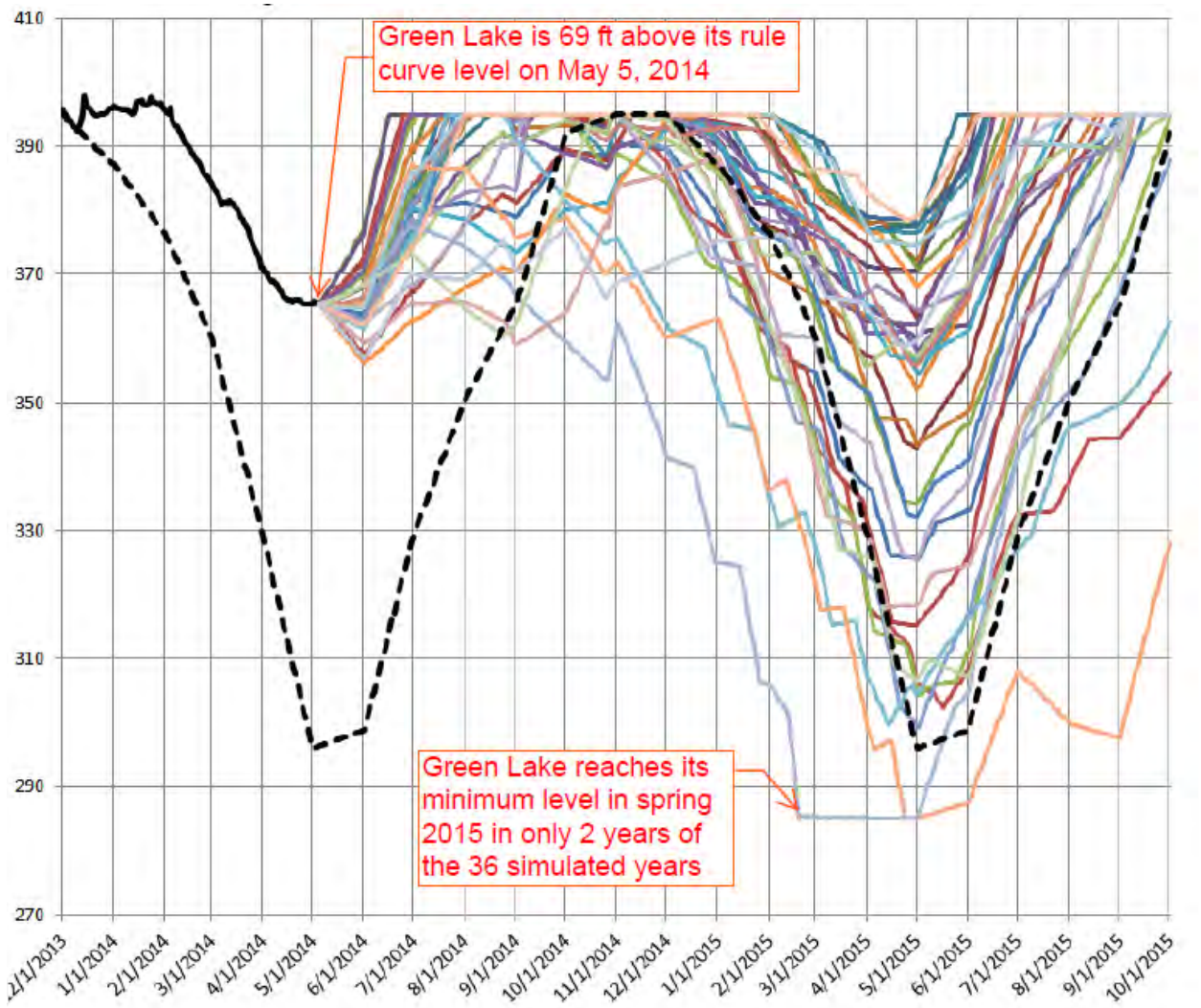


Total diesel generation predicted by this simulation:

Period	Dates	MWH of diesel	Cost at $0.45 per kWH
Spring 2014	-	0	$0
Generation Outage	Aug 26 – Oct 26, 2014	1,627[(1)]	$732,000
Spring 2015	Mar 30 – June 16, 2015	681 (ave)	$306,000 (ave)

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

Green Lake water level simulation.



Note to Assembly

This current simulation shows greatly reduced diesel energy expenditures in 2015, compared to the simulation included with the March 31, 2014 Assembly Update report. This current simulation is likely a bit optimistic, as we will need to release more water from Blue Lake during May to make sure the Contractor's work at the new intake structure is not adversely affected by high lake levels.

Appendix 1 to Monthly Update for City Assembly

April 30, 2014

Summary of Temporary Filtration Project Status

Alternative Water Source Investigation Filtration (Blue Lake Project):

Barnard will be providing the Temporary Water Filtration Plant at Indian River as a Change Order to Contract 9.

- Barnard signed an agreement with Pall on the lease of the filter units.
- CH2MHill completed the final design and will be assisting with startup.
- McMillen will perform the construction management.
- The City will provide plant operation with possible assistance from the supplier.

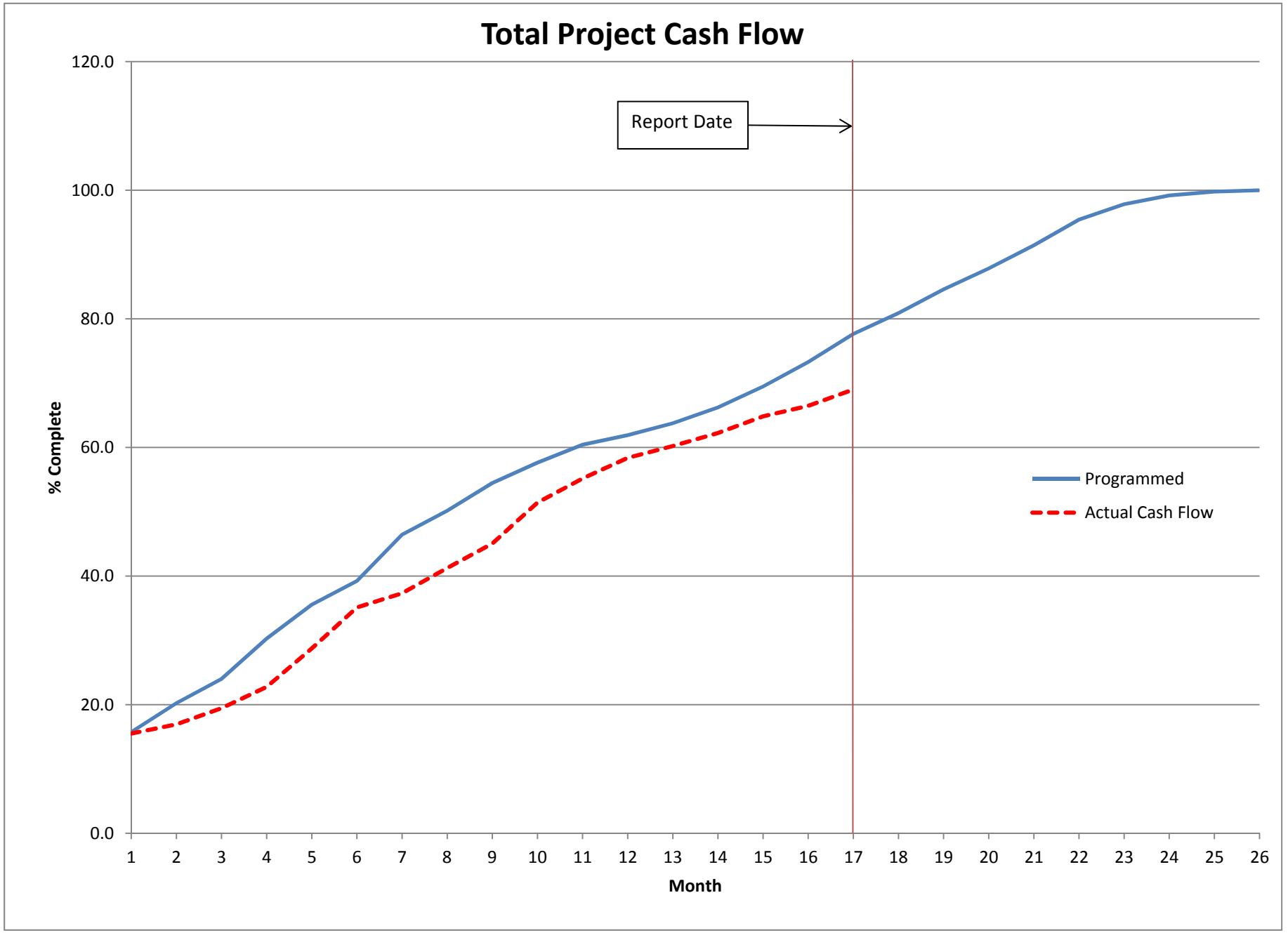
The Assembly approved additional funding for this work February 18. The total change order amount for Phase I & II is $3,106,790.00. The majority of the submittals have been submitted and approved.

All of the major equipment is onsite – PALL trailers, CT, Neutralization, and Backwash tanks and all piping and valves. Construction is on schedule.

Permitting is ongoing with ADEC. Everything is on track currently for acquisition of all required permits prior to operation.

Summary of Titan 130 Diesel Turbine Project Status

- Assembly is complete of the Titan Turbine Generator.
- Fuel tanks are in place and be complete by end of May.
- Substation work is complete except for one late arriving device, not critical.
- Substation control work is in progress.
- Titan training School by Solar is scheduled June 2-6.
- Titan commissioning complete by late June.
- All acceptance tests complete and Titan ready for service by July 15.


Total Project Cash Flow
120.0
100.0
80.0
60.0
40.0
20.0
0.0
% Complete
Report Date
Programmed
Actual Cash Flow
1
2
3
4
5
6
7
8
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25
26
Month

BLUE LAKE EXPANSION PROJECT MONTHLY CONSTRUCTION REPORT

For Period Ending: APRIL 30, 2013
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 Concrete

Barnard completed 3 concrete placements in the gate chamber in April. The final floor and wall placements were completed as well as one placement in the tunnel crown. We expect to complete the final crown placement in early May and begin installing the sill and lintel beams and gate guides.

Gate House

Barnard crews have installed the permanent walkways and handrails inside the gate house. With this work complete, NAES and Schmolk have started installing the electrical and mechanical gear inside the structure and down the shaft. Barnard also completed the backfill behind the retaining wall.

Intake Structure

Barnard crews completed the excavation for the new intake structure. Concrete crews immediately began work on the new structure. Work completed in April includes drilling and grouting the required rock dowels for the floor slabs and walls, 2 concrete placements for the front floor slab and bulkhead gate sill beam, installation of the reinforcing steel for the center pier nosing, north and south walls, and installation of the Trashrack embedded guides.

Barnard and Associated Underwater Services completed the removal, cleaning and permanent sealing of the existing intake gate in April as well.

Dam Raise

Barnard crews completed 8 major concrete placements on the dam, mostly focused on Monoliths 3 through 5. These monoliths are now at Elevation 375.

Powerhouse

ASRC McGraw has nearly completed the control room and offices areas with work completed in April including drywall installation and painting. ASRC also completed installation of the two overhead rolling doors in the access bay. ASRC completed two second stage concrete placements in Unit #5 for the draft tube and spiral case encasements.

Schmolk Mechanical continues installation of all powerhouse plumbing and has continued installation of the HVAC system, with Air-Handling Units and ductwork.

NAES Power Contractors has started installation of the electrical gear including the low voltage and medium voltage switchgear. With the powerhouse cleaning complete, NAES will now focus on installation of the remaining electrical gear.

NAES has also continued installation of the Turbine-Generator equipment. Work completed in April includes the alignment and grouting of the Unit #3 and Unit #4 spiral case, final alignment of the Unit #5 and Unit #3 draft tubes, final grouting and alignment for the Unit #5 and Unit #3 sole plates. NAES also begun installation of the generator components for Unit #5.

Penstock

Barnard crews continued installation of the lower penstock piping through the month of April. We have completed installation of Wye Segments 1 and 2, Pipe Segment 4, Pipe Segment 5, and half of Pipe Segment Six. Purcell Painting and Coating mobilized to the site in late April to begin coating repair in the penstock pipe.

Temporary Filtration Plant

Barnard crews also began installation of the temporary water filtration plant at Indian River. Work completed in April includes site preparation, temporary fence installation, placement of concrete pads for the raw water pumps and header, installation of the CT tanks, and receipt of nearly all major materials.

2. *Status of Construction*

Status of Ongoing Major Construction Activities

- Powerhouse Excavation – 95% complete
- Powerhouse Steel Building – 98% Complete
- Powerhouse Roof – 98% complete
- Precast Wall Panels – 98% complete
- Dam Raise –37 of 53 monolith blocks placed.
- Dam Spillway – 0 of 9 placements
- Dam Parapet Walls and Crest Slab – 0 of 15 placements
- Left Abutment Thrust Block and Cutoff Wall – 8 of 9 placements completed.
- Powerhouse Concrete – 3230 CY placed to date.
- Gate Chamber Concrete – 195 CY placed to date.
- Intake Structure Concrete – 34 cy placed to date.

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

3. *Construction Issues*

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 April 25, 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
4	08/24/2014	Ready for Generation Outage
5	61 days after start of Generation Outage	Substantial Completion of 1st Blue Lake Turbine Generator
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*

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:

Misc. Metals/Rebar - Barnard has been receiving misc. metals and rebar for various project features throughout the month of March

9. *Material Testing and Results*

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

Compaction testing was completed for the gatehouse retaining wall.

No issues have been encountered to date.

10. *Instrumentation*

Not applicable for this report.

11. *Photographs*

Figure 1: Dam Raise From Left Abutment

Figure 2: Removing Existing Bulkhead Gate

Figure 3: Gate Chamber Reinforcing Steel

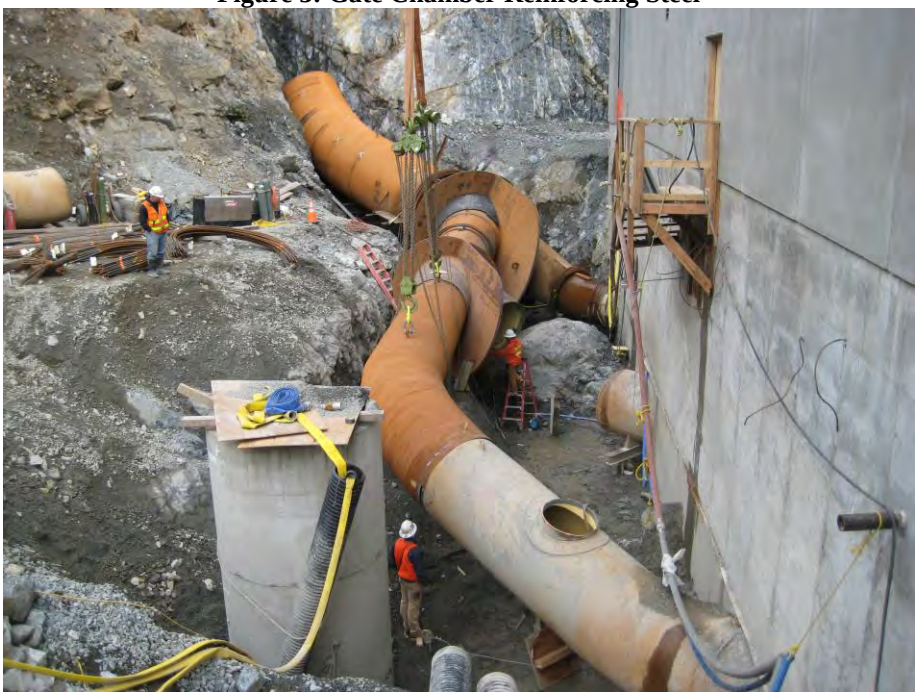


Figure 4: Penstock Installation

Figure 5: Powerhouse Interior

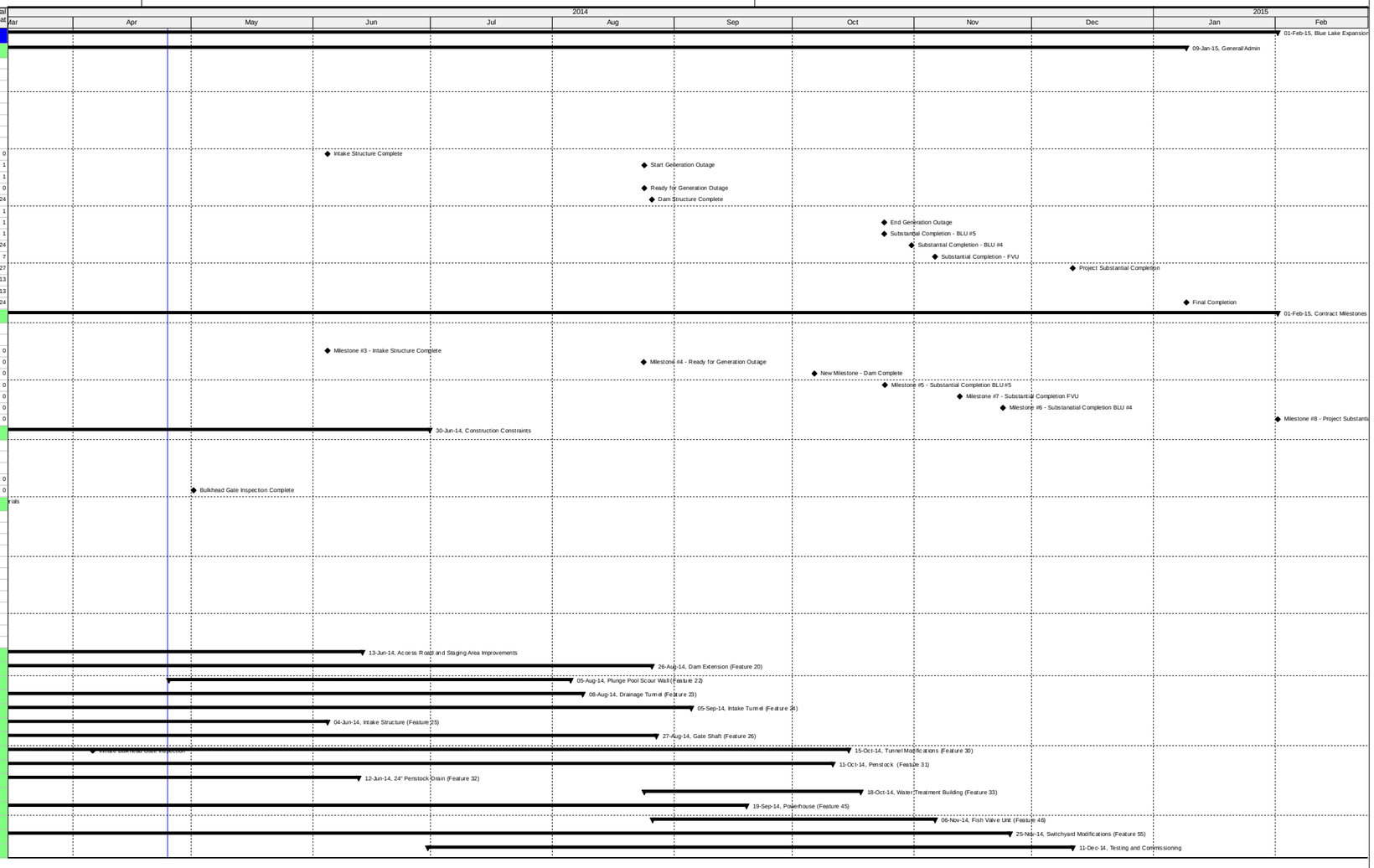
Figure 6: CT Tanks At Temp Filtration Facility

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

Activity ID	Activity Name	Original Duration	Actual Duration	Remaining Duration	Start	Finish	Total Float
Blue Lake Expansion - Progress Schedule - April 2014							
General/Admin							
A1000	Blue Lake Expansion Bid Due	0	0	0	31-Jul-12 A		
A1010	Contract Award	0	0	0	12-Sep-12 A		
A1020	Notice to Proceed	0	0	0	01-Nov-12 A		
A1200	Submittal/Work Plan Prep	10	12	0	01-Nov-12 A	23-Nov-12 A	
A1030	Mobilization, Office and Yard Setup	10	33	0	26-Nov-12 A	25-Jan-13 A	
A1040	Environmental Controls Setup	6	25	0	10-Dec-12 A	25-Jan-13 A	
A1110	Drainage Tunnel Complete	0	0	0		06-May-13 A	
A1160	Initial Intake Structure Excavation Complete	0	0	0		28-Jul-13 A	
A1150	Intake Structure Complete	0	0	0		04-Jun-14	0
A1050	Start Generation Outage	0	0	0	24-Aug-14		1
A1120	Shutdown Existing Powerhouse - Dewater Tunnel	2	0	2	24-Aug-14	26-Aug-14	1
A1140	Ready for Generation Outage	0	0	0		24-Aug-14*	0
A1210	Dam Structure Complete	0	0	0		26-Aug-14	24
A1130	Rewater Tunnel	1	0	1	15-Oct-14	16-Oct-14	1
A1300	End Generation Outage	0	0	0		24-Oct-14	1
A1170	Substantial Completion - BLU #5	0	0	0		24-Oct-14	1
A1180	Substantial Completion - BLU #4	0	0	0		31-Oct-14	24
A1190	Substantial Completion - FVU	0	0	0		06-Nov-14	7
A1060	Project Substantial Completion	0	0	0		11-Dec-14	27
A1070	Punchlist	10	0	10	11-Dec-14	31-Dec-14	13
A1090	Demobilization	10	0	10	19-Dec-14	09-Jan-15	13
A1080	Final Completion	0	0	0		09-Jan-15	24
Contract Milestones							
CM1000	Milestone #1 - Drainage Tunnel Complete (by 7/1/13)	0	0	0		06-May-13 A	
CM1010	Milestone #2 - Initial Intake Excavation Complete (by 8/19/13)	0	0	0		21-Jul-13 A	
CM1020	Milestone #3 - Intake Structure Complete	0	0	0		04-Jun-14*	0
CM1030	Milestone #4 - Ready for Generation Outage	0	0	0		24-Aug-14*	0
CM1080	New Milestone - Dam Complete	0	0	0		06-Oct-14*	0
CM1040	Milestone #5 - Substantial Completion BLU #5	0	0	0		24-Oct-14*	0
CM1060	Milestone #7 - Substantial Completion FVU	0	0	0		12-Nov-14*	0
CM1050	Milestone #6 - Substanatial Completion BLU #4	0	0	0		23-Nov-14*	0
CM1070	Milestone #8 - Project Substantial Completion	0	0	0		01-Feb-15*	0
Construction Constraints							
CC1010	2013 Lake Level Window (EL. 330)	206	205	0	26-Jan-13 A	19-Aug-13 A	
CC1030	Milestone #3 Early Completion Bonus Date (not achieved)	0	0	0		19-Aug-13 A	
CC1000	2013 Spill Window	106	149	0	01-Sep-13 A	28-Jan-14 A	
CC1020	2014 Lake Level Window (EL. 298)	96	29	67	27-Mar-14 A	30-Jun-14	0
CC1040	Bulkhead Gate Inspection Complete	0	0	0		01-May-14*	0
Owner Supplied Materials							
OM1000	Bulkhead Gate and Guides	0	0	0		20-Feb-13 A	
OM1020	Powerhouse Bridge Crane	0	0	0		27-Mar-13 A	
OM1090	Penstock Manifold	0	0	0		05-Apr-13 A	
OM1100	Penstock Pipe	0	0	0		05-Apr-13 A	
OM1010	Fixed Wheel Gate, Guides, and Hoist	0	0	0		28-Jun-13 A	
OM1110	Powerhouse Steel Building	0	0	0		09-Jul-13 A	
OM1070	69kV/12.47kV Transformers	0	0	0		26-Aug-13 A	
OM1030	BLU Hydraulic Turbines	0	0	0		18-Sep-13 A	
OM1040	BLU Turbine Governos	0	0	0		18-Sep-13 A	
OM1050	BLU Turbine Inlet Valves	0	0	0		18-Sep-13 A	
OM1060	BLU Generators and Exciters	0	0	0		18-Sep-13 A	
OM1080	12.47 kV Switchgear	0	0	0		19-Feb-14 A	
Access Road and Staging Area Improvements							
Dam Extension (Feature 20)							
Plunge Pool Scour Wall (Feature 22)							
Drainage Tunnel (Feature 23)							
Intake Tunnel (Feature 24)							
Intake Structure (Feature 25)							
Gate Shaft (Feature 26)							
Tunnel Modifications (Feature 30)							
Penstock (Feature 31)							
24" Penstock Drain (Feature 32)							
Water Treatment Building (Feature 33)							
Powerhouse (Feature 45)							
Fish Valve Unit (Feature 46)							
Switchyard Modifications (Feature 55)							
Testing and Commissioning							



◆ Milestone

Summary

TASK filter: All Activities

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-102	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Approve the minutes of the April 22 & May 5 Assembly/Board of Equalization meetings				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Minutes				

Date	Ver.	Action By	Action	Result

If this is pulled from the consent agenda the following motion would be in order:

POSSIBLE MOTION

I MOVE TO approve the minutes of the April 22 and May 5, 2014 Assembly/Board of Equalization meetings.

CITY AND BOROUGH OF SITKA

ASSEMBLY CHAMBERS
330 Harbor Drive
Sitka, AK
(907)747-1811

Minutes - Draft

City and Borough Assembly

Mayor Mim McConnell
Deputy Mayor Matt Hunter
Vice-Deputy Mayor Phyllis Hackett, Pete Esquiro, Mike Reif, Benjamin Miyasato and Aaron Swanson

Municipal Administrator: Mark Gorman
Municipal Attorney: Robin L. Koutchak
Municipal Clerk: Colleen Ingman, MMC

Tuesday, April 22, 2014 **6:00 PM** **Assembly Chambers**

WORK SESSION 5:00 PM

14-076 Harrigan Centennial Hall - 35% Design, Cost Estimate & Funding

The Harrigan Hall Project Team and McCool Carlson Green architects provided an update on 35% design, cost estimate and funding.

REGULAR MEETING

I. CALL TO ORDER

II. FLAG SALUTE

III. ROLL CALL

Present: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

IV. CORRESPONDENCE/AGENDA CHANGES

14-075 Correspondence for April 22, 2014

V. CEREMONIAL MATTERS

Mayor McConnell presented service awards to retiring employees Lt. Barry Allen, Marjorie Parmelee, and Dave Patt.

Michael Bricker presented an award to Ashley Sagoonick for her service with Sitka Youth Court.

VI. SPECIAL REPORTS: Government to Government, Municipal Boards/Commissions/Committees, Municipal Departments, School District, Students and Guests (time limits apply)

Sitka Tribe of Alaska General Manager, Lawrence SpottedBird, introduced himself

and expressed his eagerness to work with the Assembly and citizens of Sitka.

14-072 Blue Lake Expansion Project Construction - One Year Later

Jessica Stockel, Project Assistant with McMillen LLC, provided a viewing of the Blue Lake Expansion Project Construction video for the Assembly.

VII. PERSONS TO BE HEARD

None.

VIII. REPORTS

Mayor McConnell: Attended the Local Emergency Planning Commission Meeting, planned to attend Blue Lake Dam Tour Wednesday with Sitka Tribe of Alaska, and welcomed new STA General Manager Lawrence SpottedBird.

Administrator: Updated the Assembly on the General Fund Master Plan Process and firm selected, noted the Rasmuson Foundation would be in Sitka on May 5 to conduct a Library site visit, attended the STA Council meeting, met with State of Alaska and Alaska Arts Southeast staff regarding the City taking ownership of the side road by Stratton Library, and reminded the public and Assembly he would be presenting at the Chamber of Commerce lunch on April 23.

Attorney: Reported on property issues regarding citizens maintaining lodges in R-1 residential zones.

Liaisons: Hackett attended Tree and Landscape Committee meeting, Hunter attended Port and Harbors Meeting and noted a special meeting would be held on May 5 regarding float homes in the harbor system, Miyasato attended Parks and Recreation Committee and Library Commission meetings, Swanson reported on the Police and Fire Commission meeting.

Clerk: Noted the initiatives that were orginally going to be on the State Primary Ballot were instead going to be on the General Election ballot.

Other: Reif made a correction to a statement he had made during Administrator's evaluation. Reif stated he had said there needed to be closer attention to the amount of outside consultant work. Reif clarified that Gorman had done exactly what had been asked of him and that the Assembly instead needed to pay closer attention. Hunter applauded Jessica Stockel and Dean Orbison for the fantastic tour they provided to his Mt. Edgecumbe High School physics class. Mayor added she had recently spoke to the Pacific High School government class.

a. Mayor, b. Administrator, c. Attorney, d. Liaison Representatives, e. Clerk, f. Other

IX. CONSENT AGENDA

A 14-069 Approve the minutes of the April 8, 2014 Assembly meeting

This item was APPROVED on the Consent Agenda.

B 14-071 Reappoint James Kinsman to a term on the Historic Preservation

Commission and Appoint Rachel Moreno to the Sitka Convention and Visitor's Bureau

This item was APPROVED on the Consent Agenda.

C **14-070** Authorize amending a Professional Services Agreement between JWA, Inc. and the CBS for the Jarvis Street Diesel Plant Capacity Addition Project

This item was APPROVED on the Consent Agenda.

X. UNFINISHED BUSINESS:

D **ORD 14-06** Authorizing Sublease of space by Island Girl Coffee LLC at the Sitka Rocky Gutierrez Airport Terminal Building

A motion was made by Hunter that this Ordinance be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

E **ORD 14-09** Amending the Sublease with Ostrov Enterprises d/b/a Airport Gift Shop at the Sitka Rocky Gutierrez Airport Terminal Building to modify Lease Space and Square Footage due to the sale of Espresso Stand

A motion was made by Swanson that this Ordinance be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

XI. NEW BUSINESS:

New Business First Reading

F **RES 14-05** Supporting the CBS's application to the Alaska Federal Lands Access Program (FLAP) Grant Program for Preconstruction Planning and Design of the Sitka Seawalk Phase II

Hackett noted this item had been discussed during a Tree and Landscape Committee meeting and expressed appreciation to City staff for their work.

Reif asked Municipal Engineer, Stephen Weatherman, and Senior Engineer, Dan Tadic, to come forward and explain the FLAP grant request. Tadic explained the second phase of the project would continue the Sea Walk from Crescent Harbor around Harrigan Hall and Library and then along Harbor Drive to the O'Connell Bridge Lightering Facility.

Tadic noted there would be money available from the CPET funds to cover the required City match.

A motion was made Hackett that this item be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

G RES 14-06 Supporting the CBS's application to the Alaska Federal Lands Access Program (FLAP) Grant Program for $250,000 for Planning and Design of Phase Six of the Cross Trail Multimodal Pathway

Deborah Lyons of Sitka Trail Works spoke in support of the application.

Esquiro wondered if this agenda item and the previous item would be in competition with one another. Gary Baugher, Maintenance and Operations Superintendent, stated they were not and verification of this had been received from the FLAP staff. (Note: It was later clarified after this meeting that the FLAP grants would compete with one another. It was staff's recommendation to proceed with both applications. There was no prohibition for an agency to submit more than one application and staff felt both applications were competitive).

Baugher provided a brief description of Phase Six and explained the new trail would require minimal maintenance. Baugher added this trail would also serve as an emergency bi-way.

A motion was made by Hackett that this item be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

H ORD 14-11 Authorizing the sale of Lot 1 South Sitka Sound Seafoods Subdivision to North Pacific Seafoods

Chief Finance and Administrative Officer, Jay Sweeney, stated net proceeds from the sale would go into the Permanent Fund.

Reif expressed appreciation for the item coming forward and wondered if there would be additional properties coming forward. Municipal Administrator Gorman mentioned he would like to have a worksession later on the issue.

A motion was made by Hunter that this Ordinance be APPROVED on first reading. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

I ORD 14-10 Amending SGC Chapter 15.01 entitled "Electric Utility Policies" by adding a New Section 15.01.090 entitled "Rebate Program for Electric Heat Pump Heating Systems"

Utility Director, Chris Brewton, came forward and explained the specifics of the rebate program clarifying the intent was to encourage heat pumps in lieu of other heating systems. This would allow CBS to maximize revenue utilizing new hydro capacity in the most effective way.

Reif expressed concern with the rebate program citing the initial rebate program urged residents to reduce electrical usage and this particular rebate program did just the opposite. Reif suggested the Assembly instead use the $50,000 to devise a strategy to control demand for the new Blue Lake capacity.

Brewton noted there were two issues of concern. The first was for the need to reserve new hydro capacity for the best possible use. The second was to avoid a utility death spiral in which the rates were raised so high that residents were forced to conserve electricity which in turn caused the rates to be increased again. Brewton expressed the need for a community planning session.

Hackett also wondered if the money could be better spent on reinitiating a campaign to educate folks on the community wide energy issue.

Brewton clarified CBS was not telling folks to decommission a second heating source.

Hunter noted there were more heat pumps in Sitka than in all other cities combined throughout the State. He suggested the $50,000 could be saved or better spent.

A motion was made by Hunter to APPROVE this item. The motion FAILED by the following vote.

Yes: 1 - Miyasato

No: 6 - McConnell, Hunter, Hackett, Esquiro, Reif, and Swanson

A recess was taken from 7:18pm to 7:25pm

Additional New Business Items

J **14-074** Approval of the design and bid of all phases of Harrigan Centennial Hall and the proposed funding including applying for additional grant funding from the Rasmussen Foundation

John Stein, President of Sitka Historical Society, spoke in support of the project.

Finance Director, Jay Sweeney, stated repayment of loan with CPET funds would be acceptable.

Public Works Director, Michael Harmon, clarified the funding source as outlined in his memo.

A motion was made by Hunter and later AMENDED by Reif to read "I move to approve the design and bid and commit to funding the full scope of Harrigan Centennial Hall remodel as described in Harmon's April 16, 2014 Memorandum with the exact mechanism of local funding (if needed) to be determined at a later date, and further approve applying for additional grant funding from the Rasmuson Foundation to assist in the completion of all phases of this project. The main motion as AMENDED PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

K **14-073** Approve award of a Professional Engineering Services Contract for the Sawmill Cove Industrial Park Dock Project to Moffatt & Nichol not to exceed $790,114.00

Garry White, Director of Sawmill Cove Industrial Park, came forward to explain the project. White said the dock would be ready late 2015, early 2016.

A motion was made by Hunter that this item be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

L 14-077 Approve the Police Lieutenant Hire

Police Chief Schmitt noted there were two internal candidates who chose to withdraw their applications. There were three external candidates. Police Chief Schmitt explained the recruitment incentives as listed in the motion.

Administrator Gorman informed the Assembly he had met both finalists and was impressed with both. He encouraged the chief to consider the other finalist for any future openings.

A motion was made by Swanson that this item be APPROVED. The motion PASSED by the following vote.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

XII. PERSONS TO BE HEARD:

STA General Manager, Lawrence SpottedBird, offered his expertise regarding the cultural aesthetics of the Harrigan Hall Renewal Project.

XIII. EXECUTIVE SESSION

None.

XIV. ADJOURNMENT

A motion was made by Hackett to ADJOURN. Hearing no objections the meeting ADJOURNED at 8:03pm.

ATTEST: _____

Colleen Ingman, MMC
Municipal Clerk

CITY AND BOROUGH OF SITKA

ASSEMBLY CHAMBERS
330 Harbor Drive
Sitka, AK
(907)747-1811

Minutes - Draft

City and Borough Assembly

Mayor Mim McConnell
Deputy Mayor Matt Hunter
Vice-Deputy Mayor Phyllis Hackett, Pete Esquiro, Mike Reif, Benjamin Miyasato and Aaron Swanson

Municipal Administrator: Mark Gorman
Municipal Attorney: Robin L. Koutchak
Municipal Clerk: Colleen Ingman, MMC

Monday, May 5, 2014 **6:00 PM** **Assembly Chambers**

SPECIAL MEETING

I. CALL TO ORDER

II. FLAG SALUTE

III. ROLL CALL

Present: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

IV. NEW BUSINESS:

Board of Equalization

All sides received or had access to the packet that included an overview memo on procedures. Presentations could also be provided orally. It was noted the Assessor would present first, then Appellants. Any witnesses would speak and then the BOE would deliberate. The main purpose being to get all the information needed to make a decision. A written decision would also need to be done. It was stated the decision needed to be made seven days after the closure of the hearing. Municipal Attorney Koutchak reminded that the burden of proof was on the tax payer for the property tax appeals. Any appeal of this board would be to the Alaska Supreme Court.

Mayor McConnell outlined the presentation, assigned 3 minutes for each testimony/rebuttal, and asked if there were any objections to proceeding in this manner - none were heard.

Disclosures: None noted.

A 14-088 Hear an appeal and reach findings and decision filed by Ty Barkhoefer in regard to Lot 3 A, Wingert Subdivision - Parcel 3-0645-003

Municipal Assessor, Randy Hughes, presented his oral argument. Hughes stated he consistently used a cost approach method using the Marshall and Swift cost

estimator. He argued that his recommended land and improvements values were appropriate and were in accordance with State Statutes.

Appellants Ty and Valerie Barkhoefer were not present.

A motion was made by Hackett to convene as the Board of Equalization. The motion passed by unanimous consent.

A motion was made by Hackett to direct the Municipal Attorney to formalize the board's findings. The findings and decision on the Ty and Valerie Barkhoefer valuation of real property appeal were as follows:

1. The Assessor consistently values all residential improvements within the CBS reconciling on the cost approach method.
2. The use of the Marshall and Swift cost estimator was appropriate
3. The Assessor's recommended land and improvement values were appropriate.

Based on these findings and the following roll call vote the appeal was DENIED.

Yes: 7 - McConnell, Hunter, Hackett, Esquiro, Reif, Swanson, and Miyasato

B 14-089 Hear an appeal and reach findings and decision filed by Chris Fondell Lot 2, Bayview Subdivision - Parcel 1-1180-000-0000

Assessor Argument
Assessor Hughes gave his formal argument. He informed he consistently valued all commercial improvement within the City and Borough of Sitka reconciling on the cost approach method. Hughes stated he uses the Marshall and Swift cost estimator and believed that to be appropriate and what was recommended by the State. He believed his recommendation on the land and improvement values were appropriate and within the guidelines and percentages set out.

Appellants Fondell Argument
Fondells argued they had a recent appraisal from a respected appraising firm that showed the value less than that of the Assessor. They noted this was the document that the banks went to and officially processed loans from and not from the city's assessment values. Fondells favored a market approach and believed that was fair. They added the market was not there.

Assessor Rebuttal
Assessor Hughes continued to contend that his valuations were fair and appropriate. He did note that it was difficult to do commercial valuations, especially since there were a very limited amount of comparisons. It would take another year to determine if the market had softened.

Appellants Rebuttal
Again the Fondell's mentioned their appraisal document and suggested that the BOE take into consideration that the market had changed. Their assessment did not take into consideration the market. They feared the values would drop even farther over the next year. They noted they have had to lower their rents and were still experiencing difficulty getting renters for their commercial operations. Their residential operations were rented but they were not experiencing the demand of years past. They added, that as the Assessor said, he would not know for another

year when sales go in to effect if the market had really softened. He also said he had very few commercial comparables.

Assessors Closing Argument
Hughes reiterated what he had already said. Municipal Attorney Koutchak pointed out that the appellants provided no evidence that the market was soft. Another sticking point was the value needed to be excessive. She added that under court law the court favored uniformity versus actual value. Unless the value was grossly disproportionate or intentional then you would find in the courts that the deck was stacked against you. The courts believed that the Assessor had the job of assessing uniformity.

Appellants Closing Argument
Fondell's didn't have much to add. They still were seeking fairness and believed their appraisal and the fact that the market was soft should be contributing factors in consideration to their appeal.

After some clarifying edits to her motion, Hackett moved to direct the Municipal Attorney to formalize the board's findings and decision on the Chris and Tamara Fondell valuation of real property appeal. Based upon the evidence and arguments presented at the hearing of May 5, 2014, the Board of Equalization denies the appeal based on the following findings:

1. The Assessor consistently values all commercial improvements within the CBS reconciling on the cost approach method.
2. The use of the Marshall and Swift cost estimator was appropriate.
3. The Assessor's recommended land and improvements values were appropriate.

On the following roll call vote the appeal was DENIED.

A motion was made by Hackett to reconvene as the Assembly in regular session. The BOE reconvened as the Assembly in regular session.

Yes: 4 - McConnell, Hunter, Esquiro, and Reif

No: 3 - Hackett, Swanson, and Miyasato

A motion was made by Hackett to reconvene as the Assembly in regular session. The BOE reconvened as the Assembly in regular session.

V. PERSONS TO BE HEARD:

None.

VI. ADJOURNMENT

A motion was made by Hackett that the meeting be ADJOURNED. The motion PASSED by a unanimous vote. The meeting ADJOURNED at 6:50 PM.

ATTEST:

_____

Colleen Ingman, MMC
Municipal Clerk

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-106	Version:	1	Name:	
Type:	Appointment			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Appointments: 1) Patrick Williams - Health Needs and Human Services, and 2) Josh Arnold - Port and Harbors Commission				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Appointments				

Date	Ver.	Action By	Action	Result

If this item is pulled from the consent agenda the following motion would be in order:

POSSIBLE MOTION

I MOVE TO appoint Patrick Williams to a term on the Health Needs and Human Services Commission; and Josh Arnold to a term on the Port and Harbors Commission

Application for Appointment to Boards, Committees, and Commissions
City and Borough of Sitka

Board/Commission/Committee: Health Needs Commission

Name: Patrick R. Williams Daytime Phone: 907-747-0349

Address: 209 Moller Avenue Evening Phone: "SAME"

Email Address: pwilliams@sitkahospital.org Fax Number: 907-747-1760

Length of Residence in Sitka: 16 Months Registered to vote in Sitka? X Yes ___ No

Employer: Sitka Community Hospital

Organizations you belong to or participate in:
Sitka Health Summit Coalition, Sitka Community Hospital (SCH) Promotion & Wellness, SCH Tobacco coordinator, SCH Injury Prevention coordinator, SCH Team STEPPS master-trainer, SCH Alcohol SBI coordinator, SCH Chemical Dependency Counseling (Substance Abuse CDCI), Baranof Barracudas Swim Club Assistant Head Coach.

Explain your main reason for applying:
To serve as a representative for Sitka Community Hospital. The overall goal of participation in the health needs commission would be to better the quality of life for all Sitkans, focusing on: the betterment of preventative services and the increase of city-wide health education.

What background, experience or credentials will you bring to the board, commission, or committee membership?
Extensive experience in Public Health, Policy implementation, Bachelors degree in Health Science, CDC I, TTS, Exercise Specialist (Gwin 2011)
Background in community driven programs in North Carolina, Alabama and Alaska

Please attach a letter of interest, outline, or resume which includes your education, work, and volunteer experience that will enhance your membership.

→ *(To be considered, your application must be complete AND be accompanied by one of the above supporting documents.)*

Date: 4/18/2014 Signature: Patrick R Williams

Your complete application and resume should be returned to the Municipal Clerk's Office by noon on the Wednesday prior to an advertised Assembly meeting. Applications received after the deadline will be considered but will not be included in the Assembly packets for review prior to appointment.

Appointments are normally made during open session of an Assembly meeting, however, Assembly members may vote to discuss applicant(s) in closed executive session. In this case, do you wish to be present when your application is discussed? ____Yes ____ No

Return to:
Sara Peterson, Deputy Clerk
100 Lincoln Street
Fax: 907-747-7403
Email: sara@cityofsitka.com

Patrick Williams BSc, CDC I, TTS
209 Moller Avenue: Sitka, Alaska
256-453-7669
Pwilliams@sitkahospital.org

Summary of Qualifications:
-More than five years' experience.
-Excellent knowledge of the principles, philosophy, and practices of administration (e.g., program planning, leadership, risk management, budgeting, marketing & public relations).
-Uncommon understanding of the needs and interests of the community and the ability to meet such needs with innovative programs and services that promotes participation in healthy and enjoyable experiences.
-Remarkable ability to plan, promote and evaluate services.
-Strong leadership skills for a wide range of activities and special events.
-Exceptional ability to establish and maintain effective working relationships with officials and staff, Citizen Action Committee, special interest groups, agencies, and individuals.
-Profound ability to assimilate into a rural environment for the duration of a project.
-Excellent ability to communicate effectively orally and written.

Professional Experience:
Sitka Community Hospital (May 2013-Present)
Health Educator/Chemical Dependency Counselor/Program Coordinator
Programs Supervised: Injury Prevention, Tobacco Cessation, SBI Alcohol Prevention (Centers for Disease Control and Prevention guidelines)
- Developed policies and strategies for promoting health at local, regional or national level;
-Planned, developed, implemented, monitored and evaluated projects to promote health improvement;
-Facilitated and supported a wide range of statutory, voluntary, charitable and commercial organizations in their delivery of health promotion activities
-Developed the health awareness of individuals, groups and organizations and empowering them to make healthy choices
-Lead, supported and cooperated in multi-agency projects to promote a healthy context or social environment;
-Ran training courses and workshops in areas such as mental health, accident prevention, cancers and heart disease
-Developed and supported local partnerships to broaden the local response to health inequalities;
-Identified training needs arising from strategic and local agendas and developing and delivering appropriate training for people such as health professionals and volunteers;
-Provided specialist advice and resources to other agencies, such as schools and local communities;
-Ensured that work is underpinned by sound, up-to-date knowledge of health promotion theory and making sure that projects are based on evidence of effectiveness;
-Lobbied for increased recognition of preventative and promotional measures that can take place at a population level and which have a positive impact on the health of a community;
-Wrote and produced leaflets, posters, videos and brochures to aid health promotion in different environments.

Patrick Williams BSc, CDC I, TTS
209 Moller Avenue: Sitka, Alaska
256-453-7669
Pwilliams@sitkahospital.org

Cardiac Rehabilitation:
-Worked with patients with Doctor Orders to strengthen cardiac impulse through exercise
-Worked alongside: Physical therapists, Nurses and Cardiologists
-Monitored and maintained cardiac equipment: monitor leads and vital signs

Public Relations/Media:
-Scripted radio ads for Health promotion and Hospital programs
-Hosted informational health television shows
-Hosted informational radio interviews for calls and questions

Sitka Health Summit:
-One of six steering committee members
-Model for the state of Alaska in Public Health intervention
-Top 6 community programs in the nation: Robert Wood Johnson Pathways to Health Prize
-Started community programs: Meth-free Sitka, Sitka Food-Hub, Walk-friendly community, Bicycle-friendly community, Downtown revitalization

Southeast Alaska Regional Health Consortium. (January 2013-May 2013)
Health Educator/Counselor
-Implement health education strategies, interventions in the Sitka Community
-Increase public awareness and advocacy for reduction of chronic diseases.
-Act as a resource person for the community.
- Helped raise awareness on dangers of tobacco use
-Met with clients both over the phone and in-person on a daily basis
-Administered Nicotine Replacement Therapy when needed.
-Helped clients deal with behavioral health including stress and other issues regarding tobacco cessation
-Completed necessary courses in order to maintain current knowledge of tobacco cessation
-Used motivational skills in dealing with clients
-Learned cultural awareness of Alaskan Natives

Baranof Barracudas Swim Club (February 2013-present)
Assistant Head Coach
-Managed kids from ages 4-18
-Managed swim lessons
-Ran practices that spanned from beginner-elite levels
-Administered website information: TeamUnify

Patrick Williams BSc, CDC I, TTS
209 Moller Avenue: Sitka, Alaska
256-453-7669
Pwilliams@sitkahospital.org

Talladega Parks and Recreation: Talladega, Alabama. (June 2011-Janurary 2013)
Programs and Facility: (June 2011-January 2013)
-Developed effective written program plans for Summer Fun in consultation with leaders of the community.
-Based on community interests/preferences, coordinated the development and implementation of at least three community wide special events that are available to anyone in the community.
-Assured that equipment and facilities were safely and properly prepared and maintained for use by program participants and staff.
-Effectively supervised youth and children; and Coached and mentored the youth and children.
-Help recruit needed volunteers and contract service volunteers (e.g., special guests such as athletes and sports camp participants etc).
-Promoted and publicized special event programs and services by utilizing all forms of available media.
-Garnered publicity for the recreation program and special events by distributing and following up on a number of news releases to local and regional media.
-Determined and recommended fees to be charged as required for special events.
-Maintained accurate and detailed financial records.
-Assisted with the evaluation of specific programs.
-Prepared oral and written reports on all aspects of the recreation program as required.

Fitness for Life: Talladega Recreation Center. (November 2011-August 2012)
-Designed Fitness Program: Weight Loss, Nutrition and Health Safety

Assistant Pool Program Manager: (June 2011-January 2013)
-Helped with numerous pool programs
-Managed City of Talladega swim lesson program for children on individual and group levels
-Helped manage the Talladega Swim Team program
-Coach for Special Olympic Swim team program

***University of Alabama at Birmingham Hospital, Birmingham, Alabama* (May 2009- August 2009; May 2010-August 2010)**
Patient Coordinator/Observer:
-Responsible for client interaction, and maintaining accurate files
- Perfected people skills, client interaction, and confidentiality
-Worked alongside health professionals including: Doctors, Nurses, Physical Therapists, and Occupational Therapists.
-Recommended necessary changes within scope of practice
-Maintained excellent relationships with patients
-Maintained excellent relationships with Health specialists

Patrick Williams BSc, CDC I, TTS
209 Moller Avenue: Sitka, Alaska
256-453-7669
Pwilliams@sitkahospital.org

References

Kay Turner. Director of Outpatient Services Sitka Community Hospital. 907-747-3241
Brian Hutton. City of Talladega Parks and Recreation: Assistant Director. 256-362-0514
Nicole Parker: Department of Human Resources Director Talladega Alabama. 256-761-6600

Additional Information:

Community Service

Special Olympics Coach 2011-2012. Swim instructor for underprivileged children, 2004-2006. Anniston Alabama & Talladega, Alabama: Young Men's Christians Association (Anniston) /Talladega Parks and Recreation

Certifications/Licensures:

- Chemical Dependency Counselor: Alaska Behavioral Health Certification: March 2014
- Tobacco Treatment Specialist: University of Massachusetts: September, 2013
- Tobacco Educator: University of Maryland: May, 2013
- Management of Aggressive Behavior Instructor: June, 2013
- United States Swimming Coach: 2013-present
- Exercise Specialist (GWU: 2011)

  American Heart Association:
- Basic Life Support Instructor: November 5th 2013
- First Aid: November 5th 2013

  American Red Cross
- First Aid: May 2013
- CPR: May 2013

Notable Achievements

NCAA Division 1 Collegiate Swimmer 2008, 2009
NCAA Division 1 Collegiate Runner 2010, 2011

Education:

B.S. Gardner-Webb University, Boiling Springs, N.C. (2011)
Health Education/Science/Exercise

Application for Appointment to Boards, Committees, and Commissions
City and Borough of Sitka

Board/Commission/Committee: Ports + Harbors

Name: Josh Arnold Daytime Phone: 738-0854 Cell

Address: 106 Shotgun Alley Sitka Evening Phone: 747-0545

Email Address: oceanlure@gmail.com Fax Number:

Length of Residence in Sitka: 24 yrs. Registered to vote in Sitka? ✓ Yes ___ No

Employer: State of Alaska Mt. Edgecumbe High School + Self employed in summer

Organizations you belong to or participate in:

I am on the board of commissioners for Baranof Island Housing Authority (12 years)

Explain your main reason for applying:

I have been a harbor user for over 20 years. I spend my summers in the harbor and would like to be involved in decision making for the future of our harbor system.

What background, experience or credentials will you bring to the board, commission, or committee membership?

I have 10 years of commercial fishing experience and 15 years as a fishing guide. I am commercial fishing again as a gillnetter.

Please attach a letter of interest, outline, or resume which includes your education, work, and volunteer experience that will enhance your membership.

→ *(To be considered, your application must be complete AND be accompanied by one of the above supporting documents.)*

Date: April 8, 2014 Signature: Josh Arnold

Your complete application and resume should be returned to the Municipal Clerk's Office by noon on the Wednesday prior to an advertised Assembly meeting. Applications received after the deadline will be considered but will not be included in the Assembly packets for review prior to appointment.

Appointments are normally made during open session of an Assembly meeting, however, Assembly members may vote to discuss applicant(s) in closed executive session. In this case, do you wish to be present when your application is discussed? ___ Yes ✓ No

Return to:
Sara Peterson, Deputy Clerk
100 Lincoln Street
Fax: 907-747-7403
Email: sara@cityofsitka.com

April 11, 2014

City of Sitka
100 Lincoln Street
Sitka, AK 99835

Josh Arnold's Letter of interest for the Ports and Harbors Commission

I, Josh Arnold, would like to be considered for appointment to the Ports and Harbors commission. I have grown-up in Sitka and have had boats in the Sitka harbors since 1990. I am a high school teacher in the winter and have been both a commercial fisherman and sports fishing guide in the summers. Sitka's harbors are a huge economic investment for locals and the many non-residents who utilize them. I recognize that Sitka's harbor systems will face challenges in the future and would like to be involved with planning and implementing policies for safeguarding the affordability, usability, safety, and longevity of our harbor systems.

Thank you for your consideration,

Mr. Josh Arnold
106 Shotgun Alley
Sitka, AK 99835
907-738-0854 cell
oceanlure@gmail.com

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-107	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Acknowledge the earmarking of excess CPET funds for Kettleson Memorial Library Expansion Project				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Library local funiding earmark				

Date	Ver.	Action By	Action	Result

If this item is pulled from the Consent the following motion is suggested:

POSSIBLE MOTION

I MOVE TO acknowledge the earmarking of excess Commercial Passenger Excise Tax (CPET) funds previously dedicated to the Centennial Hall Parking Lot Project to local participation funding for Kettleson Memorial Library Expansion Project.

City and Borough of Sitka
Finance Department

Memo

To: Mayor McConnell and Assembly Members

From: Jay Sweeney, Finance Director

Date: 2/16/2012

Re: Administrative Commitment to Secure Rasmusson Foundation Site Visit

---

Mayor McConnell and Assembly Members,

Last week, Administration was faced with a situation which required immediate action and a decision by the Administrator.

As you know, the Municipality has applied for a Rasmusson Foundation grant for the Kettleson Memorial Library expansion project. A key portion of the grant evaluation by the Rasmusson Foundation Board of Directors is a site visit by a Foundation executive. Last week, the Administrator received notification from the Rasmusson Foundation that the site visit was in jeopardy of being cancelled, and thus the grant not being awarded, due to a low level of local funding participation from the Municipality within the project.

To enable the site visit to occur, which was absolutely necessary to compete for the grant, the Administrator committed to increasing local funding for the project, subject to subsequent approvals and appropriations made by the Assembly. This commitment was enough to secure the necessary site visit. Mr. Gorman advised the Assembly telephonically of his decision and commitment.

The Administration's plan as to the source of the additional funding is existing Commercial Passenger Excise Tax (CPET) funds which have been previously dedicated to the Centennial hall parking Lot project, but, which are available as the project came in under budget and did not utilize all previously appropriated capital funds.

If and when the time comes to formally commit funds to the Kettleson project, Administration will come forward to the Assembly and request a supplemental capital reappropriation of these CPET funds. Until then, these excess funds will be earmarked to segregate them, making them unavailable for other purposes.

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-109	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Approve a transfer of $90,000 from Project 90652 - UV Disinfection Feasibility Study to Project 90673 - HPR Water Improvements				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Transfer HPR Water Improvements				

Date	Ver.	Action By	Action	Result

Should this item be pulled from the Consent Agenda the following motion is suggested:

POSSIBLE MOTIONS

I MOVE TO approve the transfer of $90,000 from Project 90652 – UV Disinfection Feasibility Study to Project 90673 – HPR Water Improvements for the additional work recommended between Davidoff – Cascade Creek Streets

MEMORANDUM

To: Mayor McConnell and Members of the Assembly
Mark Gorman, Municipal Administrator

From: Michael Harmon, Public Works Director
Stephen L. Weatherman, P.E. Municipal Engineer
Mark Buggins, Environmental Superintendent

Reviewed: Jay Sweeney, Finance Director

Date: May 7, 2014

Subject: Transfer of Capital Project Funds for Halibut Point Road Water Improvements

Background:

The State of Alaska Department of Transportation and Public Facilities (DOTPF) are upgrading the portion of Halibut Point Road between the Roundabout to the end of the road near the Forest Service Campground. The upgrade includes several water infrastructure improvements. Public Works is requesting approval to move previously approved Water Fund capital project funds to this project for additional work in order to abandon the old unlined 8 inch cast iron main on HPR between Davidoff St. and Cascade Creek Rd that was discovered to be in poor condition during the project.

Analysis:

Reference the attached email from Michael Harmon on Friday, May 2nd forwarded to the Assembly on Monday, May 5th.

Fiscal Note:

The UV Disinfection Feasibility Study – Project 90562 is fully funded by state grants and loans has a remaining water fund capital project balance of $488,000. To fund this additional work Public Works recommends transferring $90,000 from the UV project to HPR Water Improvements – Project 90673.

Recommendation:

Transfer $90,000 from Project 90652 - UV Disinfection Feasibility Study to Project 90673 -HPR Water Improvements for the completion of this work.

Michael Harmon

From: Mark Gorman
Sent: Monday, May 05, 2014 7:31 AM
To: assembly
Cc: Jay Sweeney; Michael Harmon; Mark Buggins; Robin Koutchak
Subject: FW: Water Repair on HPR

Dear Mayor and Assembly Members,

I want to alert you to another funding decision I took at the end of last week. I think you will agree it was the prudent course.

As noted in the below email, this will be brought to you for formal approval at the next Assembly meeting,

Mark

From: Michael Harmon
Sent: Friday, May 02, 2014 5:01 PM
To: Mark Gorman
Cc: Mark Buggins; Jay Sweeney
Subject: Water Repair on HPR

Mark,

During the construction work on HPR the contractors discovered that a portion of our old water distribution main (between Davidoff and Seamart) is in very poor condition and starting to fail. We do not want to leave this under the new roadway and risk a failure in the near future. Fortunately we have a parallel line that we can shift the service lines to and abandon the failing pipe system. Given that the road is currently under construction and traffic control is already in place, we will most likely not get a better price/opportunity to abandon this line in the next 20-years. The challenge is that we needed to act today to give the contractor approval to order the parts and get it done before they move on. The price is expected to be approximately $90,000 and we will put an item on the next Assembly agenda to transfer surplus funds from the UV project for this work. The UV project has approximately $488,000 in surplus funds that were allocated prior to receiving our current grants and loans.

It is unfortunate that we just do not get a clear understanding of the condition of our underground infrastructure until we start digging. The chemistry or our ground makes the corrosive characteristics variable so the age of the pipe does not guarantee a correlation to condition/lifespan. Fortunately in this case we have a relatively easy alternative and the timing is ideal for reducing our cost.

Thank you for supporting this to move forward and have a good weekend.

MICHAEL HARMON, P.E.
Public Works Director
City and Borough of Sitka
100 Lincoln Street
Sitka, AK 99835
Office 907-747-1823
Fax 907-747-3158
michael@cityofsitka.com

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-108	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Approve New Cingular Wireless PCS, LLC Amendment #1 - changing the lease to month-to-month				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Cinglular Lease				

Date	Ver.	Action By	Action	Result

Should this item be pulled from the Consent Agenda the following motion is suggested:

POSSIBLE MOTION

I MOVE TO approve Amendment No. 1 changing the New Cingular Wireless PCS, LLC lease to read month-to-month.

MEMORANDUM

To: Mayor McConnell and Assembly Members
Mark Gorman, Municipal Administrator

From: Michael Harmon, Public Works Director
Gary Baugher Jr., Maint. & Operations Superintendent.

Reviewed: Robin Koutchak, Municipal Attorney

Date: May 5, 2014

Subject: Approve Amendment #1; New Cingular Wireless PCS, LLC; AT&T Cell on Wheels (COW)

Background
AT&T set a temporary Cell Tower; Cell on Wheels (COW) in the back parking lot area of the Kimsham Sports Complex. All circuitry has been ran to the Portable Cell Tower.

The 35' tall, 8ft x 20ft trailer mounted cell antennae was installed as a temporary unit until a permanent location could be found. Any permanent location for a cell tower on CBS property will come back to the Assembly for approval. Typical long term cell tower agreements include monthly payments and access to the tower for City Antennae usage/instrumentation. As part of the lease agreement, CBS retains the utility structure (i.e. electric) and paid for by AT&T. The amended lease agreement will continue to be at the approved $750 a month payment.

Recommendation:
Approve New Cingular Wireless PCS, LLC Amendment #1 changing the lease to read month to month lease.

AMENDMENT NO. 1 TO LEASE AGREEMENT BETWEEN CITY AND BOROUGH OF SITKA AND NEW CINGULAR WIRELESS PCS, LLC

City and Borough of Sitka, 100 Lincoln Street, Sitka, Alaska 99835 ("Sitka" "or "Lessor") and New Cingular Wireless PCS, LLC, a Delaware limited liability company, having a mailing address of 12555 Cingular Way, Suite 1300, Alpharetta, GA 30004 ("AT&T" or "Lessee"), agree to amend and modify the Lease Agreement Between the City and Borough of Sitka and New Cingular Wireless PCS, LLC dated June 20, 2013. This lease Amendment No. 1 shall be effective as of September 21, 2013. This Amendment No. 1 amends Sections 1.2 as follows (new language underlined; deleted language stricken):

Section 1.2 Lease Term.

The Term is ~~for three months and commences on June 20, 2013, and ends on September 20, 2013, unless sooner terminated or extended as provided in this Lease. The Term may be extended~~ on a month-to-month basis by written mutual agreement of the Parties, and in accordance with Section 1.3 below.~~, with no further Sitka Assembly approval required.~~

* * *

All other provisions in the Lease Agreement that are not modified by this Amendment No. 1 remain in full force and effect.

NEW CINGULAR WIRELESS PCS, LLC
A Delaware limited liability company
BY: AT&T MOBILITY CORPORATION
Its: Manager

By: _____

Print Name: _____
Its: _____

STATE OF OREGON)
) ss.
COUNTY OF WASHINGTON)

On this ____ day of _____, 2014, _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, signs this Lease on behalf of New Cingular Wireless PCS, LLC, and affirms by signing this document to be authorized to sign on behalf of New Cingular Wireless PCS, LLC, and does so freely and voluntarily.

_____
Notary Public for Oregon
My Commission Expires: _____

CITY AND BOROUGH OF SITKA

_____
MARK GORMAN
Municipal Administrator

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, Mark Gorman, Municipal Administrator of City and Borough of Sitka, Alaska, a municipal corporation organized under the laws of the State of Alaska, signs this Lease on its behalf, and affirms by signing this document to be authorized to sign on its behalf, and does so freely and voluntarily.

_____
Notary Public for Alaska
My Commission Expires: _____

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	ORD 14-14	Version: 1	Name:		
Type:	Ordinance		Status:	FIRST READING	
File created:	5/7/2014		In control:	City and Borough Assembly	
On agenda:	5/13/2014		Final action:		
Title:	Adjusting the FY 2014 Budget for known changes				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	ORD 2014-14 Budget Adjust				

Date	Ver.	Action By	Action	Result

Should this item be pulled from the Consent Agenda the following motion is suggested:

POSSIBLE MOTION

I MOVE TO approve Ordinance 2014-14 on first reading.

Sponsor: Administrator

CITY AND BOROUGH OF SITKA

ORDINANCE NO. 2014-14

AN ORDINANCE OF THE CITY AND BOROUGH OF SITKA ADJUSTING THE FY 2014 BUDGET

BE IT ENACTED by the Assembly of the City and Borough of Sitka, Alaska as follows:

1. **CLASSIFICATION.** This ordinance is not of a permanent nature and is not intended to be a part of the Sitka General Code of the City and Borough of Sitka, Alaska.

2. **SEVERABILITY.** If any provision of this ordinance or any application thereof to any person or circumstance is held invalid, the remainder of this ordinance and application thereof to any person and circumstances shall not be affected thereby.

3. **PURPOSE.** The purpose of this ordinance is to adjust the FY 2014 budget for known changes.

4. **ENACTMENT.** The Assembly of the City and Borough of Sitka hereby adjusts the FY 2014 Budget for known changes. In accordance with Section 11.10(a) of the Charter of the City and Borough of Sitka, Alaska, the budget for the fiscal period beginning July 1, 2013 and ending June 30, 2014 is hereby adjusted as follows:

Account Number	Account	Increase	Decrease
FISCAL YEAR 2014 EXPENDITURE BUDGETS			
GENERAL FUND			
General Fund Revenue			
100-300-315-3151.001	**Stumpage**	**$800,508**	
100-550-660-952-5290.000	**Other Expenses**	**$400,254**	
To recognize the Secure Rural Schools Revenue and transfer 50% to the Sitka School District.			
General Fund Revenue			
100-300-302-3021-003	**3rd Quarter CY 2013 Sales Tax**	**$273,236**	
100-300-302-3021.004	**4th Quarter CY 2013 Sales Tax**	**$62,545**	
This is to recognize the additional revenue for sales tax from what was budgeted.			

EXPLANATION

Necessary revisions in the FY 2014 budget were identified. These changes involve the increase of expenditure accounts of various funds in the General Fund. A short explanation of each budget revision is included.

5. EFFECTIVE DATE. This ordinance shall become effective on the day after the date of its passage.

PASSED, APPROVED, AND ADOPTED by the Assembly of the City and Borough of Sitka, Alaska this 27th day of May, 2014.

_____
Mim McConnell, Mayor

ATTEST:

_____
Colleen Ingman, MMC
Municipal Clerk

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-104	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Award a Bulk Fuel Oil Contract to Petro Marine Services not to exceed $1,260,000 and execute agreement				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Bulk Fuel Motion Bulk Fuel Oil Purchase				

Date	Ver.	Action By	Action	Result

Should this item be pulled from the Consent the following motion is suggested.

POSSIBLE MOTION

I MOVE TO authorize the award and execution of a Bulk Fuel Oil Contract to Perto Marine Services not to exceed $1,260,000

City & Borough of Sitka
Electric Department

Memorandum

May 7, 2014

To: Mark Gorman, Municipal Administrator
From: Christopher Brewton, Utility Director
Subject: **Bulk Fuel Oil Purchase – Petro Marine Services**

Request:
In accordance with SGC § 3.16.060(I.), this is to request Assembly approval to authorize the Municipal Administrator to award a fuel oil supply contract (Appendix A) to Petro Marine Services to provide bulk fuel for testing and commissioning the *Solar* Titan 130 diesel turbine and to provide bulk fuel storage and supply for the planned Blue Lake Generation Outage. Fuel contract will be for one year at a not to exceed (NTE) cost of $1,260,000.

Objective:
The purpose of this fuel oil procurement is to address three distinct but related issues:

1. Provide 70,000 gallons of fuel that meets *Solar* specifications for testing and commissioning of the Solar Titan 130 turbine generator.

2. Provide bulk fuel deliveries, as needed, for supplemental diesel generation during the planned Blue Lake Generation Outage.

3. Provide off-site storage of 50,000 gallons of bulk fuel while the Jarvis Bulk tank T-103 is out of service for an API-653 inspection.

Each of these objectives is discussed in greater detail in Appendix (B).

Background:
As noted in previous correspondence to the Assembly[1,2,3], fuel oil quality is paramount in ensuring successful long term operation of the new turbine generator. To that end the Electric Department, in conjunction with Mr. Doug Moore, a *Solar* Engineering Representative; have been engaged in extensive planning, evaluation, and assessment of the fuel oil supply chain to ensure fuel meets *Solar* Technical Specification ES 9-98; Fuel, Air, Water, (Or Steam) & Compressor Cleaning Fluids for *Solar* Gas Turbine Engines (Appendix C).

As noted in Appendix (D), *Solar* Liquid Fuel Quality Sampling Report dated April 10, 2013, *Solar* field representatives have completed an on-site inspection and laboratory analysis of the City's fuel system and Petro Marine's Bulk Fuel facility and included recommendations to ensure fuel quality and compliance with *Solar* fuel oil specifications.

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[1] February 26, 2013 Assembly Meeting approving purchase of Titan Solar 130 turbine excluding fuel oil centrifuge.
[2] Municipal Administrator's December 19, 2013 approval of Solar PCN# 004Rev1 replacing fuel oil centrifuge with fuel filtration skid.
[3] April 8 2014 Assembly Meeting approving transfer of funds from CIP#90647 – Jarvis Tank Inspection to CIP# 90646 - Jarvis Street Diesel Capacity Increase.

cc: Robin Koutchak, Municipal Attorney
Jay Sweeney, Finance Director

As previously noted in Assembly correspondence, the Department elected to pursue a static fuel treatment facility in lieu of an expensive and maintenance intensive fuel oil centrifuge. Enclosed as Appendix (E) is the operations manual developed for the liquid fuel skid designed by Mr. Moore. The unit will provide the Department with redundant fuel filtering capabilities to ensure reliable diesel operations. This one-of-a-kind fuel filtering skid also provides a new capability to perform continuous maintenance and conditioning of the bulk fuel. Again, this document provides clear information on the criticality of good fuel to ensure acceptable turbine performance.

In addition to stringent fuel oil specifications, the Titan 130 turbine requires a dedicated fuel purge system that injects pure water into the turbine during shutdown sequences to prevent coke formation in the fuel injectors. This requirement will be met by the installation of a small membrane water system that will provide adequate water supply for turbine operations. Additional information on this fuel related system is attached as Appendix (F).

Funding:
Funding in the amount of $1,260,000 is programmed in the Blue Lake Hydroelectric Expansion Project, CIP # 90594 for supplemental diesel generation.

Conclusion:
Technical documentation included with this memorandum clearly supports the need for a reliable fuel supply that meets all *Solar* specifications. The proposed vendor has worked closely with the Department and *Solar* representatives to ensure adequate fuel will be available for commissioning the new diesel turbine and for the Blue Lake Generation Outage. Future fuel contracts will be competitively bid and prospective vendor's locations evaluated to ensure compliance with *Solar* fuel specifications.

Recommended Motion:
I MOVE to authorize the Municipal Administrator to award a bulk fuel oil contract to Petro Marine Services for in a NTE amount of $1,260,000 and execute the Agreement on behalf of the Assembly of the City & Borough of Sitka.

Solar Turbines
A Caterpillar Company

SPECIFICATION

FUEL, AIR, WATER (OR STEAM) & COMPRESSOR CLEANING FLUIDS FOR *SOLAR*® GAS TURBINE ENGINES

Data Control Level
1

SPECIFICATION NO. ES 9-98

ISSUED: 10/29/82; ERL5670-1
(Date and PRD No.)

REVISION:
(Letter, Date and PRD/CR No.)

Release Stamp
CDM

A; 03/29/85; ERL8646-1
B; 01/29/87; ERL9338-1
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F; 08/10/03; PRD14724-1
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J; 10/14/04; CR10321
K; 01/18/05; CR10788
L; 08/28/06; CR14043
M; 12/12/06, CR15195
N; 01/30/08; CR18878
P; 06/27/08; CR20704
R; 01/06/09; CR22506
T; 02/23/09; CR22863
U; 07/14/09; CR24384
V; 12/16/09; CR24042
W; 02/17/10; CR26201
Y; 05/25/10; CR26924
AA; 03/14/11; CR29413

Rev. Ltr.	CR #	Signature & Title	Date
AB	37814	Prepared By: **Abdul Ahmed** Approved By: **Jose Aurrechoechea**	12-01-11

ATTENTION

CONTENTS

CONTENTS (Continued)

CONTENTS (Continued)

TABLES

FIGURES

1.0 SCOPE - This specification establishes the quality requirements for the fuel, air, water (or steam) and compressor cleaning solutions to be used in *Solar* gas turbine engines.

This specification supersedes all previous Solar fuel, air, or water specifications, including fuel specification ES 1211, ES 9-247, and ES 9-251, for use in *Solar* gas turbine operation.

1.1 RESPONSIBILITY/DEVIATIONS - It is the responsibility of the end user to ensure that where required by this specification, Solar Turbines' approval has been sought for use of the fluids cited. It is also the responsibility of the end user to ensure on a continuing basis that all fluids entering the gas turbines are compliant with this specification. Deviations from the limits and requirements herein shall not be considered without consultation and specific written approval from Solar Engineering. These approvals can be attained through the Special Engine Request Process.

2.0 APPLICABLE DOCUMENTS - The following documents, of issue in effect on the date of this specification, shall be a part of this specification to the extent specified herein.

SPECIFICATIONS

Solar

ES 9-62	Ingestive Cleaning Solar Turbine Engines
ES 2069	Set-up, Installation, and Operating Instructions for Evaporative Coolers
FORM 2594	Liquid Fuel Suitability Inquiry
FORM 2595	Gaseous Fuel Suitability Inquiry
FORM 3091	Total Site Contamination Worksheet

American Society for Testing and Materials

ASTM D86	Method of Test for Distillation of Petroleum Products
ASTM D93	Method of Test for Flash Point by Pensky - Martens Closed Tester
ASTM D97	Method of Test for Pour Points
ASTM D129	Method of Test for Sulfur in Petroleum Products by the Bomb Method
ASTM D130	Method of Test for Copper Corrosion by Petroleum Products, Copper Strip Test
ASTM D240	Method of Test for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter
ASTM D323	Method of Test for Vapor Pressure of Petroleum Products (Reid Method)
ASTM D445	Method of Test for Viscosity of Transparent and Opaque Liquids (Kinematic and Dynamic Viscosities)
ASTM D482	Method of Test for Ash from Petroleum Products
ASTM D511	Tests for Calcium and Magnesium in Water
ASTM D512	Standard Test Method for Chloride Ion in Water
ASTM D524	Method of Test for Ramsbottom Carbon Residue of Petroleum Products
ASTM D808	Tests for Chlorine in New and Used Petroleum Products (Bomb Method)
ASTM D859	Tests for Silica in Water
ASTM D1072	Test for Total Sulfur in Fuel Gases
ASTM D1179	Standard Test Methods for Fluoride Ion in Water
ASTM D1253	Tests for Residual Chlorine in Water
ASTM D1266	Sulfur in Petroleum Products and liquefied Petroleum Gases (Lamp Method)
ASTM D1267	Vapor Pressure of Liquefied Petroleum Gases
ASTM D1293	Tests for pH of Water
ASTM D1298	Density, Specific Gravity or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method
ASTM D1319	Method of Test for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Absorption

ASTM D1657	Test Method for Density or Relative Density of Light Hydrocarbons by Pressure Thermohydrometer
ASTM D1838	Copper Strip Corrosion by Liquefied Petroleum Gases
ASTM D1945	Standard Test Method for Analysis of Natural Gas By Gas Chromatography
ASTM D2163	Analysis of Liquefied Petroleum Gases by Gas Chromatography
ASTM D2500	Method of Test for Cloud Point
ASTM D2598	Calculation of Physical Characteristics of Liquefied Petroleum Gases From Compositional Analysis
ASTM D3605	Trace Metals in Gas Turbine Fuels by Atomic Absorption and Flame Emission Spectroscopy
ASTM D3373	Tests for Vanadium in Water
ASTM D3559	Tests for Lead in Water
ASTM D3588	Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density (Specific Gravity) of Gaseous Fuels
ASTM D3868	Standard Test Methods for Fluoride Ion in Brackish Water, Seawater, and Brines
ASTM D3919	Standard Practice for Measuring Trace Elements in Water By Graphite Furnace Atomic Absorption Spectrophotometry
ASTM D4052	Standard Test Method for Density and Relative Density by Digital Density Meter
ASTM D4192	Standard Test Method for Potassium in Water By Atomic Spectrophotometry
ASTM D4418	Standard Practice for Receipt, Storage, and Handling of Fuels for Gas Turbines
ASTM D4629	Standard Test Method for Trace Nitrogen in Liquid Petroleum Hydrocarbons by Syringe/Inlet Oxidative Combustion and Chemiluminescence Detection
ASTM D5186	Test Method for Determination of Aromatic Content of Diesel Fuels by Supercritical Fluid Chromatography
ASTM D5453	Determination of Total Sulfur in Light Hydrocarbons
ASTM D5673	Standard Test Method for Elements in Water By Inductively Coupled Plasma Spectrometry
ASTM D5762	Standard Test method for Nitrogen in Petroleum and Petroleum Products by Boat-Inlet Chemiluminescence
ASTM D5907	Standard Test Method for Filterable and non-Filterable Matter in Water
ASTM D6079	Evaluating Lubricity of Diesel Fuels by High-Frequency Reciprocating Rig (HFRR)
ASTM D6217	Standard Test Method for Particulate Contamination in Middle Distillate Fuels
ASTM D6304	Standard Test Method for Determination of Water in Petroleum Products
ASTM F25	Standard Test Method for Sizing and Counting Airborne Particulate

Natural Gas Processors Association

NGP 2140-70 Liquefied Petroleum Gas Specifications and Test Methods

Deutches Institute Fur Normung (DIN)

DIN 51850 Gross and Net Calorific Value of Pure Gaseous Fuels

US Bureau of Mines

Bulletin 627 Flammability Characteristics of Combustible Gases and Vapors

3.0 GENERAL REQUIREMENTS - The requirements stated herein govern the quality of air, fuel, and water (steam) entering the engine. Failure to meet the requirements in this specification can result in a negative impact on the performance and life expectations of the engine and package.

3.1 UNDESIRABLE CONTAMINANTS - The contaminants listed here are known to be harmful to engine components and must be controlled to within the maximum allowable limits specified for each contaminant in order to attain maximum engine life. The total quantity of each contaminant ingested by the engine must be limited regardless of whether it enters through the air, fuel, injected water (steam), or as liquid water carryover from evaporative cooling.

The limits for each of the several critical contaminants from all possible sources are provided in Table 1.

Table 1. Maximum Allowable Contaminant Concentrations

Contaminant	Limit[Note 1] in Fuel Equivalent Concentrations	Test Method
Sulfur (see Notes 2, 3, & 4)	**10,000 ppmw FEC (See note 5A & 5B). Additional restrictions apply for *SoLoNOx* liquid operation (See note 6)**	ASTM D129, D1072, D1266 or ASTM D5453
Sodium + Potassium	0.5 ppmw FEC	ASTM D3605 or D1428
Vanadium	0.5 ppmw FEC	ASTM D3605, D3373
Lead	1 ppmw FEC	ASTM D3605, D3559
Calcium + Magnesium	2 ppmw FEC	ASTM D3605, D511
Fluorine	1 ppmw FEC	ASTM D1179, D3868
Chlorine	0.15 weight percent or 1,500 ppmw FEC	ASTM D512, D808, D1253,
Others (See Notes 7 &8)	0.5 ppmw FEC	

Notes:

(1) The limits given are FUEL EQUIVALENT CONCENTRATIONS (FEC), i.e., the maximum allowable concentration of each contaminant as if each contaminant is found solely in a fuel with LHV - 18,380 Btu/lb. (such as diesel #2). Instructions for performing calculations are provided in Appendix A, Form 3091, Total Site Contamination Worksheet.

(2) For installations with exhaust heat recovery equipment, it is important to maintain sulfur levels at below the SO_3 dewpoint. Because conversion from SO_2, to SO_3 in the combustor is a function of several factors that are not readily definable, it is recommended that fuel sulfur is limited to less than 0.5% weight FEC. This value is based on 60:1 air-to-fuel ratio at up to 17% conversion for an acid dewpoint of 240°F.

(3) If sulfur is present in the form of hydrogen sulfide, appropriate precautions must be taken to detect leaks because of the highly toxic nature of this gas even in trace quantities. High sulfur fuels (exceeding limits) may be used with special provisions; however, such fuels must be reviewed and approved in writing by Engineering prior to use.

(4) U.S. Federal and local Air Pollution control districts may require lower limits for sulfur.

(5A) Harsh environment protection hardware and ancillary equipment is required for gas fuel with H_2S concentration greater than 3000 ppmw FEC or liquid fuel with sulfur concentration more than 2000 ppmw FEC..

(5B) Higher sulfur levels (> 10,000 ppmw FEC) can be considered for a specific application and must be approved in writing by engineering.

(6) Liquid fuel sulfur content limits and specific fuel handling and storage requirements are required for *SoLoNOx* liquid fuel operation. See section 8 and appendix C.

(7) The following contaminants are unlikely to be present except in unusual or accidental contamination of air, fuel or water supplies. However, if detected at levels greater than 0.5 ppmw FEC fuel equivalent, special treatment and precautions are required.

Mercury – Cadmium – Bismuth – Arsenic – Indium – Antimony – Phosphorous – Boron - Gallium

(8) Any other trace element with concentrations over 0.5 ppmw FEC fuel equivalent should be discussed with, and reviewed, by Engineering.

3.2 SOURCES OF CONTAMINATION – There are four major potential sources of contamination - air, fuel (gas, liquid, or solid), injected water/steam (for continuous NO_x control) and liquid water carryover from the evaporative cooler (if used). Minor sources of contamination include water for compressor cleaning, water for dual fuel injector purging, and compressor cleaning fluids have also been identified.

In order to effectively control the quality of air, fuel, and water entering the engine as defined in this Specification, Solar's Package Engineering Department shall be consulted in specifying treatment and cleanup systems for the major sources, while the minor sources must meet the quality specified in Tables 3 and 4 of this document.

3.3 DETERMINATION OF TOTAL CONTAMINANTS - The total concentration of each of the major potential sources of contaminants entering the engine can be determined by using the equations provided here.

For direct fired applications:

$$\text{Total Contaminant} = \frac{18{,}380}{\text{LHV}} \times [(\text{AFR})\text{A} + \text{F} + (\text{WFR})\text{W} + (\text{CFR})\text{C}]$$

For indirect fired applications:

$$\text{Total Contaminant} = 65 \times [\text{A} + (\text{WAR})\text{W} + (\text{CAR})\text{C}]$$

Where:

Total Contaminant	=	total concentration of that particular contaminant, ppmw fuel equivalent (for indirect fired applications, total contaminant is expressed as ppmw air equivalent concentration, normalized to 65 air-to-fuel ratio.
LHV	=	lower heating value of fuel, Btu/lb
AFR*	=	air-to-fuel mass ratio
A	=	concentration of that particular contaminant in air entering the engine, ppmw in air
F	=	concentration of that particular contaminant in fuel, ppmw in fuel
WFR*	=	water-to-fuel mass ratio
W	=	concentration of that particular contaminant in injected water, ppmw in water
CFR*	=	carryover water-to-fuel mass ratio
C	=	concentration of that particular contaminant in evaporative cooler water (or feedwater), ppmw in water
WAR	=	water-to-air mass ratio
CAR	=	carryover water-to-air mass ratio

* Fuel ratios are based on <u>actual</u> fuel rather than combustible fuel

A worksheet (Form 3091) with instructions for performing the above calculation is provided in Appendix A. (Derivation of the above equation for directly fired applications and the functional equation used in Form 3091 are included in Appendix B.)

3.4 ADDITIVES - Chemicals can be added to fuel and water treatment systems for specific purposes, e.g., softening, settling out of particulates, inhibition of organic growths, etc. Caution should be exercised to ascertain that the additives are not comprised of critical elements listed in Table 1 and that the maximum allowable limits specified are complied with.

3.5 CUSTOMER SITE DATA REQUIREMENTS - Information as to the condition and quality of the air, water (including steam), and fuel to be ingested by the engine, and other environmentally influenced conditions such as ambient temperature and humidity ranges is required by Solar to adequately define the necessary combustion system configuration, engine controls, settings, protective coatings, devices and operating procedures.

3.5.1 SAMPLING - Sampling and analyses of air, fuel, and water must be performed by Solar approved laboratories. In certain critical applications, either Solar or the customer may specify a particular facility. Unless specifically instructed otherwise, all sampling should be performed at locations just up stream of the engine.

3.5.2 ADDITIONAL SITE DATA - The following information, if available, is required for all installations:

- Ambient temperature range
- Ambient humidity range
- Altitude
- Type of environment (rural, agricultural, residential, arctic, industrial, offshore, marine, coastal, desert, semi-arid, or tropical)
- Fuel conditions (fuel temperature and pressure ranges)

4.0 AIR

4.1 AIR QUALITY - Air borne constituents such as gases, liquid droplets and solid particles, can contain undesirable contaminants that are considered harmful. Adequate air filtration must be used to remove the bulk of such air borne constituents including water carryover from evaporative cooler applications. The combined concentration of contaminants from air, fuel and water (steam) shall meet the requirements of paragraph 3.1 and the maximum limits specified in Table 1.

4.1.1 ADDITIONAL LIMITS - In addition, quality of air entering the air inlet shall also meet the following requirements.

Maximum particle size	≤10 microns	ASTM F25, ISO 8573
Total particulates	≤500 ppmw	
Total combustibles	≤5 ppmw	ASTM D1945, D3588

4.2 CONCENTRATION OF AIR BORNE CONTAMINANTS - Air borne contaminants constitute only one of several means by which contaminants enter the turbine engine. The minimum air quality allowed depends on the quality of the other fluids, such as injected water, fuel, and water carryover (if applicable). In order to assess the impact of air borne contaminant(s) on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each air borne contaminant can be calculated using the following function.

$$\text{Concentration in air, ppmw FEC} = \text{AFR} \times \frac{18380}{\text{LHV}} \times A\,(1\text{-}N)$$

Where:
AFR= air-to-fuel ratio
LHV= lower heating value, Btu/lb.
A = concentration in ambient air, ppmw
N = air cleaner efficiency, expressed as value <1.0

4.2.1 CONCENTRATION GUIDELINES FOR AIR BORNE CONTAMINANTS - In general, air borne contaminants are expected to contribute less than 20% of the total concentration allowed except when air and fuel are the two fluids present. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for air borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

Table 2. Guidelines for Contaminant Concentrations (for nominal operating conditions with natural gas fuel)

Available Sources	Air Borne Contaminants (% of Total)	Fuel Borne Contaminants (% of Total)	(Inj.) Water Borne Contaminants (% of Total)	Contaminants From E/C Carryover (% of Total)
Air + Fuel	<70	<10	0	0
Air + Fuel + Inj. Water	<20	<10	<50	0
Air + Fuel + Inj. Water + E/C	<20	<10	<20	<30
Air + Fuel + E/C	<20	<10	0	<50

Note: These values are provided only as guidelines and they are based on experience at Solar. Because of the inexactness of some of the values involved in the calculations, a 20% margin is built in to the numbers provided here.

4.3 SITE SPECIFIC CONTAMINANTS IN AIR - If ambient air at a particular site is known to be of poor quality, based on prior experience or influence of industries and/or activities in the vicinity, consult with Package Engineering to ascertain compliance with all the requirements of this specification.

5.0 INJECTED WATER (OR STEAM)

5.1 WATER QUALITY FOR WATER INJECTION TO REDUCE NO_x - The quality of water injected into the combustor for NO_x control must meet the general requirements defined in Section 3.1 as well as the specific requirements described here.

	Limit	Test Method
pH	5.5 to 8.5	ASTM D1293
Suspended solids	≤2.6 mg/l	ASTM D5907; ISO 11923
Maximum particle size	10 microns	
90% of particles	≤5 microns	
Dissolved Silica	≤0.1 ppmw SiO_2 (≤0.1 mg/l)	ASTM D859
Electrical Conductivity	5 µS/cm	ASTM D5391

5.2 CONCENTRATION OF (INJECTED) WATER BORNE CONTAMINANTS - Water borne contaminants from injected water/steam constitute only one of several means by which contaminants enter the turbine engine. The minimum water quality allowed depends on the quality of the other fluids, such as air, fuel, and water carryover (if applicable). In order to assess the impact of water borne contaminant(s) from injected water/steam on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each water borne contaminant can be calculated using the following function.

$$\text{Concentration in water, ppmw FEC} = \text{WFR} \times \frac{18380}{\text{LHV}} \times \text{W}$$

Where:
- WFR = water-to-fuel ratio
- LHV = lower heating value, Btu/lb
- W = concentration of contaminant in injected water, ppmw

5.2.1 CONCENTRATION GUIDELINES FOR (INJECTED) WATER BORNE CONTAMINANTS - In general, water borne contaminants from injected water are expected to contribute less than 50% of the total concentration allowed. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for injected water (steam) borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

5.3 BOILER FEEDWATER - In general, boiler feedwater is not suitable for use in water injection; additional treatment to remove dissolved and suspended contaminants is usually required to satisfy all the requirements of this specification.

5.4 OPERATION - It is recommended that Package Engineering is consulted in selecting appropriate equipment for treatment water. Continuous monitoring of water quality is strongly recommended with an alarm or automatic shut down device installed between the final stage of treatment and the fuel injector manifold. The trip point shall be set to ensure that water entering the combustor is within the allowable limits of this specification.

5.5 WATER FOR INJECTOR PURGE AND COMPRESSOR CLEANING – Water is used in small quantities from time to time (not continuous operation), to either aid cleaning the compressor or to purge liquid fuel passages in dual fuel injectors during fuel transfers and liquid fuel shutdown. It has been determined that the contaminant limits for the water can be higher for these duties because the consumption is small and Table 3 shows the limits for the particular application.

6.0 EVAPORATIVE COOLER WATER

6.1 GENERAL - For operation in hot and dry environments, evaporative cooling is commonly employed for power augmentation. The design/selection, installation and maintenance of evaporative cooler equipment is critical to engine operation and longevity and also effects the extent of water carryover into the airstream. Appropriate treatment of feedwater must be specified in order to comply with the total requirements of this specification.

6.1.1 EVAPORATIVE COOLER EQUIPMENT - Instructions for set-up, installation and operation of evaporative coolers are provided in Engineering specification ES 2069.

Table 3. Contaminant Limits For Short Duration Water Ingestion Duties

	Test Method	Max. Limits for On-Crank Cleaning	Max. Limits for On-Line Cleaning	Max. Limits for Dual Fuel Injector Water Purge
Sodium + Potassium	ASTM D1428	105 ppmw	1.9 ppmw	1.9 ppmw
Fluorine	ASTM; D1179	100 ppmw	1.9 ppmw	1.9 ppmw
Chlorine	ASTM D512	100 ppmw	40 ppmw	40 ppmw
Lead	ASTM D3559	2 ppmw	0.70 ppmw	0.70 ppmw
Vanadium	ASTM D3373	2 ppmw	0.35 ppmw	0.35 ppmw
Iron, Tin, Silicon, Aluminum, Copper, Manganese, Phosphorus	ASTM D857, D858, D1068, D1688	10 ppmw	3.8 ppmw	3.8 ppmw
Calcium + Magnesium	ASTM D3605, D511	100 ppmw	3.8 ppmw	3.8 ppmw
Total Dissolved Solids	ASTM D1888	350 ppmw	5 ppmw	30 ppmw
Suspended solids	ASTM D5907	2.6 mg/l	2.6 mg/l	2.6 mg/l
Maximum particle size		10 microns	10 microns	10 microns
90% of particles		5 microns	5 microns	5 microns
Dissolved Silica		0.1 mg/l SiO_2	0.1 mg/l SiO_2	0.1 mg/l SiO_2
PH	ASTM D1293	6 - 9	6 - 9	6 - 9
Electrical Conductivity		540 µS/cm	8 µS/cm	50 µS/cm

6.1.2 DEIONIZED WATER - Do not use deionized water unless the evaporative cooler has been specially designed for it. The use of deionized water will require the use of stainless steel construction and binder reinforced media.

6.1.3 SOFT WATER - Soft water is usually high in sodium salts and low in calcium and magnesium salts. Therefore, soft water cannot be used for evaporative cooling unless it can be proven that sodium + potassium (and any other dissolved salts present) are in compliance with the requirements of Section 3.1.

6.2 CONCENTRATION OF CONTAMINANTS IN WATER CARRYOVER - Contaminants from evaporative cooler water carryover constitute only one of several means by which contaminants enter the turbine engine. The minimum evaporative cooler water quality allowed depends on the quality of the other fluids, such as air, fuel, and injected water. In order to assess the impact of contaminant(s) from evaporative cooler water carryover on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each contaminant can be calculated using the following function.

$$\text{Concentration in water carryover, ppmw FEC} = C \times R \times \frac{(1 - E)}{f} \times 9.2$$

Where:
- C = concentration in water delivered to header of evaporative cooler, ppmw (for recirculating system, C = concentration in reservoir; for non-recirculating system, C = concentration of feedwater)
- R = carryover rate, gallons per minute (see Section 6.2.2)
- E = mist eliminator efficiency, expressed as <1.0
- f = fuel flow rate, MBtu/hour (10^6 Btu/hour)

6.2.1 CONCENTRATION GUIDELINES FOR CONTAMINATION IN EVAPORATIVE COOLER WATER - In general, contaminants from evaporative cooler carryover are expected to contribute less than 50% of the total concentration allowed. Depending on the type of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for water carryover contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline. (Refer to ES 2069 for details on evaporative cooler installation and operation.)

6.2.2 CARRYOVER RATE - In the absence of actual measurements, the following estimated carryover rates could be used.

2.8 GPM for *Titan* 130
1.7 GPM for *Mars*
1.5 GPM for *Taurus* 70
1.3 GPM for *Taurus* 60
0.9 GPM for *Centaur* 40 and 50, *Mercury* 50
0.5 GPM for *Saturn*

6.3 WATER CARRYOVER - While water carryover can be effectively reduced or eliminated with correct equipment specification and installation/operation, it is also recognized that system upsets can be expected to occur during the life cycle of the engine when water from the evaporative cooler can accidentally enter the compressor as liquid water droplets of varying size. Vane type mist eliminators are required for evaporative cooler applications as a means of further reducing or eliminating water carryover. Nevertheless, the general requirements in paragraph 3.1 include evaporative cooler water carryover as a potential source of contamination.

6.4 ADDITIONAL LIMITS FOR EVAPORATIVE COOLER WATER

	Limits
pH	6-9
Turbidity	≤5,000 turbidity units (also know as Jackson units)
Hardness	160 ppmw $CaCO_3$

6.5 OTHER CONTAMINANTS - Algae, aromatic hydrocarbons, oils, grease and wetting/ dispersing agents such as phosphates can be harmful to the evaporative cooler media pad. Precautions must be exercised to prevent the formation or introduction of these contaminants into the feedwater.

7.0 COMPRESSOR CLEANING FLUIDS

7.1 COMPRESSOR CLEANING PRODUCT QUALITY – Composition and physical properties of cleaning products must comply with the limits defined in Table 4. Failure to comply with these limits can cause corrosive attack and/or other harmful effects resulting in rapid engine deterioration. When the cleaning product consists of a mixture of cleaning solution concentrate and water, the limits in Table 4 apply to the resulting cleaning product.

Table 4. Requirements for Cleaning Product Used in Ingestive Cleaning of *Solar* Engines

	Test Method	Max. Limits for On-Crank Solutions	Max. Limits for On-Line Solutions
Sodium + Potassium	ASTM D1428	105 ppmw	1.9 ppmw
Fluorine	ASTM D1179	100 ppmw	1.9 ppmw
Chlorine	ASTM D512	100 ppmw	40 ppmw
Lead	ASTM D3559	2 ppmw	0.70 ppmw
Vanadium	ASTM D3373	2 ppmw	0.35 ppmw
Iron, Tin, Silicon, Aluminum, Copper, Manganese, Phosphorus	ASTM D857, D858, D1068, D1688	10 ppmw	3.8 ppmw
Calcium + Magnesium	ASTM D3605 ASTM D511	100 ppmw	3.8 ppmw
Ash	ASTM D482	0.25 wt. %	0.01 wt. %
Flash Point	ASTM D93	>140°F	>140°F
PH	ASTM D 1293	6 - 9	6 - 9

8.0 FUEL

8.1 GASEOUS FUELS - Gaseous fuels, which meet the limits in Table 5, can be used in the standard fuel systems. The fuels must be free from condensed hydrocarbons, oils or water. Fuels, which do not meet these limits, must be reviewed by Solar. If judged suitable for use, control and/or combustor modifications will generally be required.

8.1.1 GASEOUS FUEL SUITABILITY - The Solar Gaseous Fuel Suitability Inquiry Form 2595 must be completed. In addition, any entrained solid contaminants should be identified, along with their concentrations and size. For gaseous fuels, if water is known to be present, even in minute quantities, the concentration of salts dissolved in this water must be included when calculating the amount of contaminants contributed by the water portion of this fuel to the total system. It is also required that a gas analysis including all heavy hydrocarbons beyond C_6 be provided during the proposal stage of the project.

8.1.2 COKE OVEN GAS – Coke Oven Gas (COG) is the gas released in the process that converts coal into coke. COG is a medium heating value fuel containing mainly hydrogen, methane, water, oxygen, carbon monoxide, nitrogen and carbon dioxide. However, COG also has extreme levels of harmful contaminants including:

- Tar
- Light oil vapors (aromatics), mainly Benzene, Toluene and Xylene (BTX)
- Naphthalene vapor
- Ammonia gas
- Hydrogen sulfide gas
- Hydrogen cyanide gas
- Calcium carbonate from direct water cooling of COG
- Trace metals

The contaminants found in COG must be controlled to levels listed in Tables 1 and 5. Contact Solar for recommendations on Balance of Plant equipment to remove or reduce the contaminants to levels acceptable for gas turbine operation.

The superheat level specified in Table 5 is also required for COG to ensure remaining naphthalene and heavy hydrocarbons do not precipitate out in the fuel system.

Table 5. Requirements for Gaseous Fuels

Fuel Volume Ratio (1220/WOBBE Index*)	0.9 to 1.1
Fuel Mass ratio (21550/LHV Btu/lb)	<5
Hydrogen Content	<4% by volume
Carbon Monoxide Content**	<12.5% by volume
Hydrogen Sulfide**	10,000 ppmw Max. (See Table 1)
Ratio of Flammability Limits Upper flammability limit *** Lower flammability limit	 >2.2 for Saturn >2.8 for Centaur and Mars
Stoichiometric Flame Temperature with Air Temperature Equal to Compressor Discharge Temperature at Design Point	>3600°F (1980°C)
Total Particulates	<30 ppmw x (LHV/21500)
Maximum Particle Size	10 micron
Gas Supply Temperature (at inlet flange of package) to ensure no liquid condensation:	The higher of dew point temp + 50°F for natural gas liquids and dew point temp + 20 °F for water up to a limit of 200°F at the fuel skid edge supply pressure. and no lower than -40°F.

*WOBBE Index = Lower Heat Value (use ASTM 3588 or DIN 51850 for individual component heating values) in Btu/Scf divided by the square root of the relative density (specific gravity).

**If carbon monoxide or hydrogen sulfide are present in the fuel gas, precautions must be taken to detect leaks.

***Flammability limits at 1 atm and 25°C as defined by M.G. Zabetakis, US Bureau of Mines Bulletin 627.

Note:

If the required fuel temperature is above ambient air temperature, adequate thermal insulation and heat tracing of fuel lines and fuel control system is required to avoid condensation. If condensates form during shutdown or are otherwise introduced, provisions should be made to drain fuel lines just before start up to ensure that gas fuel condensation is completely eliminated.

8.1.3 GASEOUS FUEL SUPPLY PRESSURE - Fuel supply pressure should be maintained at constant level to minimize wear damage to the fuel control system caused by fluctuating and unstable fuel pressures.

8.2 DISTILLATE FUELS - Distillate fuel shall be a homogeneous mixture of hydrocarbon compounds. The fuel, when received, shall be clear, bright, and free of any haze, as viewed in ordinary light through a clear vessel. Technical requirements shall be as specified in Tables 6 and 7.

8.2.1 DISTILLATE FUEL SUPPLY TEMPERATURE - Distillate fuel supply temperature at turbine package fuel inlet shall be no lower than the temperature at which the viscosity is 12 centistokes or cloud point temperature plus 10°F, whichever is higher. The fuel supply temperature shall not be lower than -65°F, nor higher than +140°F.

8.2.2 DISTILLATE FUELS – The Solar Fuel Suitability Inquiry Form in Appendix D must be completed.

Table 6. Distillate Fuels - Physical Requirements

	Test Method
a. Contaminants	
Solid - The fuel shall contain less than 2.6 mg per liter of sediment, solid or hard contaminants, 90% of the 2.6 mg shall be less than 5 microns in size. Maximum allowable particle size shall be 10 microns.	ASTM D6217 or by use of Millipore microscan contamination detector
Liquid - The fuel shall contain less than 0.25 cc free water per liter (0.025 % by volume) at an ambient temperature of 80°F.	ASTM D6304
b. Kinematic Viscosity*	
The kinematic viscosity of the fuel shall be within the following limits:	
Maximum: 12 centistokes	ASTM D445
Minimum: 1 centistoke, at 100°F	ASTM D445
c. Relative Density (Specific Gravity)	
Relative Density shall be between 0.775 and 0.875.	ASTM D1298 or ASTM D4052
d. Reid Vapor Pressure*	
The vapor pressure of the fuel shall be less than 3 psia.	ASTM D323
e. Cloud Point	
The cloud point shall be at least 10°F below the expected minimum ambient temperature.	ASTM D2500
f. Pour Point	
Pour point shall be at least 10°F below the cloud point Temperature	ASTM D97
g. Lubricity	
The lubricity of the liquid fuel shall meet an HFRR at 60°C 520 micron maximum.	ASTM D6079
*EXCEPTIONS: Naphtha fuels, which have a viscosity of 0.5 to 1.0 centistokes, relative density below 0.775, and vapor pressure above 3 psia will be considered. Use of these fuels will require modification to the standard fuel system.	

Table 7. Distillate Fuels - Chemical Requirements

		Test Method
a.	Flash Point	
	100°F minimum or legal limit	ASTM D93
b.	Distillation	
	90% evaporated 640°F maximum. End point 690°F maximum	ASTM D86
c.	Aromatics	
	35% by volume maximum	ASTM D1319*
d.	Olefins and Diolefins	
	5% by volume maximum	ASTM D1319
e.	Lower Heating Value	
	18,000 Btu/lb. minimum	ASTM D240
f.	Carbon Residue on 10% Distillation Residue	
	0.35% maximum	ASTM D524
g.	Ash	
	0.005% by weight maximum	ASTM D482
h.	Copper Strip Corrosion	
	No. 3 (3 hr at 122°F)	ASTM D130
i.	Fuel Bound Nitrogen	ASTM D4629 or ASTM D5762
Measurement required for liquid emissions guarantees		
*Use ASTM D5186 for fuels having final boiling points over 600°F.		

8.3 NATURAL GAS LIQUID FUELS - Natural gas liquid fuels shall consist primarily of saturated paraffinic hydrocarbons such as ethane, propane, butane, pentane, hexane and heptane either individually or mixtures of some or all of the above. Technical requirements shall be as specified in Table 8.

8.3.1 NATURAL GAS LIQUID SUPPLY TEMPERATURE - Liquid gas supply temperature at the fuel inlet to the package shall be between -65°F and +90°F and shall be in a liquid phase only.

8.3.2 NATURAL GAS LIQUID FUELS - The following information is required to determine the suitability of natural gas liquids:

- Composition on volumetric gases
- Relative density at 60°F
- Vapor pressure at 100°F
- Viscosity at 100°F

8.4 MULTIPLE FUEL SOURCES - If more than 1 fuel source is available, individual fuel analyses of all fuel sources must be submitted to review to ensure proper fuel handling.

8.5 CONCENTRATION OF FUEL BORNE CONTAMINANTS - Fuel borne contaminants constitute only one of several means by which contaminants enter the turbine engine. The minimum fuel quality allowed depends on the quality of the other fluids, such as air, injected water and water carryover (if applicable). In order to assess the impact of fuel borne contaminants on the total concentration present in the engine, the fuel equivalent concentration (FEC) of each fuel borne contaminant can be calculated using the following function.

$$\text{Concentration in fuel, ppmw FEC} = \frac{18380}{\text{LHV}} \times (1\text{-}K) \times F$$

Where: LHV = lower heating value, Btu/lb

K = fuel cleanup (if applicable), expressed as value <1.0
F = concentration in fuel entering combustor, ppmw

8.4.1 CONCENTRATION GUIDELINES FOR FUEL BORNE CONTAMINANTS - In general, contaminants from fuel are expected to contribute less than 10% of the total concentration allowed. Depending on the fuel of application involved and the potential for system upsets, Table 2 serves as an approximate guideline for fuel borne contaminants, recognizing that variations in fluid quality can significantly change the balance implied in this guideline.

9.0 HANDLING AND STORAGE OF DISTILLATE FUELS

9.1 FUEL TEMPERATURE - Fuel should not be stored permanently at ambient temperature above 100°F.

9.2 MAINTENANCE - Fuel should be changed completely or refiltered at least once a year or more frequently, depending on ambient temperatures and contamination experience. Fuel under continuous storage should be cleaned periodically to maintain the contaminant levels below that specified in Table 6a.

9.3 CLEANING - Fuel tanks should be drained, cleaned, flushed, and scoured whenever necessary to control contamination problems.

9.4 STORAGE AND HANDLING EQUIPMENT – The selection of equipment for storage and handling is a crucial part of ensuring that fuel generally conforms to ES 9-98 when it reaches the engine. Cleanup devices will always be required because contamination frequently occurs during transportation. Solar has identified the types of equipment that are required to ensure that liquid fuel being supplied to an engine will be cleaned up to specification. Appendix C lays out the requirements for various liquid fuel applications.

9.5 ADDITIONAL INFORMATION - Refer to ASTM D4418 for more information on handling and storage of fuels.

10.0 NOTES

10.1 SIGNIFICANCE OF LIMITS - Total contaminants should comply with Table 1. The following subparagraphs explain the significance of limits in the specification.

Table 8. Natural Gas Liquid Fuels - Physical and Chemical Requirements

Property	Allowable Limits	Test Method
Composition percent by volume	Report	ASTM D2163
Vapor pressure at 100°F (38°C)	780 psia maximum	ASTM D1267 or ASTM D2598
Relative density at 60°F/60°F (15°C/15°C)	0.37 to 0.68	ASTM D1657 or ASTM D1298
Copper strip	No. 1 maximum	ASTM D1838
Moisture content for fuels with relative density 0.37 to 0.51	Pass	Use one of the methods for moisture content as described in the Commercial Propane Dryness Test, Cobalt Bromide Method or Dew Point Method of the Natural Gas Processors Association Publication 2140
Free water content for fuels with relative density of 0.51 to 0.68	None	ASTM D1657 - The presence or absence of water shall be determined by inspection of the sample on which the relative density is determined
Solid contaminants	Less than 2.6 mg of sediment per liter of fuel 90% of sediment shall be less than 5 microns in size Maximum size of any solid sediment particle shall be less than 10 microns	ASTM D6217
Lower Heating Value	18,000 Btu/lb. Minimum	ASTM D240

10.1.1 SULFUR – Sulfur and sulfur compounds can have an impact on the fuel system life and maintenance, turbine hot section life, exhaust system life and a pollutant emissions signature. The presence of sulfur in the combustor will burn or oxidize to form sulfur dioxide. In the presence of even minute quantities of sodium and potassium in the combustor environment (excess oxygen and high thermal load), sodium and potassium sulfates are readily formed. These salts if condensed onto turbine airfoil surfaces will react with the base metal, resulting in hot corrosion degradation. Gas turbines with waste heat recovery equipment must operate above the sulfuric acid dewpoint, which may require additional sulfur control to prevent cold end corrosion. Additionally, US Federal and certain local air pollution regulations require more restrictive limits on sulfur. Fuel bound sulfur in liquid fuel has been found to promote carbon deposition on hot surfaces of lean premix *SoLoNOx*® injectors leading to the blockage of liquid fuel passages over time. As a result the sulfur content is being limited for *SoLoNOx* liquid fuel

operation and is a function of the frequency and duration of liquid operation. See Appendix C for details.

10.1.1.1 HYDROGEN SULFIDE - Hydrogen sulfide can occur both in natural gas, process and manufactured gases. It is corrosive to some materials such as bronze and brass used in fuel gas systems, the corrosiveness being more severe in the presence of water and at high pressure. If the sulfur exceeds the limit then the fuel system materials must be upgraded. Hydrogen sulfide burns to sulfur dioxide and sulfur trioxide, which results in the corrosion described above. Some manufactured gases also contain organic sulfur compounds, which are corrosive to some control system materials. Since hydrogen sulfide is toxic, if it is present in the gas, precautions must be taken to detect leaks.

10.1.1.2 ELEMENTAL SULFUR DEPOSITION - Aside from H2S, natural gas may contain other sulfur compounds or sulfur vapor that even in very low concentrations (ppbw) can form solid elemental sulfur. In sufficient quantities elemental sulfur can impede operation of fuel valves and gas flow measurement devices on the gas turbine package. However, there are no reliable and practical methods for knowing how much elemental sulfur is contained in a gas, and if and where elemental sulfur deposition will occur. If deposition takes place, the solution is to heat the gas fuel prior to the skid edge. The temperature that the gas must be heated to will depend on the concentration of the sulfur in the gas supply. For standard pipeline gas with low concentrations of total sulfur, fuel heating in the range of 120 to 160°F (50 to 70°C) has proven effective at preventing sulfur deposition.

10.1.2 SODIUM AND POTASSIUM - Sodium and potassium can combine with vanadium to form eutectic, which melts at temperatures as low as 1050°F (566°C) and can combine with sulfur in the fuel to yield sulfates with melting points in the operating range of the gas turbine. These compounds produce severe corrosion in the turbine hot section. Accordingly, the sodium plus potassium level must be limited, but each element must be measured separately. These elements can be removed by water washing and subsequent removal with a centrifuge or electrostatic precipitator.

10.1.3 VANADIUM - Vanadium can form low melting compounds such as vanadium pentoxide which melts at 1275°F (691°C), and alkali metal vanadates which melt as low as 1050°F (566°C) which can cause severe corrosive attack on all of the high temperature alloys in the gas turbine hot section.

10.1.4 MERCURY - Mercury compounds are corrosive to aluminum, copper, lead, and silver; therefore, these materials are to be avoided if mercury is present. Mercury compounds are not known to be corrosive to the hot section of a gas turbine. Mercury in the exhaust of the turbine must be limited to comply with local regulations.

10.1.5 LEAD - Lead can cause corrosion and in addition, it can spoil the beneficial effect of magnesium additives on vanadium corrosion. Since lead is rarely found in significant quantities in crude oils, its appearance in fuel oils is primarily the result of contamination during processing or transportation.

10.1.6 FLUORINE AND CHLORINE - Halides such as fluorine and chlorine as well as alkali/mixed halides and alkali sulfates can attack the protective oxide scale on hot turbine components, thus accelerating the rate of oxidation.

10.1.7 CALCIUM AND MAGNESIUM - Calcium and magnesium are not harmful from a corrosion standpoint; in fact, it serves to inhibit the corrosive action of vanadium. However, calcium can produce hard bonded deposits that are not self-spalling when the gas turbine is shut down. These hard bonded deposits are not readily removed by water washing of the turbine (Ref. ES 9-62). The fuel washing systems used to reduce the sodium and potassium levels will also reduce calcium levels.

10.1.8 SILICON - Siloxanes in fuel gas is known to result in silicon-based deposition in the gas turbine flow path that can cause damage, high rates of performance degradation, and higher overhaul costs. The rate of deposition is a function of the type and quantity of silicon-based material contained in the fuel, and is thus produced from the combustion process. As such damage and performance loss is preventable only by control of siloxane levels in the fuel, such damage is not covered by Solar's warranty. It is, therefore, the customer's responsibility to monitor and minimize as appropriate siloxane content through the use of a reliable siloxane removal system.

Based on engine operating experience to date, Solar considers that limiting the amount of silicon, as measured by the Jet-Care SiTest method, to no more than 5 mg Si/nm^3 CH_4 for the Mercury 50™ and 10 mg Si/nm^3 CH_4 for all other turbines should result in target time between overhaul with normal performance degradation.

Contact Solar Turbines for recommendations on Balance of Plant equipment to remove or reduce the contaminants to tolerable levels for gas turbine operation.

10.1.9 OTHER TRACE METALS - Oxides of other trace metals with or without other impurities can be deposited on blades and vanes forming extremely hard and difficult-to-remove deposits. The presence of these oxides will also increase the rate of oxidation of blade and vane alloys at high temperatures.

10.1.10 PARTICULATES IN AIR - Inert particulates in the turbine inlet air cause erosion and/or fouling of the compressor section. By limiting the size of the particulates, erosion is minimized. Contamination of the compressor blading is caused by smaller particulates. Factors such as humidity, presence of oil or soot and dust particle composition affects the rate of fouling.

10.1.11 SOLIDS IN WATER - Inert solid particles in water can cause wear and plugging of control components and fuel injectors. Malfunctions of the control system and damage to the combustor and turbine section would be the result.

10.1.12 pH OF WATER - The pH of water is limited from slightly acidic to slightly basic. Strong bases or acids would attack various components in the water control and injection system.

10.1.13 FUEL GAS VOLUME RATIO - The fuel gas volume ratio is an indication of the capability of the fuel control to properly schedule the fuel flow. If this ratio is within the specified limits, the standard system without modifications can be used. Ratios with values up to 2 can be handled with minor modifications to the fuel injection system. If the ratio is between 2 and 4, the modifications are substantial and if the ratio is above 4, a redesign of the combustor is required.

10.1.14 FUEL GAS MASS RATIO - The fuel gas mass ratio is an indication of the effects of the fuel mass flow on the performance and matching of the turbine. Ratios up to 5 are acceptable without modification. If the ratio is between 5 and 10 then a fuel meeting the standard requirements must be used for start and acceleration to avoid compressor surge. If the ratio is above 10, extensive turbine redesign is required to accommodate larger turbine mass flow.

10.1.15 HYDROGEN AND CARBON MONOXIDE IN GAS - The presence of hydrogen and/or carbon monoxide in the fuel gas above the specified levels can cause safety and materials problems. If hydrogen level is above 4% by volume, a review of the fuel system materials for hydrogen embrittlement is required. If hydrogen level is between 4 and 9% or carbon monoxide level is between 12.5 and 18%, then a specially sequenced start and purge system must be used. At hydrogen levels above 9% or carbon monoxide level is between 12.5 and 18%, then a specially sequenced start and purge system must be used. At hydrogen levels above 9% or carbon monoxide levels above 18%, starts and accelerations must be made on a standard fuel with transfer to the hydrogen or carbon monoxide bearing fuel at idle or above. If hydrogen level is above 4% or carbon monoxide is above 12.5%, special safety provisions must be taken such as detectors in the package, separation of the engine and generator compartments, and leak-free piping joints. Since carbon monoxide is toxic, if it is present in the fuel gas, precautions must be taken to detect leaks.

10.1.16 FLAMMABILITY - The ratio of the upper-to-lower flammability limits is an indication of whether the gas will allow engine starting and adequate range of operation, in particular on single shaft generator sets.

10.1.17 FLAME TEMPERATURE - The adiabatic flame temperature of gas fuels is used to determine its suitability. If the value is below the limit, major combustion system modifications and/or changes to operating procedures may be required.

10.1.18 PARTICULATES IN GAS - Solid particles in gas can cause wear and plugging of control components and fuel injectors. Malfunctions of the control system and damage to the combustor and turbine section would be the result.

10.1.19 FUEL SUPPLY TEMPERATURE - For gas fuels there are two considerations: one is the dew point. The fuel must be supplied at the inlet flange to the package, 50°F above the dew point to ensure that no liquids can enter the fuel control and injection system. Liquids in a gas system cause malfunction and serious thermal damage to the engine if liquid is injected with the gas into the engine. The other consideration is the thermal capability of the materials in the control system.

For distillate fuels, the temperature must be above the cloud point to prevent plugging of the filters and control components. It must also be above the temperature that corresponds to a viscosity of 12 centistokes to ensure satisfactory atomization required for starting performance. The range of allowable temperatures is determined by the thermal capabilities of the materials in the control system.

For natural gas liquid fuels, the allowable temperature range is determined by the control system materials and the critical point of the lightest fuel. This latter constraint is to limit the vapor pressure on the fuel.

10.1.20 VISCOSITY - Viscosity of a fluid is a measure of its resistance to flow. In distillate fuel it is highly significant since it indicates both the relative ease with which the fuel will flow or may be pumped and a measure of atomization by the fuel injectors. Minimum viscosity is limited because standard fuel pumps will not perform satisfactorily if viscosity reaches too low a value. Maximum viscosity is limited since too high a viscosity can cause excessive pressure losses in the piping system and poor fuel atomization.

10.1.21 RELATIVE DENSITY OF DISTILLATE - Relative density alone is of no significance as an indication of the burning characteristics of fuel oil. However, when used in conjunction with other properties, it is of value in weight-volume relationships and in calculating the heating value of the fuel.

10.1.22 REID VAPOR PRESSURE - The Reid vapor pressure is a criterion of freedom from foaming and fuel slugging due to vaporization of the fuel. Special fuel systems are required if the Reid vapor pressure is above the specified level.

10.1.23 CLOUD AND POUR POINTS - Cloud point is the temperature at which a cloud or haze of wax crystals appears. Operation at temperatures below the cloud point causes plugging of filters. Pour point is an indication of the lowest temperature at which a fuel can be stored and still be capable of flowing under gravitational forces. The cloud and pour points are prescribed in accordance with the conditions of storage and use. Heated tanks and lines may be required where ambient temperature is below the cloud and pour points of the proposed fuels.

10.1.24 FLASH POINT - Flash point is an indication of the maximum temperature at which a fuel can be stored and handled without serious fire hazard. The minimum permissible flash point is usually regulated by Federal, State, or Municipal laws and is based on accepted practices in handling and use.

10.1.25 DISTILLATION - The distillation test indicates the volatility of a fuel and the ease with which it can be vaporized and burned. It also indicates the possibility of carbon deposition and smoke formation.

10.1.26 AROMATICS AND OLEFINS - Combustion of highly aromatic fuels can result in increased smoke. Carbon or soot deposition and increased combustor metal temperature resulting in exhaust particulate emissions, opacity violations, and reduced engine life.

Use of fuels with excessive olefin content can result in decomposition of the fuel, which causes plugging of fuel system components including the fuel injectors.

10.1.27 LOWER HEATING VALUE (LHV) - The lower heating value is used to calculate actual fuel consumption. Also, if the value for distillate fuels is below the limit, it is an indication of a heavy fuel, which may have other properties exceed in the limits.

10.1.28 CARBON RESIDUE - Carbon residue is a measure of the carbonaceous material left in a fuel after all the volatile components are vaporized in the absence of air. It is a rough approximation of the tendency of a fuel to form carbon deposits in the combustion system of the gas turbine.

10.1.29 ASH - Ash is the noncombustible material in a fuel. Ash-forming materials may be present in fuel in two forms: (1) solid inert particles and (2) oil or water-soluble metallic compounds. The solid particles are for the most part the same material that is designated as sediment in the water and sediment test. Depending on their size, these particles contribute to wear in the fuel system and to plugging of fuel filter and fuel injectors. The soluble metallic compounds have little or no effect on wear or plugging, but may contain elements that produce hot section corrosion and deposits as described above.

10.1.30 COPPER STRIP CORROSION - This test provides an indication of possible corrosive attack of non-ferrous metals such as copper, brass, and bronze.

10.1.31 WATER AND SEDIMENT IN DISTILLATES - Appreciable amounts of water and sediment in fuel tend to cause fouling of the fuel-handling facilities and to give trouble in the fuel system of the turbine. An accumulation of sediment in storage tanks and on filter screens may obstruct the flow of fuel from the tank to the package. Water in distillate fuels may cause corrosion of tanks and equipment. Water in the fuel also provides a place for microbiological growths to occur. These growths can plug filters and screens and can promote corrosion of fuel tanks.

10.1.32 COMBUSTIBLES IN AIR - If combustibles are ingested into the engine inlet, the hydrocarbon and carbon monoxide levels in the exhaust will be increased assuming none of the combustibles complete combustion.

10.1.33 FUEL BOUND NITROGEN - Fuel Bound Nitrogen (FBN) found in distillate fuels causes NOx in the exhaust to increase. In order to offer liquid emissions guarantee, FBN must be determined by fuel analysis.

10.1.34 LUBRICITY - Low sulfur diesels tend to have a reduced lubricity and that could affect the life and reliability of the fuel pumps. The processes used to remove the sulfur from fuel also remove the natural occurring lubricity compounds in the fuel. Special fuel pumps are required when fuels do not meet the requirement listed in Table 6.

APPENDIX A

TOTAL SITE CONTAMINATION WORKSHEET
FORM 3091

(Blank form and Sample Calculation)

Solar Turbines
A Caterpillar Company

TOTAL SITE CONTAMINATION WORKSHEET

INQUIRY NO.			Q.R. NO./S.O. NO.
CUSTOMER		DATE ISSUED	DATE REQUIRED
ENGINE MODEL	FUEL	FREQUENCY OF STARTS	RUNNING TIME PER START
EQUIPMENT LOCATION		LOAD CONDITIONS ☐HIGH ☐LOW ☐STEADY ☐CYCLIC	
ALTITUDE FEET	AMBIENT TEMPERATURE RANGE °F MAXIMUM;	°F MINIMUM	AVERAGE HUMIDITY %

INSTRUCTIONS - Enter best known values. Explanations and helpful information are provided on the reverse side. Perform calculations as indicated to obtain total site contamination for each (or all) species of interest.

EVAPORATIVE COOLER ☐YES ☐NO WATER INJECTION ☐YES ☐NO

		Concentrations, ppmw	Na + K	S	F	V	Pb	Ca + Mg
	1	Ambient Air, ppmw						
	2	Fuel, ppmw						
	3	Injected Water, ppmw						
	4	Evaporative cooling water, ppmw						
	5	LHV, Btu/#						
	6	Compute: 18,380/[5]						
Air	7	Air-to-Fuel Ratio						
	8	1 - N (Correction Factor)						
	9	Compute: [1] x [6] x [7] x [8], ppmw FEC						
Fuel	10	1 - K (Fuel Factor)						
	11	Compute: [2] x [6] x [10], ppmw FEC						
Water	12	Water-to-fuel Ratio						
	13	Compute: [3] x [6] x [12], ppmw FEC						
Evaporative Cooling	14	E.C. Carryover Rate, GPM						
	15	1 - E (Mist eliminator Factor)						
	16	Fuel Flow rate, million Btu/hr						
	17	Compute: $\frac{[4]x[5]x[6]x[14]x[15]x5x10^{-4}}{[16]}$ ppmw FEC						
	18	Total Contaminants, ppmw FEC [9] + [11] + [13] + [17]						
	19	Max. Allowable Limits, ppmw FEC per ES 9-98	0.5	10,000	1	0.5	1	2

COMMENTS:

PREPARED BY: _____ DATE: _____

Row #	Term Explanation	Typical Values
1	Concentration of contaminant in ambient air, expressed as ppmw in air	Unless available for site of interest, select most appropriate value for S and Na+K from ranges given below. All other contaminants are assumed to be zero unless specifically known to be present.

S(ppmw)		Na+K(ppmw)	
.0.001	Moderately clean	>0.001	Arctic
0.050-0.007	City	>0.010	Agricultural/Residential
.0.100	Industrial	0.003-0.010	Industrial
>0.100	Processing/Chemical Plant	0.007-0.260	Coastal (less than 1 mile)
		0.010-0.136	Desert
		0.010-3.600	Offshore platform

2	Concentration of contaminant in fuel supply expressed as ppmw in fuel	For gas fuels, and residual liquid water from processing can be very high in dissolved salts. If possible, analyses of trace water present in gas fuel is the best method for obtaining reliable data. For liquid fuels, direct measurement for contaminants is recommended. Some APPROXIMATE values for S and Na+K are provided here:

S(ppmw)	Na+K(ppmw)	
1,000	.0.1	pipeline gas
>10,000	>3.0	process gas
>10,000	>3.0	biomass gas
>10,000	>1.0	distillate liquid fuel

3	Concentration of contaminant in injected water, expressed as ppmw in water	Contaminants in treated water at entry into combustor should be known, either based on actual water analyses or equipment specifications (auto shut down limit).
4	Concentration of contaminant in water delivered to header of evaporative cooler, expressed as ppmw	Contaminants in reservoir (for recirculating systems) or feedwater (for non-recirculating systems) should be known, either based on actual water analyses or equipment specifications.
5	Lower heating value, expressed as 10^6 But/hr	Available from fuel analysis report.
6	FUEL LHV ADJUSTMENT FACTOR USING 18,380 BTU/# AS REFERENCE FUEL PER ES 9-98.	
7	Air-to-fuel ratio	Use actual value -generated by FASTE run at site specific conditions with project fuel.

Otherwise:	Multiply by	LHV Btu/pound
60.04 for *Mars* 100		20,000
60.05 64.08 for *Mars* 90		
71.58 for *Centaur* 40		
58.07 for *Centaur* 50		
62.94 for *Saturn* 20		
60.61 for *Mercury* 50		
57.21 for *Taurus* 60		
57.21 for *Taurus* 70		
57.74 for *Titan* 130		

8	Correction factor for air cleanup system, N	Use N = 0.99
9	CONTAMINANTS FOUND IN AIR ENTERING ENGINE, [1] x [6] x [7] x [8], PPMW, FUEL EQUIVALENT CONCENTRATION	
10	Fuel factor to account for fuel cleanup system, K	Use K = 0.95 unless instructed otherwise. If no fuel treatment is applicable between supply and engine, use 0 here.
11	CONTAMINANTS FOUND IN FUEL ENTERING ENGINE, [2] x [6] x [10], PPMW, FUEL EQUIVALENT CONCENTRATION	
12	Water-to-fuel ratio	Use actual value. Range is typically from 0.5 to 1.0.
13	CONTAMINANTS FOUND IN INJECTED WATER, [3] X [6] X [12], PPMW, FUEL EQUIVALENT CONCENTRATION	

Row #	Term Explanation	Typical Values
14	Rate of liquid water carried off the evaporation cooler (carryover) into air steam, expressed as gallons per minute	It is expected that during the duty cycle of the engine, liquid water can accidentally enter the air steam. Use the following values unless otherwise instructed by Package Engineering. 2.8 GPM for *Titan*130 1.7 GPM for *Mars* 1.5 GPM for *Taurus* 70 1.3 GPM for *Taurus* 60 0.9 GPM for Centaur 40 and 50, *Mercury* 50 0.5 GPM for *Saturn*
15	Adjustment factor for mist eliminator if applicable, E	Mist eliminators are required for evaporative cooler installations. Use the following values unless otherwise instructed. No mist eliminator — E = 0 All non-vane type mist eliminators — As indicated by manufacturer of mist eliminator. Vane type mist eliminator — E > 0.95
16	Fuel flow rate expressed in million Btu per hour	Conversion from million Btu/hour to pounds per sec of fuel flow is included in the expression in the final expression in [17].
17	CONTAMINANT FOUND IN WATER CARRYOVER FROM EVAPORATIVE COOLER, IF USED $\frac{[4] \times [5] \times [6] \times [14] \times [15] \times 5 \times 10^{-4}}{[16]}$ PPMW, FUEL EQUIVALENT CONCENTRATION.	
18	TOTAL CONTAMINANT FROM ALL SOURCES, [9] + [11] + [13] + [17], PPMW, FUEL EQUIVALENT CONCENTRATION.	
19	MAXIMUM ALLOWABLE LIMITS FOR EACH CONTAMINANT PER ES 9-98, PPMW, FUEL EQUIVALENT CONCENTRATION	

TOTAL SITE CONTAMINATION WORKSHEET

INQUIRY NO.			Q.R. NO./S.O. NO.
CUSTOMER: **EXAMPLE**		DATE ISSUED	DATE REQUIRED
ENGINE MODEL: **CENTAUR T4000**	FUEL: **Diesel**	FREQUENCY OF STARTS: **Monthly**	RUNNING TIME PER START: **500 hours**
EQUIPMENT LOCATION: **San Diego, California**	LOAD CONDITIONS: ☐HIGH ☐LOW ☐STEADY ☐CYCLIC		
ALTITUDE: 100 FEET	AMBIENT TEMPERATURE RANGE: 90°F MAXIMUM; 40°F MINIMUM		AVERAGE HUMIDITY: 50% RH

INSTRUCTIONS - Enter best known values. Explanations and helpful information are provided on the reverse side. Perform calculations as indicated to obtain total site contamination for each (or all) species of interest.

EVAPORATIVE COOLER ☐NO WATER INJECTION ☐YES ☐NO

		Concentrations, ppmw	Na + K	S	V	Pb	F	Ca + Mg
	1	Ambient Air, ppmw	0.03	20	0	0	0	0
	2	Fuel, ppmw	0.1	500	0.05	0	0	0
	3	Injected Water, ppmw	0.2	0.1	0	0	0	0
	4	Evaporative cooling water, ppmw	10	100	0	0	0	0
	5	LHV, Btu/#	20,100					
	6	Compute: 18,380/[5]	0.914					
Air	7	Air-to-Fuel Ratio	68					
Air	8	1 - N (Correction Factor)	0.01					
Air	9	Compute: [1] x [6] x [7] x [8], ppmw FEC	0.019	12.4	0	0	0	0
Fuel	10	1 - K (Fuel Factor)	1.0	1.0	1.0	1.0	1.0	1.0
Fuel	11	Compute: [2] x [6] x [10], ppmw FEC	0.09	457	0.04	0	0	0
Water	12	Water-to-fuel Ratio	0.8					
Water	13	Compute: [3] x [6] x [12], ppmw FEC	0.15	0.08	0	0	0	0
Evaporative Cooling	14	E.C. Carryover Rate, GPM	0.9					
Evaporative Cooling	15	1 - E (Mist eliminator Factor)	0.05					
Evaporative Cooling	16	Fuel Flow rate, million Btu/hr	40					
Evaporative Cooling	17	Compute: $\frac{[4]x[5]x[6]x[14]x[15]x5x10^{-4}}{[16]}$ ppmw FEC	0.10	1.4	0	0	0	0
	18	Total Contaminants, ppmw FEC [9] + [11] + [13] + [17]	0.36	471	0.04	0	0	0
	19	Max. Allowable Limits, ppmw FEC, per ES 9-98	0.5	10,000	0.5	1	1	2

COMMENTS

PREPARED BY: _____ DATE: _____

APPENDIX B

DERIVATION OF TOTAL FUEL EQUIVALENT CONCENTRATION EQUATION FOR UNDESIRABLE CONTAMINANTS

The expression given in paragraph 3.1.3 for directly fired applications is derived from first principles in section 1. Section 2 explains the incorporation of system efficiencies into this fundamental expression and its use in the Total Site Contamination Worksheet, Form, 3091, with the appropriate unit conversions.

B1.0 Derivation of Fundamental Expression for Total Fuel Equivalent Concentration (For Directly Fired Applications Only)

Solar's air, fuel, and water specification is based on FUEL EQUIVALENT CONCENTRATIONS, i.e., the concentration of a given contaminant as if that given contaminant were present in the fuel alone, with the fuel having a LHV of 18,380 Btu/lb or 10,212 kcal/kg.

Nomenclature used in the derivation is given in Table B-1.

Table B-1. Nomenclature for Fuel Equivalent Derivation

Input Steam to Gas Turbine	Mass Flow Rate	Concentration of i^{th} Contaminant	Mass Flow Ratios of Each Steam or Fuel
Reference Fuel	r	R_i	1
Fuel	f	F_i	1
Air	a	A_i	a/f or (AFR)
Water	w	W_i	w/f or (WFR)
Steam	s	S_i	s/f or (SFR)
Carryover	c	C_i	c/f or (CFR)

(LHV) = lower heating of a given fuel, Btu/lb
i = Na, K, V, Pb, etc.
T_i = Fuel equivalent for the reference fuel which has a lower heating value of 18,380 Btu/lb (10,212 kcal/kg)

The mass flow of the i^{th} contaminant in the combustion products burning the reference fuel is:

$$rR_i + aA_i + wW_i + sS_i + cC_i \quad (1)$$

The total mass flow of the combustion product is:

$$r + a + w + s + c \quad (2)$$

The concentration of the i^{th} contaminant in the combustion products is:

$$\frac{rR_i + aA_i + wW_i + sS_i + cC_i}{r + a + w + s + c} \quad (3)$$

Next suppose that the total mass flow of the i^{th} contaminant in the combustion products came from the reference fuel alone. Let T_i equal the reference fuel equivalent concentration of the i^{th} contaminant. Then, the concentration of the i^{th} contaminant in the combustion products, the environment of the hot section components, would be:

$$\frac{rT_i}{r + a + w + s + c} \tag{4}$$

Equating Eq. (3) with Eq. (4) and dividing through r gives:

$$T_i = R_i + (a/r)\,A_i + (w/r)\,W_i + (s/r)\,S_i + (c/r)\,C_i \tag{5}$$

In order to have an expression that gives the Fuel Equivalent, T_i, for the cases where a fuel, f, of any heating value (LHV) are used, Eq. (5) must be modified. It is required that, regardless of the LHV of either fuel, the flow of each fuel be such that the same thermal input is provided to the engine. Therefore,

$$r\,(18{,}380\ \text{Btu/lb}) = f\,(\text{LHV}) \tag{6}$$

or

$$r = \frac{f\,(\text{LHV})}{18{,}380\ \text{Btu/lb}}$$

In addition, it is required for the same T_i that the contribution of the contaminant to the total from either fuel r of fuel f be the same.

$$rR_i = fF_i \tag{7}$$

Combining Eq. (6) and Eq. (7) gives:

$$R_i = \frac{18{,}380}{(\text{LHV})}\,F_i \tag{8}$$

Substituting Eq. (6) and Eq. (8) into Eq. (5) gives:

$$T_i = \frac{18{,}380}{(\text{LHV})}\,F_i + \frac{a}{f(\text{LHV}/18{,}380)}\,A_i + \frac{w}{f(\text{LHV}/18{,}380)}\,W_i + \frac{s}{f(\text{LHV}/18{,}380)}\,S_i + \frac{c}{f(\text{LHV}/18{,}380)}\,C_i \tag{9}$$

Finally, rearranging and substituting the nomenclature in the fourth column of Table B-1 gives:

$$T_i = \frac{18{,}380}{(\text{LHV})}\,[F_i + (\text{AFR})A_i + (\text{WFR})W_i + (\text{SFR})S_i + (\text{CFR})C_i] \tag{10}$$

B2.0 Derivation of Expression Used in Form 3091

Taking Eq. (10) and assigning units to the variables result in the following definition of terms. (The steam term is dropped from the basic expression because it is currently not applicable to *Solar* engines.)

$$T_i = \frac{18{,}380}{(LHV)} [F_i + (AFR)A_i + (WFR)W_i + (SFR)S_i + (CFR)C_i]$$

where

T_i = fuel equivalent concentration of contaminant i, in ppmw

LHV = lower heating value of fuel, in Btu/lb

F_i = concentration of contaminant i in fuel entering combustor, in ppmw

AFR = air-to-fuel mass ratio

A_i = concentration of contaminant i in air entering compressor, in ppmw

WFR = water-to-fuel mass ratio

W_i = concentration of contaminant i in water injected into combustor, in ppmw

CFR = carryover water-to-fuel mass ratio

C_i = concentration of contaminant i in carryover water (same as evaporation cooler feedwater), in ppmw

Examining each term in greater detail:

Fuel Term: F_i

Let K = overall efficiency rating for fuel cleanup system

Adjusted fuel term = $F_i (1 - K)$ (11)

Air Term: $(AFR)A_i$

A_i is concentration air entering compressor

$$A_i = (1 - N)A_i^{amb}$$

where N = efficiency of air filter

A_i^{amb} = concentration of contaminant i in ambient air, in ppmw

Adjusted air term = $(AFR)(1 - N)A_i^{amb}$ (12)

Water Term: $(WFR)W_i$

W_i is concentration in water injected into combustor, ALSO THE SET POINT FOR AUTOMATIC SHUTDOWN

Carryover Term: $(CFR)C_i$

Let water carryover rate = R gal/min x 8.337 lb/gal

$$= 8.337\ R\ lb/min$$

Let fuel flow rate = f MBtu/hr

$$f\ \frac{MBtu}{hr} \times \frac{1\ hr}{60\ min.} \times \frac{lb}{LHV\ Btu} \times \frac{10^6\ Btu}{MBtu} = \frac{16{,}700f\ lb/min}{LHV}$$

Let E = efficiency of mist eliminator

Carryover rate = (1 - E) (8.337R) lb/min

$$CFR = \frac{8.337R\ (LHV)\ (1 - E)}{16{,}700f}$$

$$= 4.99 \times 10^4 R\ (LHV)\ (1 - E)/f \qquad (13)$$

Substitute in Equation (10),

$$T_i = \frac{18{,}380}{LHV}\ [F_i\ (1 - K) + (AFR)\ (1 - N)A_i^{amb} + (WFR)W_i$$

$$+ \left[\frac{4.99 \times 10^{-4} R\ (LHV)\ (1 - E)}{f}\right]\ C_i] \qquad (14)$$

or

$$T_i = \frac{(18{,}380)}{LHV}\ (1 - K)F_i + \frac{(18{,}380)}{LHV}\ (AFR)\ (1 - N)A_i^{amb}$$

$$+ \frac{(18{,}380)}{LHV}\ (WFR)W_i + \frac{(18{,}380)}{LHV}\ (5 \times 10^{-4})R\ (LHV)\ (1 - E)\ \frac{C_i}{f} \qquad (15)$$

where $\frac{(18{,}380)}{LHV}\ (1 - K)F_i$ = fuel equivalent concentration of i^{th} contaminant in fuel, ppmw

$\frac{(18{,}380)}{LHV}\ (AFR)\ (1 - N)A_i^{amb}$ = fuel equivalent concentration of i^{th} contaminant in air, ppmw

$\frac{(18{,}380)}{LHV}\ (WFR)W_i$ = fuel equivalent concentration of i^{th} contaminant in injected water, ppmw

$\frac{(18{,}380)}{LHV}\ (5 \times 10^{-4})R\ (LHV)\ (1 - E)\ \frac{C_i}{f}$ = fuel equivalent concentration of i^{th} contaminant in evaporation cooler feedwater, ppmw

T_i = sum of fuel equivalent concentration of i^{th} contaminant from all sources, ppmw

Equation (15) is used in Form 3091.

APPENDIX C

LIQUID FUEL HANDLING AND STORAGE REQUIREMENTS

C.1 LIQUID FUEL STORAGE AND HANDLING SYSTEM SELECTION

The following section details the configuration required for liquid fuel handling and storage systems for Solar gas turbines operating in Dual Fuel or Liquid Fuel only configurations. Refined quality liquid fuel may be contaminated during transportation or storage and it is important to provide auxiliary fuel cleaning systems to maintain or restore fuel quality prior to delivery to the gas turbine package.

A complete fuel composition analysis for the liquid fuel should be submitted at time of equipment quotation so that verification of compliance can be confirmed and requirements or recommendations for package modifications to ensure proper operation and turbine durability. This verification also applies to liquid fuel that is to be used at a preliminary package pre-commissioning phase, typically at a shipyard or fabrication yard. Even temporary operation with non-compliant fuel can be detrimental to the durability of a gas turbine.

The selection of liquid fuel storage, handling and treatment systems is a function of the site location and expected liquid fuel operation per year with site qualification as follows:

Inland	10 miles (16 km) away from an ocean or body of salt water. Fuel supply, transportation and handling systems are generally of high quality.
Coastal	Near shore of body of salt water where salt air is present. Fuel supply is not barged or transported by sea, otherwise treat as Marine.
Marine/ Offshore	Offshore fixed or floating platforms as well as land based installations near a body of salt water. Fuel supply is delivered via sea transport or where fuel quality is a concern.

Table C.1 Liquid Fuel Handling, Storage and Treatment Requirements

Liquid or Dual Fuel - Conventional or SoLoNOx (Hours of Operation on Liquid Fuel)			
Installation	**Inland**	**Coastal**	**Marine / Offshore**
Fuel Storage Tank with Central Sump and Floating Suction **See C.2.1**	Required	Required	Required
Dual in-line Filter/Coalescer System **See C.2.2**	Recommended Operation Up to 1,000 hrs/yr	Required Operation Up to 1,000 hrs/yr	Option Not Available
Buffer Tank and Centrifuge System **See C.2.3**	Required Operation 1,000 – 4,000 hrs/yr	Required Operation 1,000 – 4,000 hrs/yr	Required Operation Up to 1,000 hrs/yr
Buffer Tank and Dual Centrifuge System **See C.2.4**	Required Operation over 4,000 hrs/yr	Required Operation over 4,000 hrs/yr	Required Operation Over 1,000 hrs/yr
Monitoring System Comprised of a Duplex Filter for Detecting Solid Contamination **See C.2.5**	Required (Unless C.2.2 is Selected)	Required (Unless C.2.2 is Selected)	Required
Exceptions to these requirements are subject to review and approval by Solar Turbines engineering departments.			

C.2 FUEL STORAGE AND HANDLING REQUIREMENTS

This section describes the fuel handling and treatment equipment specified in Table C.1, along with critical procedures that need to be followed. Three basic fuel handling and storage systems options with varying levels of complexity to meet the requirements defined in Table C1.

C.2.1 FUEL STORAGE TANK WITH CENTRAL SUMP AND FLOATING SUCTION PIPE

Fuel storage facilities must consist of one or several main storage tanks and/or holding tanks with floating suction pipes, sloping bottoms with a drain at the low point to remove water and sediment, and special inlet distributors, such as a velocity diffuser, to minimize sediment disturbance (Figure C.1). Copper-bearing steel or black iron are acceptable for storage tanks and interconnect pipes. Coatings should be insoluble in and non-reactive with the fuel. Galvanized or cadmium plated fittings or other components must be avoided.

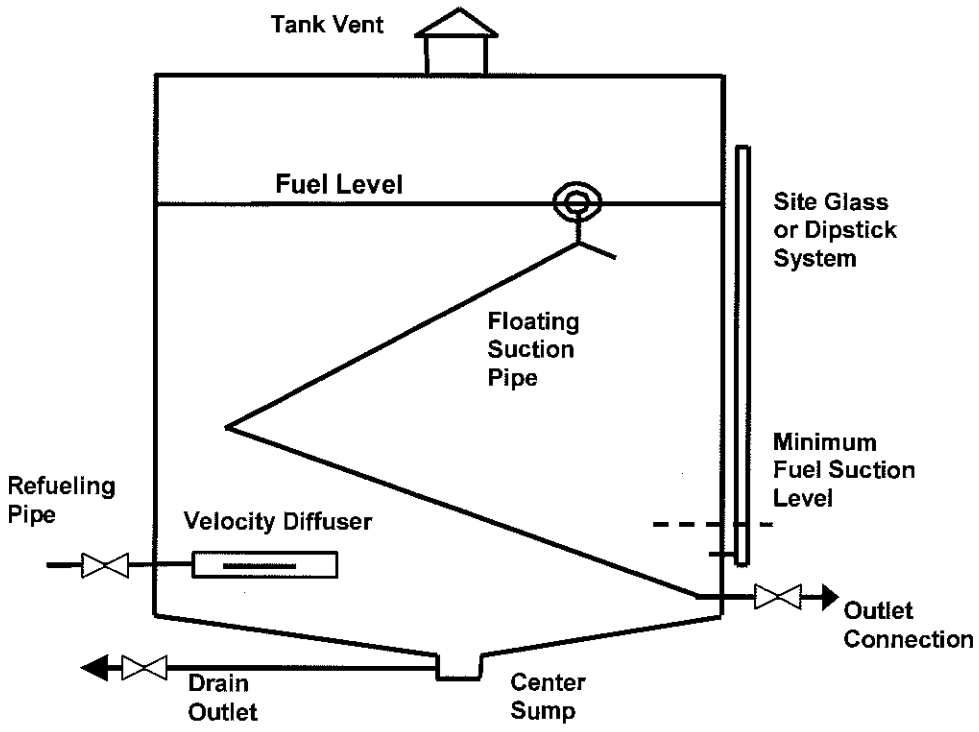


Figure C.1 Schematic of Main Gas Turbine Liquid Fuel Storage Tank

C.2.1.1 FUEL STORAGE TANK HANDLING PROCEDURES

1. Fuel should be clean and conform to Solar's fuel specification, ES 9-98, when the fuel arrives at the site. Gas turbine liquid fuels are often contaminated with leaded gasoline or salty ballast water in the shipping tanks during transportation. Simple tests can be carried out to check for such contamination.
2. Clean truck or barge unloading equipment and hoses from road dust and water before each use. Always keep unloading equipment covered and shipping tanks closed when not in use.
3. Fuel delivery must be monitored by the operator to ensure that contaminants are not introduced in to the tank(s).
4. The fuel cloud point must be suitable for the conditions under which the fuel is to be stored. This may require a heated tank or lines.
5. Frequently drain storage tanks to remove sediment and water.
6. Fuel in the main storage tanks must not be sent directly to the gas turbine package without centrifuging or filtering first.

C.2.2 TWIN FILTER/WATER COALESCER SYSTEM - WHEN CENTRIFUGE IS NOT REQUIRED

Figure C.2 shows a twin filter / water coalescer system. This will typically be specified on such projects where a centrifuge system is not required. The Filter / Coalescer systems are designed to remove water and solids from liquid fuels and positioned in the fuel supply line to the gas turbine package. Water can be automatically drained but solids filters may have to be changed on a regular basis. Two suitably sized units set up in parallel will allow the filters to be changed out without shutting down the engine when the ΔP across the filter becomes too high. Each unit will require a 5-micron filter for solid particles. A ΔP monitor with alarm and shutdown limits should be included to ensure that the filter does not collapse in the event of upstream system failure. A water level gauge will also be required to activate the automatic drain and actuate alarms in the event of drain malfunction.

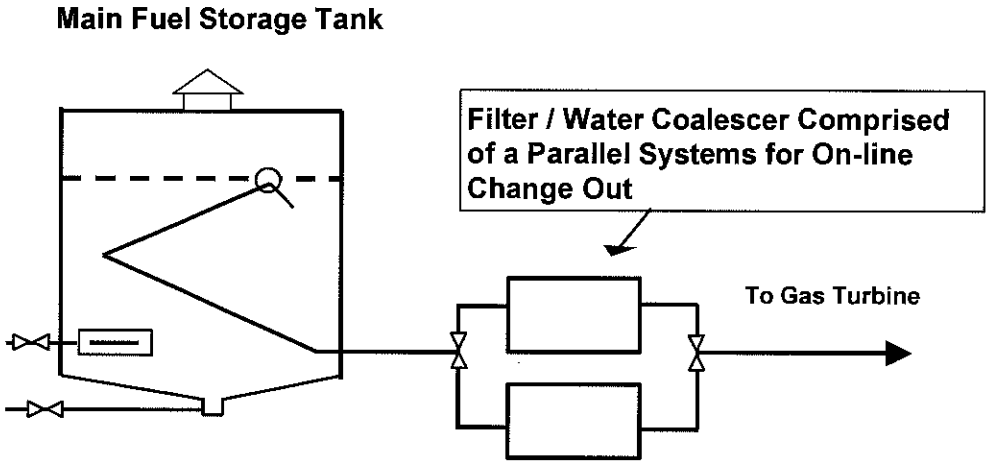


Figure C.2 On line Filter/Coalescer System for Applications not Requiring a Centrifuge Cleaning System

C.2.3 SINGLE CENTRIFUGE AND STORAGE TANK SYSTEM

Figure C.3 shows a single centrifuge and tank storage system for applications where the buffer tank contents are sufficient to cover a complete liquid running period without refilling. The storage tank should be sized to cover the longest single period of liquid operation anticipated. Filling can be from another storage tank, road tanker, or barge.

In this scenario, the centrifuge would be used to clean the fuel after delivery has been made, and then periodically thereafter on a regular basis to remove accumulating moisture and sediment dropping out of the fuel as it sits.

Centrifuges with water scrubbing capability are essential on sites (typically coastal or offshore), where significant contamination is expected.

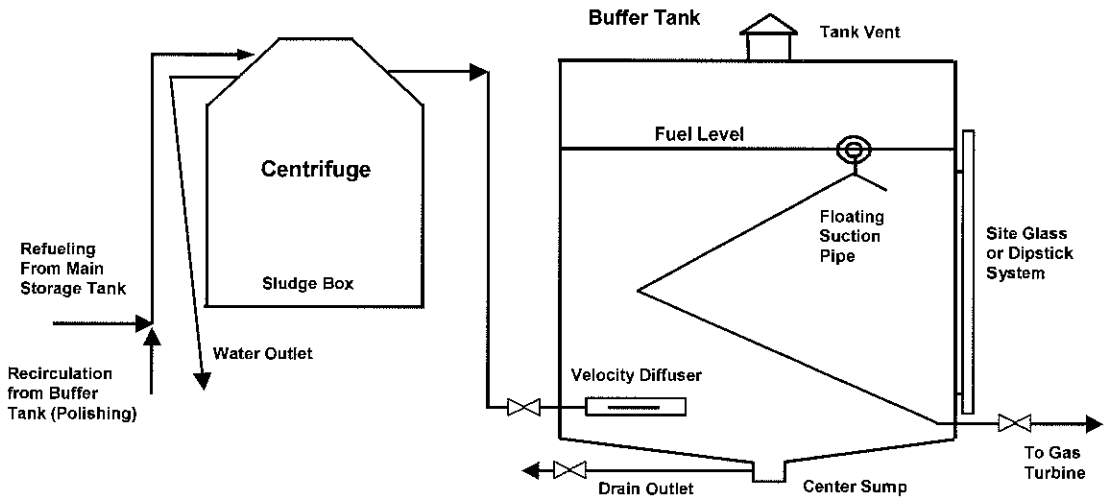


Figure C.3 Single Centrifuge and Storage Tank

C.2.3.1 FUEL BUFFER TANK AND CENTRIFUGE HANDLING PROCEDURES

1. Never "agitate" the fuel. Fuel in a buffer tank should be allowed to settle without being disturbed for at least eight hours before being used as turbine fuel.
2. Tank filling and fuel recirculation through the centrifuge should not be done when the tank is being used to supply a turbine.
3. Periodically remove fuel from the lower end of the holding tank and clean tanks by returning this fuel to the main storage tank(s) via centrifuges. This recirculation minimizes the accumulation of dirt and contaminants in the clean tanks.
4. Centrifuges should be cleaned out per manufacturers recommendations.
5. If sodium and/or potassium are present in the fuel, the centrifuge must also incorporate a water scrubbing system.
6. Frequently drain tanks to remove accumulated sediment and water.

C.2.4 DUAL CENTRIFUGE AND STORAGE SYSTEM

For applications where turbines will be operating continuously on liquid fuel for long periods, there should be at least two fuel conditioning systems feeding into a correctly non-metallic or fully lined buffer tank for final fuel settling and supply.

Figure C.4 shows the most comprehensive system for liquid operation per requirements specified in Table C.1.

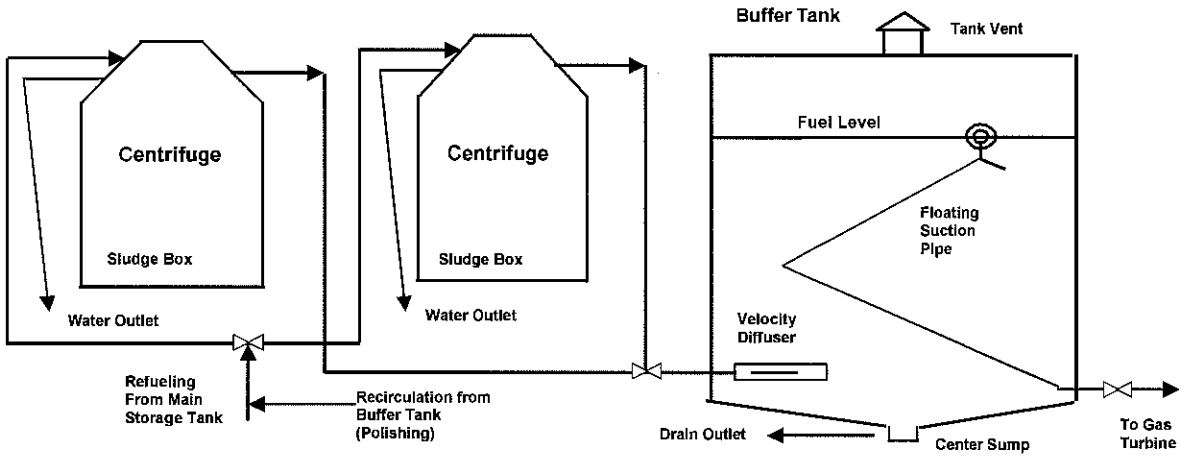


Figure C.4 Dual Centrifuge System

C.2.4.1 FUEL BUFFER TANK AND CENTRIFUGE HANDLING PROCEDURES

1. Never "agitate" the fuel. Fuel in a "buffer tank" should be allowed to settle without being disturbed for at least eight hours before being used as turbine fuel.
2. Tank filling and fuel recirculation through the centrifuge should not be done when the tank is being used to supply a turbine.
3. Periodically remove fuel from the lower end of the holding tank and clean tanks by returning this fuel to the main storage tank(s) via centrifuges. This recirculation minimizes the accumulation of dirt and contaminants in the clean tanks.
4. Centrifuges should be maintained and cleaned per manufacturers recommendations.
5. If sodium and/or potassium are present in the fuel, the centrifuge must also incorporate a water scrubbing system.
6. Frequently drain tanks to remove sediment and water.

C.2.5 Monitoring System – Duplex Filter

The off-skid Filter Monitor System provides monitoring of the fuel quality just prior to delivery to the turbine package. The system detects water or solid contamination and provides an alarm when the delta-p increases above a set point. This system is not a fuel filter system as its primary function is to monitor the liquid fuel in case the primary filtration or centrifuge systems are not able to clean the fuel as required.

C.3 FUEL MONITORING AND MAINTENANCE

C.3.1 FUEL QUALITY MONITORING

A process is required to monitor the quality of the fuel that is being delivered to the engine and to compile a log of physical and chemical properties of the fuel consumed.

Fuel parameters logged must include:

- Water content
- Sediment content
- Sulfur content
- Analysis of metallic elements
- Sodium and potassium content

C.3.1.1 PROCEDURES

Fuel samples must be taken and analyzed on a regular basis while operating on liquid fuel to ensure that the fuel contaminants do not exceed fuel specification. This can be accomplished via an automated system or by taking a sample from the liquid supply line to the engine and sending to a qualified laboratory. The frequency should be sufficient to ensure that every batch of fuel delivered is analyzed at least once. The log should be made available for examination during routine package maintenance and engine inspections.

If specification limits are exceeded the problems must be remedied or prevailing equipment warranties may be affected.

C.3.2 ANNUAL INJECTOR FLOW TESTS AND INSPECTION

An annual inspection measuring the injector flow area is required to determine if the unmonitored main and pilot liquid passages are plugging. Please contact the local Solar District Office for assistance.

Solar's SoLoNOx combustion – liquid fuel systems need additional consideration for successful operation. It has been found that excessive fuel bound sulfur, solids, water, sodium and potassium makes internal passages prone to plugging and operators need to provide the right level of treatment commensurate with the frequency and duration of liquid fuel operation and the quality of fuel being supplied to minimize the effects on the fuel system.

C.3.3 SPARE FUEL INJECTORS

To minimize downtime, spare fuel injectors located near installation are recommended for sites where it has been determined that injectors will require frequent cleaning.

APPENDIX D

LIQUID FUEL SUITABILITY FORM

The table below contains the allowable limits for liquid fuel characteristics and contaminants. Solar's Liquid Fuel System Assessment form should be filled out with the Solar Sales Engineer to specify project information that will identify liquid fuel filtration requirements.

Liquid Fuel Suitability Form

Project			
Characteristics	**ES 9-98**	**Project**	**Comments**
Solids	≤2.6 mg/liter of sediment, solid or hard contaminants, 90% of the 2.6 mg shall be less than 5 micron in size. Max allowable size ≤ 10 micron		
Liquid	≤ 0.25 cc free water per liter at an ambient temp of 80 °F (27 °C)		
Sulfur	**10,000 ppmw. (See Table 1). Additional restrictions apply for *SoLoNOx* liquid operation**		
Fuel Bound Nitrogen	Measurement required for liquid emissions guarantees		
Sodium & Potassium	≤ 0.5ppmw		
Vanadium	≤ 0.5 ppmw		
Lead	≤ 1 ppmw		
Ca & Mg	≤ 2 ppmw		
Fluorine	≤ 1 ppmw		
Chlorine	≤ 0.15 % wt		
Others – Mercury, Cadmium, Bismuth, Arsenic, Antimony, Phosphorous, Boron, Gallium, Indium.	≤ 0.5 ppmw		
Kinematic Viscosity	12 centistokes max 1 centistoke min at 100 °F (38 °C)		
Specific Gravity	0.775 min 0.875 max		
Reid vapor pressure	< 3 psia < 20.6 kPa		
Cloud point	At least 10 °F (6 °C) below expected min ambient temp.		
Pour point	At least 10 °F (6 °C) below cloud point		
Flash point	≥ 100 °F (38 °C) or ≥ legal limit		
Distillation	90% evaporated at 640 °F (338 °C) maximum. End point at 690 °F (366 °C) maximum		
Aromatics	35% by volume maximum		
Olefins and Diolefins	5% by volume maximum		
LHV	>18,000 Btu/lb >41838 kJ/kg		
Carbon residue on 10% distillation residue	≤ 0.35 %		
Ash	≤ 0.005 % max		
Copper strip corrosion	No 3 (3hr at 122 °F (50 °C)) in ASTM D130		
Expected annual liquid operating hours			
Lubricity, HFRR @ 60°C	520 micron maximum. by ASTM D6079 or equivalent.		

Solar Turbines
A Caterpillar Company
PIL 210
Product Information Letter

Fuel System Purge Requirements for New Production Conventional and *SoLoNOx* Combustion Turbines

M. Smolin, C. Holcomb
Solar Turbines Incorporated

PURPOSE

This Product Information Letter (PIL) describes the various purge configurations used with the fuel systems on *Solar*® gas turbines. Purge is used on all liquid fuel and dual fuel turbines, with both conventional and *SoLoNOx*™ combustion systems, to assure good combustion performance, adequate turbine life, and reliable fuel system operation. The primary purge media are externally supplied air and water as well as engine turbine compressor discharge air (PCD air). All liquid fuel circuits and some gas fuel circuits are purged, and the configuration varies with the turbine model. This PIL explains the function of each purge subsystem, when, where and why it is used, and the impact it has on the user.

For aftermarket applications, please consult Solar's local District Office for the appropriate purge system for installed equipment.

PURGE SYSTEM OBJECTIVES

Fuel purge systems are used to prevent three major problems: fuel injector coking, injector-to-injector cross flow (also referred to as crosstalk), and corrosion.

On liquid-fuel only turbines, purge is used to remove residual fuel from the injectors after a turbine shutdown to prevent coke formation in the injector passages. Injectors are exposed to the temperature of the PCD air during operation, but the fuel acts as a coolant to keep the liquid passage temperatures low. After shutdown, the injectors stay hot due to the large thermal mass of the hot turbine casings and, without the fuel cooling, the fuel passage temperatures increase. Fuel that remains in the injector will likely form coke under these conditions.

On dual fuel turbines, purge is used to (a) prevent fuel and combustor gases from entering the inactive fuel circuits during operation (cross flow), (b) cool fuel passages prior to introducing liquid fuel, and (c) remove residual liquid fuel from the fuel injectors following liquid fuel operation after either a turbine shutdown on liquid fuel or a transfer from liquid to gas fuel during turbine operation. The scenario for coke formation is the same as described above, except that it can extend for a longer time if the turbine continues to run on gas fuel.

Symptoms of injector fouling, primarily cased by liquid coke formation, may include increased emissions of nitrous oxide (NOx), carbon monoxide (CO) or unburned hydrocarbon (UHC), an increase in the T5 temperature spread, difficulty in starting, and combustor rumble or instability. Injector fouling may alter the flame profile and subject turbine components to damaging temperature levels.

The entrainment of fuel into an inactive or dormant fuel circuit is caused by cross flow between injectors. This cross flow occurs because of small pressure variations within the combustor that cause gases from the combustion chamber to flow into some injectors through the inactive fuel manifold, and back into the combustion chamber through other injectors. This cross flow can entrain fuel and/or combustion products with it, leading to several problems including coke formation, overheating of the fuel tubes and fuel manifolds, and corrosion of fuel system components.

Ingestion of fuel and/or combustion products into inactive fuel passages can cause overheating and mechanical failure of fuel system components. Combustion products that are entrained in the cross flow can raise the air temperature above the compressor discharge temperature. Fuel that entrains with the cross flow can auto-ignite under some conditions, and burn in localized regions inside fuel system components such as the supply tubes or distribution manifold.

If gas fuel with a high level of hydrogen sulfide (H_2S), e.g. sour gas, is entrained into the cross flow, the H_2S can react with water condensed in the fuel manifold to form sulfuric acid (H_2SO_4), which can corrode fuel system components and lead to mechanical failure.

All purge systems are designed with the expectation that the provided liquid fuel meets the requirements of Solar's specification ES 9-98. No purge system can overcome the shortcomings of poor fuel quality. Please refer to Solar's Product Information Letter 162, "Recommendations and Requirements for the Sourcing, Handling, Storage and Treatment of Fuels for Solar Gas Turbines" for guidance.

PURGE SYSTEM DESCRIPTIONS

Solar has developed specific purge systems for different turbine and package models and configurations. Multiple purge subsystems are typically used on any given package in order to accommodate the different operational modes: starting, steady-state operation, fuel transfer, and shutdown. Table 1 provides a summary of the different purge subsystems and where they are applied. A more detailed description of each of the different purge subsystems follows, along with purge media requirements.

Table 1. Fuel Purge Subsystems Used on Solar Products

	Low Pressure Air Purge (Customer Supplied Air)	Water Purge (Customer Supplied Water)	Backward PCD Purge	Forward PCD Purge, Uncooled	Forward PCD Purge, Cooled
When Used	Shutdown on Liquid Fuel	Gas-to-Liquid Fuel Transfer Liquid-to-Gas Fuel Transfer Shutdown on Liquid Fuel	Start-Up Steady-State Gas Fuel Operation Liquid-to-Gas Fuel Transfer Shutdown on Liquid Fuel	Steady-State Liquid Fuel Operation in Dual Fuel Application	Steady-State Gas Fuel Operation in Dual Fuel Application
Where Currently Applied	***SoLoNOx*** *Centaur*® 40 *Centaur* 50	***SoLoNOx*** *Taurus* 60 *Taurus* 70 *Mars*® 100 *Titan*™ 130	**Conventional & *SoLoNOx*** All Products	**Conventional** *Centaur* 40 *Mars* *Titan* 130	**Conventional & *SoLoNOx*** (when H_2S in the gas fuel exceeds 0.3% by weight) All Products
				Low BTU Fuel Conventional *Centaur* 50 *Taurus* 60 *Taurus* 70	**Conventional** *Centaur* 50 *Taurus* 60 *Taurus* 70 ***SoLoNOx*** *Taurus* 70
Where Planned to be Applied	-	***SoLoNOx*** *Titan* 250	**Conventional** *Titan* 250 ***SoLoNOx*** *Titan* 250	**Conventional** *Titan* 250	**Conventional** *Titan* 250 ***SoLoNOx*** *Titan* 250

Low Pressure Air

The low pressure air purge subsystem consists of a facility air supply package connection, one shutoff valve, and two isolating check valves, all located on-skid. The subsystem requires air that meets Solar's specification ES 2201 "Auxiliary Service Air", regulated to a pressure of 620 to 1380 kPag (90 to 200 psig). As this pressure is lower than the internal turbine operating pressure (PCD), this purge can only be used following a liquid fuel shutdown, and not during a fuel transfer. After a shutdown on liquid fuel, air is used to force the residual liquid fuel in the turbine distribution manifold(s) and injectors "forward" into the combustor. This air must be available for each turbine model at a pressure and flow rate per Table 2 below. These supply pressures are typical of most facility compressed air supplies. See Figure 1 for a diagram of Solar's typical low pressure air purge subsystem.

Conventional combustion *Centaur* 40 and *Centaur* 50 turbines do not require any external source of air for purging. *SoLoNOx* combustion *Centaur* 40 and *Centaur* 50 turbines use low pressure air purge of the liquid circuits.

Table 2. Low Pressure Air Purge Requirements for SoLoNOx Combustion Turbines

Turbine Model	Pressure	Flow	Duration
Centaur 40 *Centaur 50*	620 – 1380 kPag 90 – 200 psig	0.02 m^3/s 40 scfm	At shutdown, 230 seconds of on-off pulse timing
Taurus 60, 65 & 70 *Mars* 100 *Titan* 130	Not Required		

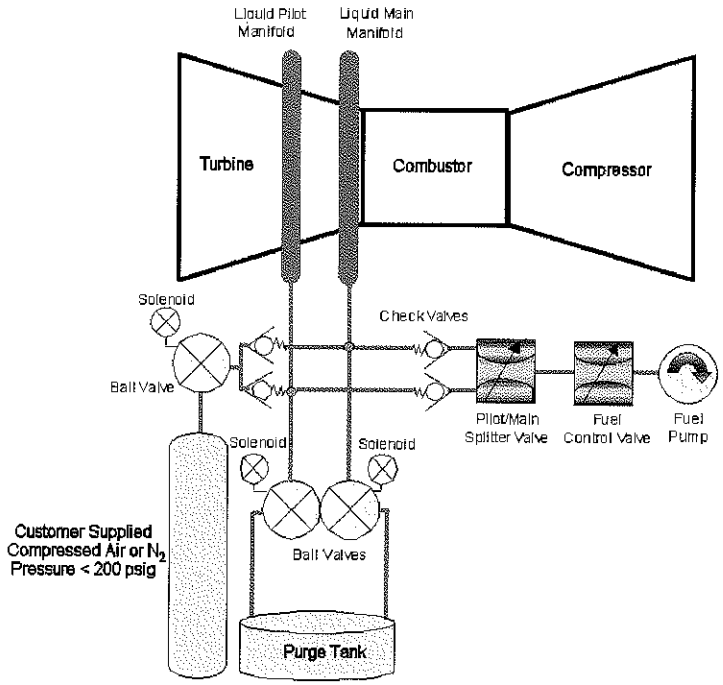


Figure 1 – Typical Air Purge Subsystem

Water Purge

Water is used to purge residual liquid fuel into the combustor after a liquid-to-gas fuel transfer or after a liquid fuel shutdown. In addition, before transferring from gas to liquid fuel, water is used to reduce the wall temperatures of the liquid fuel injector passages. Without this initial water purge, the liquid fuel can form coke as it first enters the injectors and possibly cause injector fouling.

The Solar-provided water purge subsystem consists of items mounted on the turbine package and a separate water pump skid. A strainer and shut-off valve are located on the turbine package. The water pump skid contains a pump and motor assembly, suction strainer, relief valve, pressure transmitter, and water conductivity sensor and analyzer. This skid measures 1.22 m x 0.91 m (4 ft x 3 ft), and supports turbine models up to the *Titan* 130. The pump motor is driven by a variable frequency drive (VFD), and the associated Solar-supplied VFD must be located in a safe (non-hazardous) area. This system has certifications to meet either NEC or ATEX applications. See Figure 2 below for a diagram of a typical water purge subsystem.

The relatively small quantity of purge water required (Table 4), and the water quality requirements as stated in Solar's specification ES 9-98, are such that most applications, including those off-shore, should be able to support water as the turbine purge media.

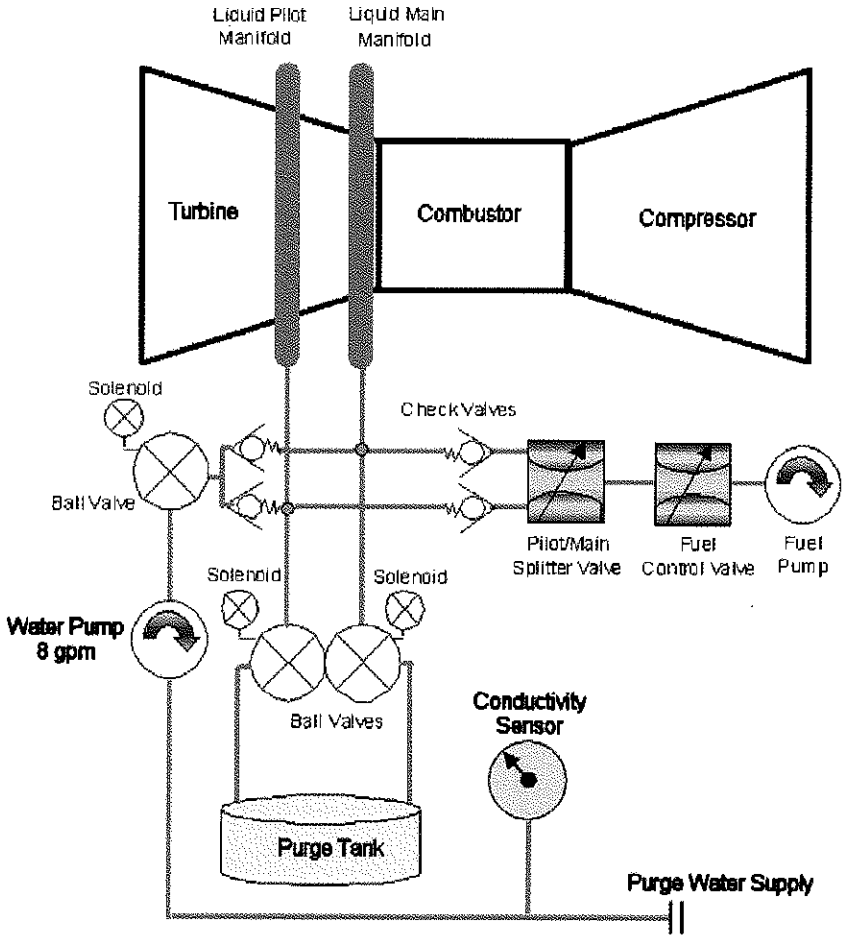


Figure 2 – Typical Water Purge Subsystem

When providing the water treatment system, the customer should consider Solar's requirements for both turbine compressor wash water and purge water. Designing for and maintaining acceptable water quality ensures highest turbine operating availability. Please refer to Solar's Product Information Letter 221 for guidance on water treatment system design and procurement.

Tables 3 and 4 below detail the water supply requirements to support the water purge system. Table 3 details the water pressure required to be maintained at the inlet of the water purge skid and Table 4 details the maximum water consumption and flow requirements of the water supply. In Table 4,the Maximum Water Consumption represents the maximum amount of water required to be supplied in any single transient condition, i.e. fuel transfer or shutdown, and the Maximum Water Flow represents the maximum instantaneous amount of water demanded at any time.

Table 3. Water Purge Pressure Requirements for SoLoNOx Combustion Turbines

Turbine Model	Pressure
Taurus 60 *Taurus* 70 *Mars* 100 *Titan* 130	Solar supplied pump/motor Customer to supply water at 69-276 kPa (10-40 psig) to pump suction
Taurus 65 [1] *Titan* 250 [1]	Under Development

[1] Liquid or dual fuel *Taurus* 65 and *Titan* 250 turbines will require water purge.

Table 4. Water Supply and Handling Requirements for SoLoNOx Combustion Turbines

Turbine Model	Fuel System	Maximum Water Consumption (per Event)		Maximum Water Flow	
		gal	L	gal/min	L/min
Taurus 60	Dual	7.5	28	5	19
	Liquid	5	19	5	19
Taurus 70	Dual	7.5	28	6	23
	Liquid	6	23	6	23
Mars 100	Dual	12	45	8	30
	Liquid	8	30	8	30
Titan 130	Dual	13.3	50	8	30
	Liquid	13.3	50	8	30

During and after a water purge cycle, the water and fuel being purged must be safely handled. The turbine has two skid edge connections from which the discharged liquid must be contained and handled safely: the Liquid Fuel Drain and the Combustor Drain. The recommended minimum capacities of these drain connections are detailed in Table 5 along with the assumptions associated with the volumes below. The drains may be connected to a plant waste handling system or to a dedicated drain tank(s).

Table 5. Minimum Recommended Fluid Waste Handling Requirements for SoLoNOx Combustion Turbines

Turbine Model	Fuel System	Liquid Fuel Drain		Combustor Drain	
		gal	L	Gal	L
Centaur 40	Dual	15	58	20	76
	Liquid	15	58	20	76
Centaur 50 *Taurus* 60	Dual	15	58	20	76
	Liquid	15	58	20	76
Taurus 70	Dual	15	58	24	91
	Liquid	15	58	24	91
Mars 100	Dual	15	58	32	121
	Liquid	15	58	32	121
Titan 130	Dual	15	58	54	182
	Liquid	15	58	54	182

To plan for water consumption and for drain tank or waste handling system sizing, the following assumptions apply:

1. All the water introduced during a purge after a fuel transfer evaporates and exits the turbine exhaust as steam
2. The recommended drain tank(s) or waste handling system is sized to handle a minimum of four (4) full water and back purge cycles. Site operating conditions and facility layout should be considered when sizing the drain tank(s) or waste handling system

Additional recommendations for the drain tank(s) or waste handling system are:

1. The drain tank(s) or waste handling system should be fitted with level switches, vented to a safe area, and fitted with a flame arrestor
2. Drain tank(s) or waste handling system inlets should ensure a downward sloping path from the skid edge connection
3. The drain tank levels and conditions should be monitored as part of the regular maintenance for the turbine

Backward PCD Purge or Liquid Fuel Back Purge

All packages that operate on liquid fuel have a back purge valve to drain the volume between the fuel isolation check valve and the liquid fuel injectors to a skid-edge connection. The drain system is designed without locations that might trap liquids since it depends on gravity and declining PCD during turbine roll-down to effectively drain liquid fuel from the system. The valve is closed during liquid fuel operation. On dual fuel packages, the back purge valve is opened after a fuel transfer to gas to allow PCD to push the remaining liquid fuel to a skid-edge drain connection. After a liquid fuel shutdown or a fail-to-start, the back purge valve is opened. Even when other purge subsystems are employed, the back purge valve is initially opened to drain as much fuel as practical before forward purging.

The purge tank for the disposal of spent liquids shown in Figures 1 & 2 is not usually in Solar's scope of supply. For air purge systems, a nominal 1 liter (1 quart) of liquid fuel is purged for each liquid to gas fuel transfer and on each liquid fuel shutdown. For water purge systems, a nominal 4 liters (1 gallon) of water and liquid fuel is purged for each liquid to gas fuel transfer and a nominal 15 liters (4 gallons) is purged on each liquid fuel shutdown.

Continuous PCD Forward Purge of Gas Manifold (Hot or Uncooled)

This subsystem prevents liquid fuel from migrating to the dormant gas fuel system passages when the turbine is running on liquid fuel. The subsystem consists of two high temperature purge valves, a bleed orifice, and a pressure transmitter. PCD purge air is delivered through the purge valves to the gas fuel manifold. These valves are closed when running on gas fuel (purge not needed), and the volume between the two closed purge valves is monitored with a pressure transmitter and connected to a vent through a small orifice (Figure 3). This pressure transmitter is used to ensure that fuel gas and PCD do not inadvertently mix.

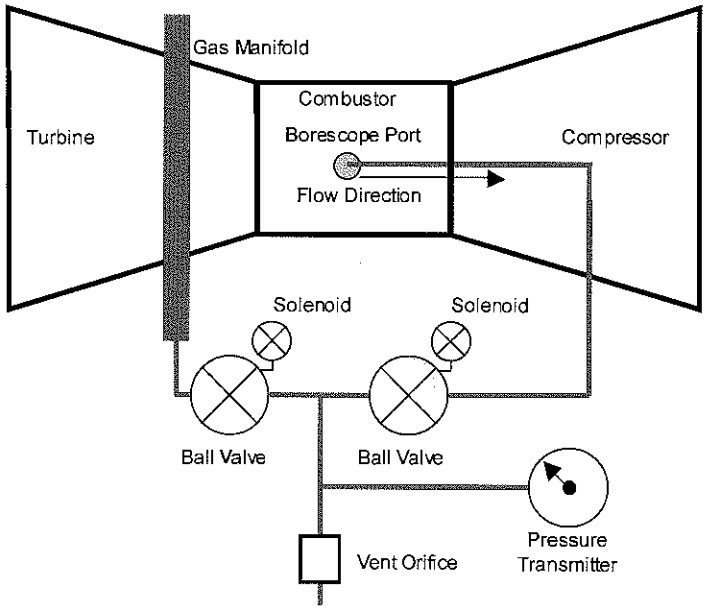


Figure 3 – Typical Hot PCD Forward Purge Subsystem

Continuous PCD Forward Purge of Liquid Manifold (Cooled)

This purge subsystem consists of a PCD cooler, a water trap, purge valves, a vent valve, an RTD, and a pressure transmitter. The purge stream is sourced from PCD and delivered to the cooler, then through the water trap and purge valves to the inlet to the liquid fuel distribution block(s). The water trap is continuously drained through an orifice to a skid-edge drain connection. The purge valves are closed when running on liquid fuel (purge not needed), and the pressure between the valves is monitored and, when required, vented through a small bleed valve to a skid-edge connection (Figure 4).

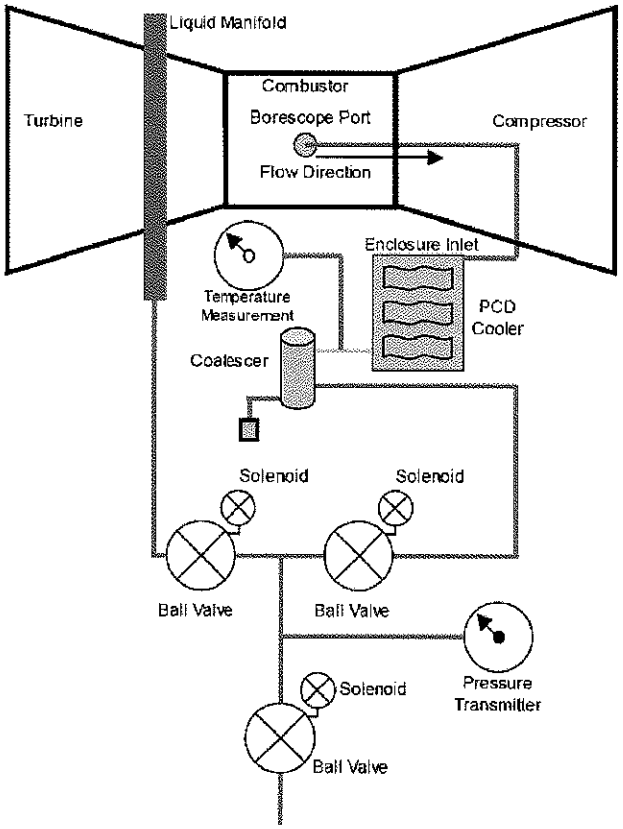


Figure 4 – Typical Cooled PCD Forward Purge Subsystem

Solar Turbines Incorporated
9330 Sky Park Court
San Diego, CA 92123-5398

LIQUID FUEL QUALITY

CITY OF SITKA, ALASKA

SOLAR PROJECT 3R901E

Fuel Sampling April 10, 2013

Project 3R091

Douglas Moore
For Greg Pawlowski
May 10, 2013/Rev0

Visit to Jarvis Power Generation Station, City of Sitka, Alaska, April 10-12, 2013, to Assess Fuel Source and Site Fuel Storage, and to Capture Fuel Samples.

SITE

General

The Jarvis Street Power Station now serves as a peak generation unit for the City of Sitka, to supplement power generated at by the Blue Lake hydro-power facility. Operation occurs when:

- Additional power is needed to meet present demand
- The Blue Lake plant is completely or partially out of service for any reason
- For lake level management for hydro power efficiency (as lake level declines, kWh/acre-foot declines, because head to the water turbine declines.)
- To exercise the four existing reciprocating diesel generators

Installation of the Land-based Titan 130 Mobile Power Unit will provide base-load capability for the City of Sitka for a minimum of 2 months during a major upgrade of the Blue Lake Facility, during which upgrade the Blue Lake facility will generate no power.
Thereafter, the Titan 130 unit will provide backup to the Blue Lake facility and, with existing diesels, provide a flexible generation mix for peaking and for demand growth.

At the recent range of diesel fuel cost, fuel costs $.22-.28/kWh

Existing Generators at Site

- One (1) Caterpillar 5.2 MW
- Two (2) Fairbanks Morse 2.8 kKW
- One (1) Fairbanks Morse 2.o MW

Site Fuel Storage and Conditioning

Existing (refer to attachment A, City of Sitka Sketch)

- One (1) nominally 210,000 gallon steel storage tank.
    - Fuel draw is from a 3 inch pipe 12 inches off the tank bottom (no floating suction)
    - Bottom Water removal is by a siphon pipe about 1 inch off the bottom of an approximately 20 gallon sump in the tank bottom.
    - Tank lower internals are coated
    - No forwarding pumps
- Small per-engine day tanks (<1500 gallon), with bulk filter and boost pump
    - Cat bulk filter is Velcon VF-81C housing, simplex, with 20 micron particulate and desiccant- bead filter elements (refer to attachment B, Velcon filters)
- On-engine coarse (metal screen) and fine (2 micron, for the Cat) final filters
- No facility to re-circulate the nominal 210,000 storage tank through existing filters, in a kidney loop.

Planned

- Additional 2x 30,000 gallon (size not decided) or 1x 50,000 gallon tank (size not decided), similar to existing storage tank. If two tanks, will be valved and piped so one tank, both tanks or the existing tank can be used to feed the T130 at any time.
- Customer is considering removal of the existing tank and dike, and replacing with a number of larger double-wall, self-bunkering tanks..
- Fixed or portable transfer pump and piping, to allow contents of any tank to be transferred to other tanks during tank draining, mandatory testing, and maintenance
- Possible piping and valves to allow any tank to be refreshed by passing through the new bulk filter and the Solar liquid fuel boost pump, filter and coalescer skid
- Possible forwarding pump, if required to meet minimum NPSH requirements for new Solar skid
- Forwarding and transfer pumps and pipes may be combined into one system.
- Filter similar to existing Velcon filter, but 10 micron element, dedicated to the new gas turbine

Present Fuel Inventory

Present fuel inventory is approximately 140,000 gallons, and is a mix of about 50:50 fuel from the latest supplier, Petromarine (110,000 gallons added February, 2012), and the alternate Sitka supplier. Average age is about 20 months. As inventory is consumed, replacement will lower the average sulfur content.

Fuel Additive (refer to attachment C, email)

The present supplier adds approximately 35-65 gallons of lubricity additive per 100,000 gallons of fuel, based on micron wear scar rating. Additive is FPPR Lubricity Custom 130000T. The City of Sitka has been adding an additional Lubricity 100 additive at the rate of 33 gallons additive per 100,000 gallons, but is investigating the possibility of relying solely on supplier lubricity additive.

The City of Sitka has been adding Killem biocide once per year, but plans to switch to a Solar Approved biocide when advised by Solar. Biobor JF is being considered (refer to attachment D)

Fuel Water Removal at Site

Storage tank bottom sump is tested for water at irregular intervals, but samples rarely show as much as an ounce of water. Sitka Utility Director, Mr. Christopher Brewton, believes this may result from:

- The low day-night temperature change at site because of the moderating effect of the ocean (typically 10 F or less).
- The low humidity level of the delivered fuel, absorbing water that condenses into the fuel

The bulk filter used at site for feeding the Cat day tank has a water-absorbing layer, having a capacity of about 1.8 liter.

A fuel sample was captured in March, 2013, by the City of Sitka directly from the 210,000 gallon storage tank bottom sump pipe, analyzed be Analysts, Inc, and found to contain 71 ppm water. (Refer to Attachment E)

Fuel Supply to Site

Fuel supply is competitively bid by the City, and the present supplier is Petro Marine. Petro Marine is expected to be the supplier of fuel for the Titan 130 during its expected 2 months base load run.

Petro Marine manager Jerry Jacobs elaborated their fuel quality management program as follows:

- Fuel is delivered by barge to Sitka from a facility owned by Petro Marine in Ketchican, Alaska
- Barge compartments are inspected pre-shipment for cleanliness and water-free condition. Fuel is never shipped "over bilge water."
- Fuel inventory at the terminal is sampled and analyzed for sulfur content, flash temp, cloud point, and visually inspected for clarity
- Lubricity additives are added pre-shipment in Ketchican
- Red dye is not added for Off Road fuel, because Alaska is exempt from the requirement (red color of site inventory is a residue of shipments from the alternate supplier, who sources in the Lower 48)
- On loadout from Ketchican and on arrival at Sitka, each compartment is sampled and analyzed for Flash temp, SG, and sulfur. Samples for sulfur analysis are sent back to Ketchican on the delivery barge. Sampling and visual inspection is done on departure and arrival for clarity and settled water.
- After Petro Marine Terminal tank filling in Sitka, tank is sampled by dropping a "thief," visually observed for clarity, and sent to Ketchican for sulfur analysis.
- Water id drawn .25 inches off the tank bottom weekly, and rarely is as much as 4 ounces water recovered.
- Fuel is drawn 12 inches off the tank bottom. There is no floating suction.
- Diesel inventory turnover is 30 days or less.
- Petro Marine at present has contract for private aviation on Sitka, and sometimes has the contract for fuel supply to Alaska Air. Petro Marine routinely meets Alaska Air quality and quality verification requirements, which they say are are extreme.
- Biological Degradation of Diesel fuel is rare at Sitka, and never yet observed for shore consumers. Rarely, a boat does develop such contamination (Note: operating boats are warm below decks, and fuel is also warmed by recirculation from diesel injector tips) Biological additives by onshore consumers is, in Petro Marine's opinion, in an abundance of caution.
- Delivery from the Petro Marine dockside terminal at Sitka to City of Sitka Jarvis Street Station is by Petro Marine tanker truck, 3000 gallon, and fuel is filtered at delivery through a 20 micron delivery hose filter. (It is noted that about 9 tanker deliveries per 24 hour operation at full power will be required to fuel the gas turbine).

"The Competition" brings fuel to Sitka from the Lower 48 in container tanks, on deck.

Fuel Samples

Four samples were captured:
1) Sample to Cat bulk filter
2)Sample to Cat bulk filter
3)Sample downstream of Cat bulk filter
4)Sample from Petro Marine dockside terminal diesel storage tank

Sample Procedure

Samples 1,2 (Refer to attachments F and G)

Samples represent present storage tank contents, as delivered to Cat bulk filter

- Cat day tank drawn down 400 gallons by running Cat
- 200 gallons then run from 210,000 storage tank to day tank, at 20 gpm, to establish steady flow, and flow continues throughout sampling.
- Spigot fabricated, installed at Velcon filter top (inlet), flushed with 3+ gallons fuel at max velocity
- Samples captured into Solar .5 ltr super-cleaned sample bottles
- Samples bottles rinsed twice with sampled fluid before capture, after flushing
- Fresh rubber gloves worn by technicians.
- Samples drawn at max flow rate, filling to 80% of sample bottle. Bottle is immediately capped, labeled. Samples captured by Trevor Webb, witnessed for Solar by Doug Moore
- Sample 2 captured 1 minute/10 gallons after sample 1. Otherwise, is identical

Sample 3 (Refer to attachment H)

Samples represent present storage tank contents, after passing through Cat particulates (20 micron) and water bulk filter. This sample represents what will be initial fuel to MPU, except bulk filter will be 10 micron instead of 20 micron.

- Spigot moved to downstream of Velcon filter, flushed, bottle rinsed twice, sample captured, capped and labeled same as sample 1 and 2.

Sample 4 (Refer to attachment J)

Sample represents fuel that is expected to be typical of the contents of the 210,000 gallon storage tank during MPU commissioning and 2 month full-load run.

- Sample drawn from mid-level of Petro Marine's dockside terminal diesel storage tank.
- Technicians wearing fresh rubber gloves
- Petro Marine "thief" loaded with Petro Marine clean .5 ltr sample bottle, thief cork inserted, thief lowered into tank contents, thief cork pulled to capture sample, cork re-inserted.
- Sample transferred into Solar .5 ltr sample bottle. Bottle is immediately capped, labeled.
- Tank was last filled March 8, 2013. Has 17 feet level on date of sample

210,000 Gallon Storage Tank Bottom Water Sample

Water sample would indicate bilge water, if salty (very undesirable) or condensate water if fresh (less undesirable)

- 4 gallons drawn at a high rate of flow from the tank sump pipe

- Sample decanted 1/2 gallon at a time into ½ gallon fresh glass beer stein, and allowed to settle minimum 1 minute.
- Stein inspected against a light to observe cloudiness and settled water droplets. No cloudiness or water droplets observed.
- Last ½ gallon stein allowed to settle 5 minutes, then lamped. No cloudiness or water droplets observed.

Therefore, no water sample could be captured for analysis

Inferences From Record of 2 micron Cat filter Lifetime

Lifetime of 2 micron Cat filter, which appears to be about the same area as the proposed Hydac Solar 2 micron filter elements, is predictive of probably lifetime of the proposed 2 micron elements

1-16-12

- Changed day tank bulk filter, metal screen filter on Cat, 2 micron filter on Cat
- Meter reads 313,198 gallons total

9-6-12

- Changed day tank filter, only
- Meter reads 432,431 gallons total

4-25-13

- 2 micron fuel filter differential is 7 psid and will be changed

Therefore, the Cat 2 micron filter lasts more than 180,000 gallons total.
Assuming it is approximately the same area as the Cat filter, at 18 gpm for MPU fuel consumption, each 2 micron MPU filter can be predicted to last 7 days with similar fuel.

Sample Analysis Results

- Attachment K,L

Fuel Temperature, Viscosity

City of Sitka, Mr. Andy Eggen, described fuel temperature as follows:"The minimum fuel temperature of +15F is rare, maximu of 70F is rare and the average of 35-55F in the coast 90% of the year."

- Analysts, Inc., report #5700761 shows viscosity at 100F is 2.751 cSt
- This corresponds to a viscosity at 15F, the lowest expected fuel temperature, of approximately 10 cSt. See attachment M
- This is lower than the maximum of 12 cSt allowed by ES 9-98, so a fuel heater is not required to lower viscosity

.

Solar Recommendations to City of Sitka

- Contractually, fuel delivered to the inlet of the Solar-furnished boost pump/filters/coalescers skid must meet Solar Specification ES-9-98
- Solar's recommendations are without responsibility
- Two (2) source tanks are preferable to one larger tank because one tank can be settling while the other is being drawn from.
- Solar agrees the capability to draw from either source tank or the storage tank is desirable
- Solar agrees that a transfer pump, valve manifold, and piping to allow movement of the content of any tank to any other tank is desirable, for tank maintenance
- Solar recommends transfer/forwarding pumps should be 1800 rpm or less to avoid creation of water/fuel emulsions. Materials should be compatible with Diesel (no zinc or galvanizing). Head should be just sufficient to meet the requirements, to avoid the need for throttle devices, which will create water/fuel emulsions. Maximum inlet pressure to the Solar boost pump is 15 psig, static or flowing. Minimum pressure to the boost pump is 9 psi absolute. Maximum backpressure applied to the skid return-to-source-tank connection is 20 psig
- Transfer/forwarding pumps should be automatically stopped of ESD/Fire Detection, to avoid atomizing fuel through leaks and feeding a fire. Coordinate with Solar.
- Capability to circulate contents of any tank through the new Boost pump/filters/coalesce skid for the purpose of refreshing fuel in tanks and pipes is desirable. The skid is able to operate continuously in a "kidney loop" for fuel refreshing.
- Floating suction is desirable for extraction of fuel from a tank
- A regular tank water draining program is recommended.
- Request Solar PIL 162 Rev 1 RECOMMENDATIONS AND REQUIREMENTS FOR THE SOURCING, HANDLING, STORAGE . TREATMENT OF FUELS FOR SOLAR GAS TURBINES for additional information.

ATTACHMENTS

A EXISTING DIESEL FUEL SYSTEM

B VELCON FILTERS DATA

C LUBRICITY ADDITIVE

D BIOCIDE ADDDITIVE

E WATER CONTENT MARCH 2013

F SAMPLE 1 RECORD

G SAMPLE 2 RECORD

H SAMPLE 3 RECORD

J SAMPLE 4 RECORD

K LAB REPORT SAMPLE 1 + 2 COMBINED

L LAB REPORT SAMPLE 3

M FUEL TEMP EMAIL AND VISCOSITY CHART

City & Borough of Sitka
ELECTRIC DEPARTMENT
105 Jarvis Street
Sitka, Alaska 99835
(907) 747-4000
FAX 747-3208

PROJECT Existing Diesel Fuel System
LOCATION Jarvis St. Sketch Profile
DATE 4-5-2013 BY A. E.
SCALE None SHEET 1 OF 1

$2400 Diesel Cost/pump cycle

Not to Scale

to start D4 to run 4Mw for 2.3 hrs x 250 gallons/hr to draw day tank to 850 gallon level to turn pump on and refill in 1/2 hr to 1400 gallon and pump turns off to day tank.

Building with 5 MW D4 - Cat 3616

30 x 35'
200,000 gal
#2 ULSD
Bulk Storage Tank
aboveground

Delivery Truck
3000 gal

Dirty side of Velcon Filter

1.5 hp

Return

1500 gal day tank

Filter

elevation 30"

elevation 25'

250 ft of 2" pipe

Photo 1

Photo 2

Photo 3

Photo 4

2" ID
πr^2
3.14 in²

Diesel Velocity 2 ft/sec in 2" ID pipe when D4 day tank refills from 850 gallons to 1400 gallons at measured 20 gals/min = 1200 gals/hr = 0.33333 gals/sec

$0.33333 \text{ gals/sec} \times \frac{231 \text{ in}^3}{1 \text{ gal}} = 77 \text{ in}^3/\text{sec}$

$\frac{77 \text{ in}^3/\text{sec}}{3.14 \text{ in}^2} = 24.5 \text{ inch/sec} = 2 \text{ ft/sec} < 7 \text{ ft/sec}$ to move H2O with Fuel.

(A)

velcon FILTERS®

VF SERIES INDUSTRIAL HOUSING INSTRUCTIONS

DESCRIPTION

Velcon industrial housings are used in a variety of industrial filtration applications. Housings are shipped with no cartridges installed. Cartridges must be ordered separately.

HOUSING	CONNECTIONS	PRESSURE RATING	ASME CODE DESIGN	NO. OF 18" CARTRIDGES
VF-82B150	2" NPT	150 PSI	NO	2
VF-81C150	2" NPT	150 PSI	YES	1
VF-82C150	2" NPT	150 PSI	YES	2
VF-166C150	3" NPT	150 PSI	YES	6
VF-2012C150	4" NPT	150 PSI	YES	12

CARTRIDGE SELECTION

TYPE	MODEL NO.	NOMINAL MICRON RATING	COLLAPSE STRENGTH	MAXIMUM FLOW IN FUEL
PLEATED FILTER MEDIA (Dirt Removal Only)	FO-718PLP3	0.3	75 PSI	50 GPM*
	FO-718PL1/2	1/2	75 PSI	
	FO-718PL01	1	75 PSI	
	FO-718PL02	2	75 PSI	
	FO-718PL05	5	75 PSI	
	FO-718PL15	15	75 PSI	
	FO-718PL50	50	75 PSI	
FIBERGLASS DEPTH MEDIA (Colloidal Contaminant removal)	FO-618FGA5	5	75 PSI	50 GPM*
	FO-618FGA10	10	75 PSI	
	FO-618FGA25	25	75 PSI	
PLEATED FILTER MEDIA & WATER ABSORBENT MEDIA (Dirt and Water Removal)	AC-718P3	0.3	75 PSI	50 GPM*
	AC-718P4D	0.4	75 PSI	
	AC-7181/2	1/2	75 PSI	
	AC-71801	1	75 PSI	
	AC-71805	5	75 PSI	
	AD-71825	25	75 PSI	50 GPM*
	ACO-71801B	1	75 PSI	50 GPM
	ACO-71805B	5	75 PSI	
	ASL-71801	1	75 PSI	50 GPM
FULLERS EARTH	LA-61801B	N/A	75 PSI	6 GPM*

* Maximum flow rate in oils will vary with oil viscosity. Contact your Velcon representative for sizing information.

1673-R2 2/92

B

FILTER SIZING INFORMATION

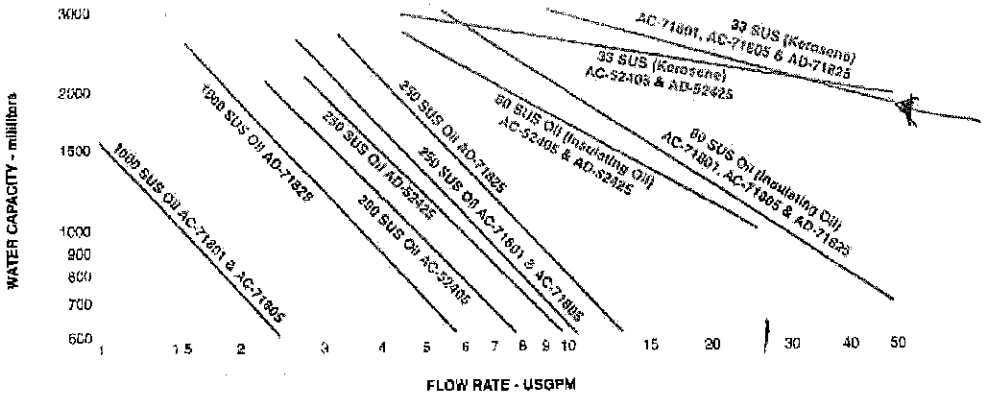
1. Select the desired filter cartridge type and micron rating.
2. Determine the viscosity at the operating temperature for the fluid being filtered. See Bulletin 1533.
3. From the cartridge flow rate data, estimate the flow rate that will result in a 2 psi differential pressure.
4. Divide the total desired flow rate by the flow rate determined in 3, above. This will give the required number of cartridges.
5. Select a filter housing that will hold the required number of cartridges.

NOTES: a) The recommended maximum flow rate can be exceeded by as much as 50% for "fuse-monitor" type applications with fuels and other low viscosity fluids. However, water holding capacity will be reduced and pressure losses from the filter housing itself may become excessive.

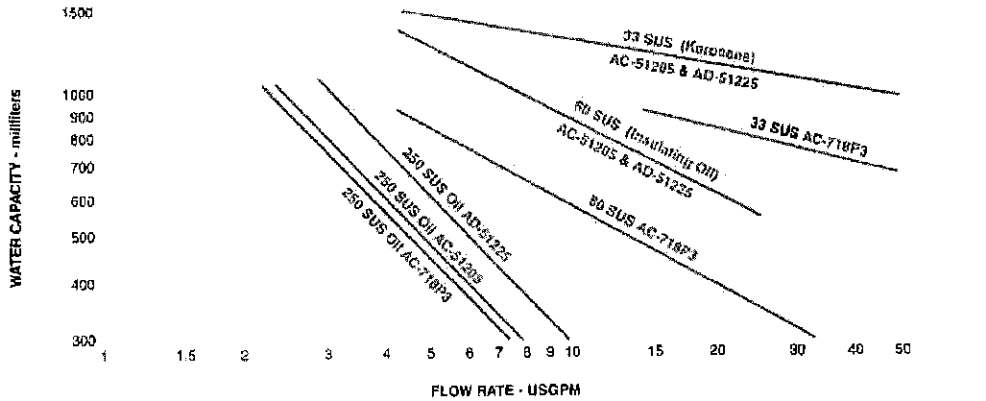
b) For higher viscosity fluids, a 5 psi differential pressure is frequently used for cartridge selection. This is acceptable, but you should consider the resulting loss in water capacity.

WATER HOLDING CAPACITY

Water capacity decreases when viscosity or flow rate increases. The graphs below show typical characteristics. For any specific application you must trade off between capacity (how much water the cartridge will hold before it must be changed) and flow rate (size of filter housing and initial cost). For long term operating cost benefits, it is always best to use a larger housing (reduce the flow rate per cartridge).



WATER CAPACITY AS A FUNCTION OF VISCOSITY AND FLOW RATE
AC-52405, AD-52425, AC-71801, AC-71805, and AD-71825 CARTRIDGES



WATER CAPACITY AS A FUNCTION OF VISCOSITY AND FLOW RATE
AC-51205, AD-51225, AC-718P3, and AC-71811/2 CARTRIDGES

Velcon products are sold and serviced by a world-wide representative network. To order, contact Headquarters or your **LOCAL REPRESENTATIVE:**

COMPANY HEADQUARTERS:
Velcon Filters, LLC
1210 Garden of the Gods Road
Colorado Springs, CO 80907-3410
Phone: 1.800.531.0180 / 1.719.531.5855
Fax: 719.531.5690
e-mail: vfsales@velcon.com
www.velcon.com

MANUFACTURING PLANTS LOCATED AT:
Colorado Springs, Colorado
Sylacauga, Alabama
Henryetta, Oklahoma

OFFICES AND AFFILIATES IN:
Canada, Germany, Singapore, & Spain

Liquid Filtration and Separation Specialists

From: Jerry Jacobs <jerryj@harborent.com>
To: douglaswmooreinc <douglaswmooreinc@aol.com>; Andy Eggen <andy@cityofsitka.com>
Cc: chrisb <chrisb@cityofsitka.com>; Trevor Webb <trevor@cityofsitka.com>
Subject: Re: Sitka new 15 Mw Solar turbine generator and #2 ULSD diesel fuel specs.
Date: Fri, Apr 12, 2013 8:30 am

Andy,

Here's that info I received from our Ketchikan terminal regarding the lubricity additive:

The concentration of FPPF Lubricity Custom 130000T depends on the micron wear scar rating. Generally, the ratio is from 35 gallons to 65 gallons of lubricity per 100,000 gallon of ULSD. Goal is to reach a HFRR of between 460 & 520 microns.

I hope this is helpful.

jerry

>>> "Andy Eggen" <andy@cityofsitka.com> 4/11/2013 3:33 PM >>>
Hi Jerry,

Thanks for your help. We have a couple follow up items for the new 15 Mw turbine and #2 ULSD diesel fuel specs. This old email indicates the city of Sitka choose to add "lubricity 100" additive to the diesel refilling in Feb 2012 to end up with the storage tank concentration at 1 gallon per 3000 gallons of #2 ULSD.

Doug's work this week with you and Trevor Webb indicated the additive is presently added before transportation to Sitka. Please let me know the concentration as the City of Sitka will likely discontinue adding additional lubricity additive.

At present I believe we will only add a biocide once a year. A Brand and Type of biocide which the Solar Turbine warranty approves. This maybe the attached Biobor-JF instead of the Kilfem product which is not compatible with our existing Velcon fuel filtering.

Note

Please replay to all as I will be out of town, returning to work April 22nd.

Thanks
Andy

-----Original Message-----
From: Andy Eggen [mailto:andy@cityofsitka.com]
Sent: Friday, January 20, 2012 1:50 PM
To: 'Jerry Jacobs'
Subject: RE: Rescheduling 120,000 gallons #2 ULSD on PO #12-00257770to Feb 5-24 2012

Thanks Jerry on the February fuel rescheduling and updated Cat Lubricity information.

Bob will choose the lubricity agent and send a reply to the group on the separate e-mail.

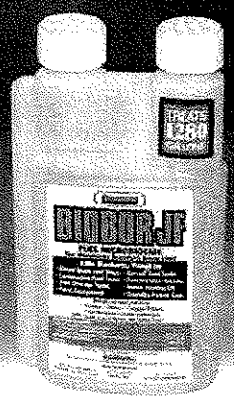
Andy,

BIOBOR JF®

MICROBIOCIDE

TECHNICAL DATA SHEET

JUD-9610



Biobor JF® is a liquid fuel additive that combats fungus and other microbial life in hydrocarbon fuels such as diesel and jet fuels.

Biobor JF® eliminates growth of harmful slime producing fungi that clog filters and pipelines, attack rubber fuel system components and whose waste products aid in the corrosion of metal surfaces.

Biobor JF® is simple to use and harmless to the wide variety of fuel system parts, top coatings, sealants and elastomeric materials tested. It does not adversely affect fuel performance in any way.

Biobor JF® is an effective microbiocide because of its equilibrium solubility in both fuel and water under conditions of fuel storage.

Biobor JF® is used by a large number of aircraft operators, airlines, ships, boats, trucking fleets, railroads, bulk storage terminals, fuel suppliers and by other users of hydrocarbon fuels exposed to the possibility of contamination by fungus and bacteria.

GENERAL USAGE

If a system is badly contaminated, drain water bottoms thoroughly. Water bottoms in storage tanks should be kept to a minimum. Good housekeeping is important in treating slime problems, but it is not a cure.

Biobor JF® is used at 270*ppm in fuel to effect sterilization, and subsequently at 135*ppm to maintain fungus-free fuel. Ideally, **Biobor JF®** should be injected to ensure proportionality and even distribution throughout the fuel tank. However, in the absence of metering equipment, **Biobor JF®** may be batch-blended. If batch-blended, as in tank trucks or small aircraft wing tanks, **Biobor JF®** should be introduced while the tank is being filled, after the tank is approximately 1/2 full. This will ensure faster and more complete dispersion.

*See chart on reverse side.

PRODUCT DATA

Chemical Composition

Active Ingredients

2,2'-oxybis (4,4,6-trimethyl-1, 3,2-dioxaborinane)
2,2-(1-methyltrimethylenedioxy) bis-(4-methyl-1,
3,2-dioxaborinane)..... 95.0%

Inert Ingredients

Petroleum Naphtha..... 4.5%
Inerts..... 0.5%
Total..... 100.0%

Boron Content..... 7.3%

Physical Properties (typical)

Flash Point, Tag Closed Cup..... 102°F
Pour Point..... -27°F
Appearance..... Clear Liquid

Instructions for Storage and Handling

All **Biobor JF®** containers must be kept closed from the atmosphere. Protect **Biobor JF®** from any water contamination. The solvent action of **Biobor JF®** will attack coatings on paper linings of caps and lids, therefore, polyethylene liners or closures are recommended for storage of **Biobor JF®**.

EPA REG. NO. 65217-1
EPA EST. 61897-TX-0001
CANADIAN P.C.P. REG. NO. 10301
CAS NO. 8063-89-6

D

ANALYSTS, INC.

ASTM REPORT

Analysts, Inc. | ISO 17025 Accredited | 3401 Jack Northrop Ave. Hawthorne, CA. 90250
Phone: 800.424.0099

City And Borough Of Sitka
Andy Eggen
105 JARVIS ST.
Sitka, AK, 99835

Lab Number: **0073**
Logged Date: **Mar 26 2013**
Sample Drawn: **Mar 20 2013**

Report Date: 4/2/2013
Record Ref. #: **5677182**

Unit ID: **Jarvis St. Bulk Tank**
Sample ID: **ULSD #2 Fuel Sample**
Worksite:
From: **City And Borough Of Sitka**

Mfg: **Please provide**
Model: **Please provide**
PO No.: **06-0016766**

TESTING PERFORMED:

Test	Result	MEASURED for Sample 0073
ASTM D-6304 KARL FISHER	KF PPM (ppm)	71

Sample extracted by city of Sitka from sump drain

Maintenance Recommendations for Lab No. **0073**

ndition / Evaluation statements not applicable to this sample. Report issued to provide test results only.

Pipe of 210,000 gal tank.

Respectfully Submitted,

JFRENCH
Analysts, Inc.

E

NALYSTS, INC.

FUEL SAMPLE SUBMITTAL FORM

Solar Turbines
A Caterpillar Company

Submit samples to Analysts, Inc.'s Regional Laboratory:

Analysts, Inc.
3401 Jack Northrop Ave.
Hawthorne, CA 90250
USA

~~**Reference sampling instructions for completing the information below and how to ship the sample.**~~

FUEL SAMPLE INFORMATION (MUST COMPLETE ALL INFORMATION)

Section I - Sample Identification		**Section II – Fuel Sample Information**			
Site Info:	City of Sitka, AK, Jarvis St Plant	Sample # 1 of 4			
Package SN:	N/A				
Package PD:	NA	Additives in Use?	Lubricity Additive		
Fuel Type:	□ Grade 2-GT ☒ Diesel Fuel #2 □ Kerosene □ JET A □ JP 4 □ ~~Other~~: (off-road Red Dyed)	Age of Fuel:	110,000 gal added Feb 2012	Sample Date:	April 10, 2013
Section III – Water Sample Information					
Water Sample Included: □ Yes ☒ No					
Water Source (please check one): □ Evaporative Cooler □ Water Injections □ Water Purge or Compressor Cleaning					
Problem(s) Suspected (describe below)					
Customer Witness Signature: [signature]					

SAMPLER INFORMATION [signature]

Section IV - Shipping Information		**Section V – Billing Information (if different from shipping)**
Worksite:		□ New Commissioning □ MMS □ Customer Service □ Other: Kim Dawson
District:		
FSR Name:		
Address:		
City/ST/Zip:		
Phone No:		
Fax No.		

DESIGNATE TESTING REQUIREMENTS (Check applicable)

X	Standard Fuel Test Package (per No. ES 9-98) – PLEASE Confer with Ms Dawson
	Add-on Fuel Test: Water Test (per No. ES 9-98)

Comments / Requests or Special Instructions:	
Flowing fuel from 210,000 gal Tank, upstream of Velcon Filter, first of two samples taken (Second is for confirmation) from same spigot	
For Lab Use Only	**EOM SAMPLES**

Always retain a copy of submitted forms for your records

3R90/E 5011201 (F)

NALYSTS, INC.

FUEL SAMPLE SUBMITTAL FORM

Solar Turbines
A Caterpillar Company

Submit samples to Analysts, Inc.'s Regional Laboratory:

Analysts, Inc.
3401 Jack Northrop Ave.
Hawthorne, CA 90250
USA

~~**Reference sampling instructions for completing the information below and how to ship the sample.**~~

FUEL SAMPLE INFORMATION (MUST COMPLETE ALL INFORMATION)

Section I - Sample Identification		**Section II – Fuel Sample Information**			
Site Info:	City of Sitka, JARVIS ST PLANT	Sample # 2 of 4			
Package SN:	NA				
Package PD:	NA	Additives in Use?	Lubricity additive		
Fuel Type:	☐ Grade 2-GT ☒ Diesel Fuel #2 ☐ Kerosene ☐ JET A ☐ JP 4 ☐ ~~Other~~: Low Sulfur Red Dye	Age of Fuel:	110,000 gal added FEB 2012	Sample Date:	April 10, 2013

Section III – Water Sample Information
Water Sample Included: ☐ Yes ☒ No
Water Source (please check one): ☐ Evaporative Cooler ☐Water Injections ☐ Water Purge or Compressor Cleaning
Problem(s) Suspected (describe below)
Customer Witness Signature: Trevor Webb

SAMPLER INFORMATION Dayton Tinson

Section IV - Shipping Information		**Section V – Billing Information (if different from shipping)**
Worksite:		☐ New Commissioning ☐ MMS ☐ Customer Service ☐ Other: Kim Dawson
District:		
FSR Name:		
Address:		
City/ST/Zip:		
Phone No:		
Fax No.		

DESIGNATE TESTING REQUIREMENTS (Check applicable)	
X	Standard Fuel Test Package (per No. ES 9-98) – Please Contact with Ms DAWSON
	Add-on Fuel Test: Water Test (per No. ES 9-98)

Comments / Requests or Special Instructions:	
Flowing fuel from 210,000 gal tank, upstream of velcon filter, 2nd of two samples taken from same spigot.	
For Lab Use Only	**EOM SAMPLES**

Always retain a copy of submitted forms for your records

ANALYSTS, INC.

FUEL SAMPLE SUBMITTAL FORM

Solar Turbines
A Caterpillar Company

Submit samples to Analysts, Inc.'s Regional Laboratory:

Analysts, Inc.
3401 Jack Northrop Ave.
Hawthorne, CA 90250
USA

~~**Reference sampling instructions for completing the information below and how to ship the sample.**~~

FUEL SAMPLE INFORMATION (MUST COMPLETE ALL INFORMATION)

Section I - Sample Identification		**Section II – Fuel Sample Information**			
Site Info:	City of Sitka, AK, Jarvis St Plant	Sample #3 of 4			
Package SN:	NA				
Package PD:	NA	Additives in Use?	Lubricity Additive		
Fuel Type:	□ Grade 2-GT □ Diesel Fuel #2 □ Kerosene □ JET A □ JP 4 □ Other:________	Age of Fuel:	110,000 gal added Feb 2012	Sample Date:	April 10, 2013

Section III – Water Sample Information
Water Sample Included: □ Yes ☒ No
Water Source (please check one): □ Evaporative Cooler □ Water Injections □ Water Purge or Compressor Cleaning
Problem(s) Suspected (describe below)
Customer Witness Signature: [signature]

SAMPLER INFORMATION [signature]

Section IV - Shipping Information		**Section V – Billing Information (if different from shipping)**
Worksite:		□ New Commissioning
District:		□ MMS
FSR Name:		□ Customer Service
Address:		□ Other: Kim Dawson
City/ST/Zip:		
Phone No:		
Fax No.		

DESIGNATE TESTING REQUIREMENTS (Check applicable)

X	Standard Fuel Test Package (per No. ES 9-98) – PLEASE Confer with MS DAWSON
	Add-on Fuel Test: Water Test (per No. ES 9-98)

Comments / Requests or Special Instructions:	
FLOWING fuel from 210,000 gal tank, DOWNSTREAM of VELCON filter and fill pump, one of two, Represents fuel delivered to unit filters of existing Diesel Engines	
For Lab Use Only	**EOM SAMPLES**

Always retain a copy of submitted forms for your records

(H)

NALYSTS, INC.

FUEL SAMPLE SUBMITTAL FORM

Solar® Turbines
A Caterpillar Company

Submit samples to Analysts, Inc.'s Regional Laboratory:

Analysts, Inc.
3401 Jack Northrop Ave.
Hawthorne, CA 90250
USA

~~**Reference sampling instructions for completing the information below and how to ship the sample.**~~

FUEL SAMPLE INFORMATION (MUST COMPLETE ALL INFORMATION)

Section I - Sample Identification		**Section II – Fuel Sample Information**			
Site Info:	City of Sitka, AK, JARVIS ST PLANT	Sample #~~1~~ of 4			
Package SN:	N/A				
Package PD:	N/A	Additives in Use?	Lubricity Additive		
Fuel Type:	☐ Grade 2-GT ☒ Diesel Fuel #2 ☐ Kerosene ☐ JET A ☐ JP 4 ☐ Other:	Age of Fuel:	Tank filled MARCH 2013	Sample Date:	April 11, 2013
Section III – Water Sample Information					
Water Sample Included: ☐ Yes ☒ No					
Water Source (please check one): ☐ Evaporative Cooler ☐ Water Injections ☐ Water Purge or Compressor Cleaning					
Problem(s) Suspected (describe below)					
Customer Witness Signature: Trevor Webb					

SAMPLER INFORMATION Dwight Tanner

Section IV - Shipping Information		**Section V – Billing Information (if different from shipping)**
Worksite:		
District:		
FSR Name:		☐ New Commissioning ☐ MMS ☐ Customer Service ☐ Other: Kim Dawson
Address:		
City/ST/Zip:		
Phone No:		
Fax No.		

DESIGNATE TESTING REQUIREMENTS (Check applicable)		
X	Standard Fuel Test Package (per No. ES 9-98)	Please Confer with Ms DAWSON
	Add-on Fuel Test: Water Test (per No. ES 9-98)	

Comments / Requests or Special Instructions:	
"Thief" fuel from #8 PETROMARINE TERMINAS TANK, Harbor, City of SITKA, from Approx elevation 8' of 17' level. Sample Captured by Steve Thief Bottle, Transferred to Solar Bottle	
For Lab Use Only	**EOM SAMPLES**

Always retain a copy of submitted forms for your records

Solar Turbines

A Caterpillar Company

ASTM REPORT

Solar Turbines - Kimberly Dawson
Kimberly Dawson
9330 Sky Park Ct
San Diego, CA, 92119

Lab Number: **0049**
Logged Date: **Apr 22 2013**
Sample Drawn: **Apr 10 2013**

Report Date: 5/9/2013
Record Ref. #: **5700761**

Unit ID: **City of Sitka, AK, Jarvis St Plant**
Sample ID: **Sample #1 & #2 Combined**
Worksite:
From: **Solar Turbines Inc.**

Mfg: **Please provide**
Model: **Please provide**
PO No : **INP001012 / ADD PD#**

TESTING PERFORMED:

Test	Result	MEASURED for Sample 0049
ASTM D-130 COPPER STRIP CORROSION	Time (Hr)	3
	Temp (°F)	122
	Classification	1A
ASTM D-1319 HYDROCARBON TYPES	Aromatics (% vol)	18.9
	Olefins (% vol)	1.4
ASTM D-240 HEAT OF COMBUSTION	Gross Heat Value BTU/lb (BTU/lb)	19679
	Net Heat Value BTU/lb (BTU/lb)	18469
TM D-2500 CLOUD POINT	Cloud Point (°F)	-11
ASTM D323 REID VAPOR PRESSURE	Reid Vapor Pressure (PSI)	<0.1
ASTM D-4294 SULFUR	Sulfur (% wt.)	0.020
ASTM D4629 NITROGEN	Nitrogen (ppm)	3.00
ASTM D-482 ASH	ASH (% wt.)	<0.001
ASTM D-6079 LUBRICITY	Wear Scar Diameter (µM)	460.000
	Temp (°C)	60.0
	Wear Scar Major Axis (mm)	0.49
	Wear Scar Minor Axis (mm)	0.43
ASTM D-6217 PARTICULATE CONTAMINATION	Particulate Contamination (mg/L)	1.00
ASTM D-6304 KARL FISHER	KF PERCENT (% vol)	<0.01
ASTM D-808 CHLORINE	Chlorine (% wt.)	<0.1
ASTM D-86 DISTILLATION	90% Temp (°F)	617
	End Point (°F)	657
	Recovery (mL)	98.0
	Residue (mL)	1.4
	Loss (mL)	0.6
ASTM D-93 FLASH POINT	Flash Point (°F)	134
ASTM D-97 POUR POINT	Pour Point (°F)	-27
SPECTROCHEMICAL	Sodium (ppm)	<0.25
	Potassium (ppm)	<0.25
	Sodium+Potassium (ppm)	<0.50
	Vanadium (ppm)	<0.5
	Calcium (ppm)	<0.25
	Magnesium (ppm)	<0.25

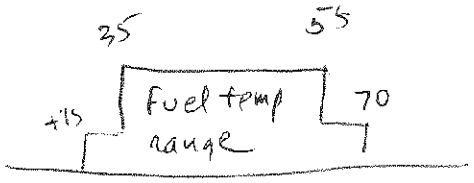
(K)

From: Andy Eggen <andy@cityofsitka.com>
To: douglaswmooreinc <douglaswmooreinc@aol.com>; chrisb <chrisb@cityofsitka.com>; juliet <juliet@cityofsitka.com>
Cc: jackwest <jackwest@cityofsitka.com>; trevor <trevor@cityofsitka.com>; pawlowski_greg_x <pawlowski_greg_x@solarturbines.com>; sthompson <sthompson@solarturbines.com>
Subject: RE: City of Sitka Jarvis St April 2013 diesel Fuel Lab ample results
Date: Mon, May 6, 2013 5:35 pm

Thanks Doug,

The minimum fuel temp at + 15'F is rare, maximum of +70'F is rare and average of 35 to 55'F in the coast 90% of the year.

Andy



From: douglaswmooreinc@aol.com [mailto:douglaswmooreinc@aol.com]
Sent: Monday, May 06, 2013 3:23 PM
To: andy@cityofsitka.com; chrisb@cityofsitka.com; juliet@cityofsitka.com
Cc: jackwest@cityofsitka.com; trevor@cityofsitka.com; pawlowski_greg_x@solarturbines.com; sthompson@solarturbines.com
Subject: Re: City of Sitka Jarvis St April 2013 diesel Fuel Lab ample results

Hi Andy,

Haven't got the results back yet, but will get you a copy when done.

The scientists decided to run the full spectrum of tests on the two samples taken upstream of the Cat 20 micron filter,combining them to have enough fluid, and to hold the sample from downstream of the filter and the one from the Petro Marine tank in reserve for a while.

Jerry Jacobs of Petro Marine told me every load is sampled and tested at Ketchicak for sulfur, then sampled at Sitka and the sample sent back for analysis in Ketchikan. So, he probably has the results from recent barge loads.

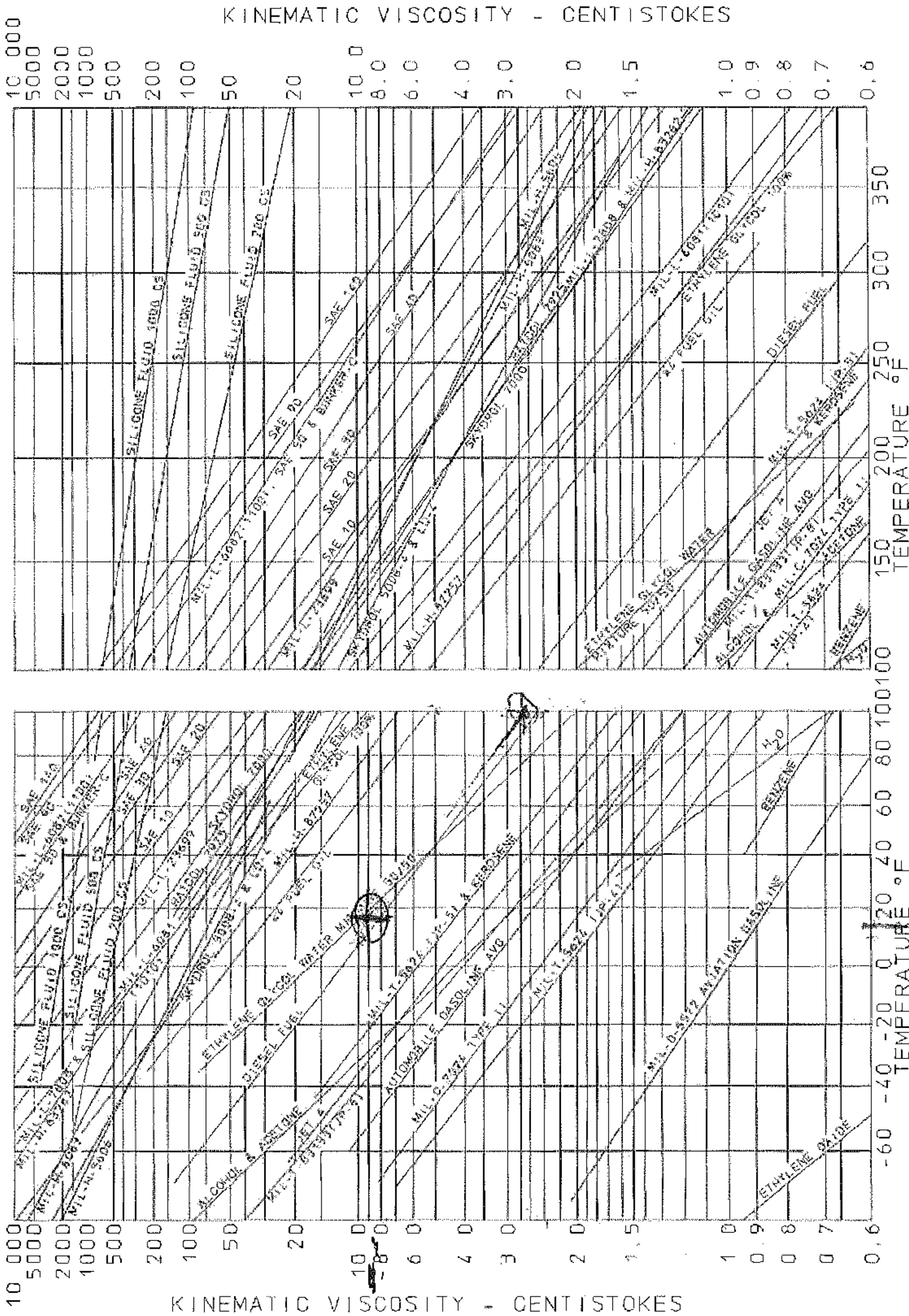
Andy, do you happen to have data about average fuel temp, as delivered to the Cat day tank? I'm looking at the viscosity limits, which depend on temperature as well as composition.

Doug

M1

Viscosity of various fluids

LOHMS *et al*



15F

M2

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	ORD 14-11	Version:	1	Name:	
Type:	Ordinance			Status:	SECOND READING
File created:	4/16/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Authorizing the sale of Lot 1 South Sitka Sound Seafoods Subdivision to North Pacific Seafoods				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	ORD 2014-11 SSS NPS				

Date	Ver.	Action By	Action	Result
4/22/2014	1	City and Borough Assembly		

POSSIBLE MOTION

I MOVE TO approve Ordinance 2014-11 on second and final reading.

MEMORANDUM

To: Mark Gorman, Municipal Administrator
Mayor McConnell and Members of the Assembly

From: Maegan Bosak, Planner I

Subject: Sale of Tidelands to North Pacific Seafoods, Inc.

Date: April 15, 2014

Ordinance No. 2014-11 is on the Assembly agenda to authorize the sale of 10,797 square feet of tidelands to North Pacific Seafoods, Inc. The tidelands are adjacent and seaward of property owned at 329 Katlian Avenue. The sale price, as established by the Assessor, is $83,137.00.

The tidelands request is 10,797 square feet adjacent to property owned by North Pacific Seafoods off of Katlian Avenue. The parcel is described as: A parcel of tide and submerged land lying within the First Judicial District, State of Alaska, and within the City and Borough of Sitka, adjacent to the Conway Dock Tidelands which is adjacent to Lots 20 and 21, Block 5, US Survey 2542. Tidelands on the other side of the proposed sale are owned by the Hames Corporation.

The Assembly considered this request in January of this year. Preliminary approval was granted by the Assembly at that time before North Pacific Seafoods, Inc. had a subdivision plat prepared.

The proposal has been reviewed/and supported by the Ports and Harbors Commission and the minor subdivision was approved at the April 1, 2014 Planning Commission meeting.

The original tidelands lease was created in July, 1980 between Sitka Sound Seafoods and the City and Borough of Sitka for a term of fifty five (55) years. The lease rate was fixed at $1349.63 per year, and subject to adjustment every 5 years. This fiscal year, Sitka Sound Seafoods paid $4156.85.

The sale price is $83,137.00 or $7.70 per square foot based on the rate set by the City Assessor, Randy Hughes.

Recommended Action: Approve the ordinance.

Sponsor: Administrator

CITY AND BOROUGH OF SITKA

ORDINANCE NO. 2014-11

AN ORDINANCE OF THE CITY AND BOROUGH OF SITKA, ALASKA AUTHORIZING THE SALE OF LOT 1 SOUTH SITKA SOUND SEAFOODS SUBDIVISION

1. **CLASSIFICATION.** This ordinance is not of a permanent nature and is not intended to become a part of the Sitka General Code.

2. **SEVERABILITY.** If any provision of this ordinance or any application thereof to any person or circumstance is held invalid, the remainder of this ordinance and application thereof to any person or circumstances shall not be affected thereby.

3. **PURPOSE.** The Assembly has determined this property is excess to municipal needs.

4. **ENACTMENT.** NOW, THEREFORE, BE IT ENACTED by the Assembly of the City and Borough of Sitka:

A. The sale of Lot 1 South Sitka Sound Seafoods Subdivision to North Pacific Seafoods, Inc. is hereby authorized. South Sitka Sound Seafoods Subdivision is a subdivision of ATS 15 creating a new lot seaward of Lot 19, Block 5, US Survey 2542.

B. The sales price of the 10,797 square feet of tidelands, as established by the Municipal Assessor, shall be at $83,137.

C. The City and Borough Assembly finds competitive bidding is inappropriate and unnecessary due to the nature of the property since it can only realistically be used by the adjacent property owner.

D. The sale is conditional on the recording of the subdivision plat.

E. The transfer shall be by quitclaim deed.

5. **EFFECTIVE DATE.** This ordinance shall become effective on the day after the date of its passage.

PASSED, APPROVED, AND ADOPTED by the Assembly of the City and Borough of Sitka, Alaska this 13th day of May 2014.

Mim McConnell, Mayor

ATTEST:

Colleen Ingman, MMC
Municipal Clerk

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	ORD 14-12	Version: 1	Name:		
Type:	Ordinance		Status:	FIRST READING	
File created:	5/7/2014		In control:	City and Borough Assembly	
On agenda:	5/13/2014		Final action:		
Title:	Amending SGC 4.09.010 entitled "Levy of Sales Tax" which removes the Requirement of Registration and Filing of Tax Returns for Tax Exempt Long Term Residential Rentals				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	ORD 2014-12 Residential Rentals Tax Returns				

Date	Ver.	Action By	Action	Result

POSSIBLE MOTION

I MOVE TO approve Ordinance 2014-12 on first reading.

Sponsor: Administrator

CITY AND BOROUGH OF SITKA

ORDINANCE NO. 2014-12

AN ORDINANCE OF THE CITY AND BOROUGH OF SITKA AMENDING SGC 4.09.010 ENTITLED "LEVY OF SALES TAX" WHICH REMOVES THE REQUIREMENT OF REGISTRATION AND FILING OF TAX RETURNS FOR TAX-EXEMPT LONG TERM RESIDENTIAL RENTALS

1. **CLASSIFICATION.** This ordinance is of a permanent nature and is intended to become a part of the Sitka General Code ("SGC").

2. **SEVERABILITY.** If any provision of this ordinance or any application to any person or circumstance is held invalid, the remainder of this ordinance and application to any person or circumstance shall not be affected.

3. **PURPOSE.** On June 12, 2007, Ordinance 2007-12 was passed to include rent paid for residential housing as exempt from sales tax. Although exempt from sales tax, long term residential rentals in a personal home or a single duplex were required to prepare and submit sales tax returns showing $0 tax. The purpose of this ordinance is to eliminate the unnecessary paperwork and alleviate the administrative burdens on landlords with minimal rental activity along no other business activity and sales tax staff by removing such a requirement.

4. **ENACTMENT. NOW THEREFORE BE IT ENACTED** by the Assembly of the City and Borough of Sitka that SGC 4.09.010 is amended to read as follows (new language underlined; deleted language stricken):

4.09.010 Levy of sales tax.

A. There is levied a consumer's sales tax on sales, rents, and leases made in the city and borough of Sitka. This tax applies to sales, rentals, and leases of tangible personal property; sales of services sold within the city and borough of Sitka; sales of services performed wholly or partially within the city and borough of Sitka when the provision of such services originates or terminates within the city and borough of Sitka; and rentals and leases of real property located within the city and borough of Sitka except for as provided in that long term residential rentals in your personal home or a single duplex will not need to be registered or file a return with the city and borough of Sitka for sales tax. Notwithstanding any provision of law, air or sea charter services, provided a person or entity in the business of providing such charter services, are exempt from sales tax by the city and borough of Sitka if the charter does not commence and end within the city and borough of Sitka.

B.~~A.~~ The rate of levy of the sales tax levied under subsection A of this section is five percent on sales made during the months of October, November, December, January,

February, and March. The rate of levy of the sales tax levied under subsection A of this section is six percent on sales made during the months of April, May, June, July, August, and September.[1]

* * *

5. **EFFECTIVE DATE.** This ordinance shall become effective on January 1, 2014.

PASSED, APPROVED, AND ADOPTED by the Assembly of the City and Borough of Sitka, Alaska on this 10th day of June, 2014.

_____
Mim McConnell, Mayor

ATTEST:

_____
Colleen Ingman, MMC
Municipal Clerk

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	ORD 14-13	Version: 1	Name:		
Type:	Ordinance		Status:	FIRST READING	
File created:	5/7/2014		In control:	City and Borough Assembly	
On agenda:	5/13/2014		Final action:		
Title:	Amending SGC chapter 4.12 entitled "Property Tax" to add SGC 4.12.045 entitled "Exemptions - Disaster Damage" to Allow Reassessment of Property Damaged by Disaster				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	ORD 2014-13 Damaged by Disaster				

Date	Ver.	Action By	Action	Result

POSSIBLE MOTION

I MOVE TO approve Ordinance 2014-13 on first reading.

Sponsor: Administrator

CITY AND BOROUGH OF SITKA

ORDINANCE NO. 2014-13

AN ORDINANCE OF THE CITY AND BOROUGH OF SITKA AMENDING SITKA GENERAL CODE CHAPTER 4.12 ENTITLED "PROPERTY TAX" TO ADD SITKA GENERAL CODE 4.12.045 ENTITLED "EXEMPTIONS – DISASTER DAMAGE" TO ALLOW REASSESSMENT OF PROPERTY DAMAGED BY DISASTER

1. **CLASSIFICATION.** This ordinance is of a permanent nature and is intended to become a part of the Sitka General Code ("SGC").

2. **SEVERABILITY.** If any provision of this ordinance or any application to any person or circumstance is held invalid, the remainder of this ordinance and application to any person or circumstance shall not be affected.

3. **PURPOSE.** Alaska Statute 29.45.230 entitled "Tax Adjustments on Property Affected by a Disaster" allows municipalities, by ordinance, to assess or reassess and reduce taxes for property destroyed, damaged or otherwise reduced in value as a result of a disaster. The City and Borough of Sitka has no such ordinance or provision in its general code. The purpose of this ordinance is to add SGC 4.12.045 entitled "Exemptions – Disaster damage" so that, upon application by the property owner, the assessor can assess or reassess and/or reduce the amount of tax owed on properties that have sustained more than $10,000 in damages by storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, avalanche, snowstorm, prolonged extreme cold, drought, fire, flood, epidemic, explosion or riot.

4. **ENACTMENT. NOW, THEREFORE, BE IT ENACTED** by the Assembly of the City and Borough of Sitka that SGC 4.12.045 entitled "Exemptions – Disaster damage" is added as follows (new language underlined; deleted language stricken):

Chapter 4.12
PROPERTY TAX

Sections:

* * *

4.12.045 Exemptions—Disaster damage.

A. **Reassessment of property damaged by disaster.** An owner of any taxable property within the borough, or any person liable for the taxes thereon, whose property was damaged by a disaster without his or her fault, may apply for reassessment of that property under this section. In addition, the assessor may initiate such reassessment where the assembly determines that within the current assessment year taxable property located in the borough was damaged by a disaster.

B. **Definitions:**

Unless the context clearly requires a different meaning, the following words and phrases as used in this section are defined as shown below:

"Damage" means harm resulting from physical injury to property, including partial or total destruction, and a diminution in the value of improvements or land resulting from restricted access to property caused by the disaster.

"Disaster" means the occurrence or imminent threat of widespread or severe damage, injury, loss of life or property, or shortage of food, water, or fuel resulting from:

1. An incident such as storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, avalanche, snowstorm, prolonged extreme cold, drought, fire, flood, epidemic, explosion, or riot;
2. The release of oil or a hazardous substance if the release requires prompt action to avert environmental danger or mitigate environmental damage; or
3. Equipment failure if the failure is not a predictably frequent or recurring event or preventable by adequate equipment maintenance or operation.

C. **Eligibility.** To be eligible for reassessment, the damage to the property shall have been caused by any of the following:

1. A disaster in an area or region declared by the assembly, the governor, or the president to be in a condition of disaster emergency;
2. A disaster as that term is defined in this section; or
3. A disaster that, with respect to a possesory interest in land owned by the state or federal government has caused the permit or other right to enter upon the land to be suspended or restricted.

D. Application for reassessment.

1. The application for reassessment must be filed with the assessor within 60 days of the disaster by delivering to the assessor a written application, on a form provided by the assessor, requesting reassessment and describing the condition and value of the property immediately before and after the damage or destruction.
2. If no application is made and the assessor determines that within the calendar year a property has suffered damage caused by disaster that may qualify the property owner for relief under an ordinance adopted under this section, the assessor may provide the last known owner of the property with an application for reassessment. The property

owner shall file the completed application within 30 days of the date of the mailing of notification by the assessor but in no case more than 60 days after the occurrence of said damage.

3. Upon receiving the proper application, the assessor or assessor's designee will inspect the property and verify the prior year's full and true value of land, improvements, personal property, or the proposed or certified current year's value immediately before and after the damage or destruction.
4. If an applicant has refused or failed to provide the assessor or the assessor's agent full access to property or records reasonably requested by the assessor, the applicant shall be precluded from any reduction or relief, and any valuation or valuation issue affected by the lack of access shall be decided in favor of the assessor.
5. If the sum of the full and true values of the land, improvements, and personal property before the damage exceeds the sum of the values after the damage by $10,000.00 or more, the assessor shall also separately determine the percentage reduction in value of the land, improvements, or personal property due to the damage or destruction. The assessor shall reduce the values appearing on the assessment roll by the percentage of damage or destruction computed pursuant to this section, and the taxes due on the property shall be adjusted as provided this section. However, the amount of the reduction shall not exceed the actual loss.
6. Any damages to land, improvements, personal property, or additions that do not appear on the assessment roll are not eligible for consideration under this section.

E. Notice of reassessment. The assessor shall notify the applicant in writing of the amount of the proposed reassessment. The notice shall state that the applicant may appeal the proposed reassessment to the board of equalization within 30 days of the date of mailing the notice.

F. Appeal. Appeals of the reassessed value shall be heard in accordance with the valuation and flat tax appeal procedures provided in this chapter. A decision of the board of equalization regarding reassessment issued pursuant to this section shall create no presumption regarding the value of the affected property subsequent to the date of the damage.

G. Tax roll adjustment. Any reassessed value resulting from one or more reductions in full and true value of amounts, as determined above, shall be forwarded to the finance director. The finance director shall calculate and enter the reassessed tax values on the finance roll as a tax adjustment request (TAR).

H. Tax adjustment. The tax rate fixed for the property so reassessed shall be applied to the amount of the reassessment as determined in accordance with this section. The owner of record shall be liable for a prorated portion of the taxes that would have been due on the property for the current calendar year had the disaster not occurred. This proration is determined on the basis of the number of days remaining in the calendar year beginning with the date of the disaster. For purposes of applying the calculation in prorating taxes, the term "calendar year" means the portion of the current tax year used to determine the adjusted

amount of taxes based on a 365-day year. If the damage or destruction occurred after January 1 and before the beginning of the next calendar year, the reassessment shall be utilized to determine the tax liability for the current year. Any tax paid in excess of the total tax due shall be refunded to the taxpayer as an erroneously collected tax within 60 days of the final determination of the adjusted tax liability.

I. Effect of revised assessment. The assessed value of the property in its damaged condition, as determined pursuant to this section shall be the taxable value of the property until December 31 of the year in which the disaster occurred, unless the value is otherwise adjusted as allowed by law.

5. **EFFECTIVE DATE.** This ordinance shall become effective January 1, 2015.

PASSED, APPROVED, AND ADOPTED by the Assembly of the City and Borough of Sitka, Alaska this 10th day of June, 2014.

_____
Mim McConnell, Mayor

ATTEST:

_____
Colleen Ingman, MMC
Municipal Clerk

Memorandum

TO: Mark Gorman, Municipal Administrator
Mayor Mim McConnell and Members of the Assembly

FROM: Randy Hughes, Assessing Director

SUBJECT: Amending the Property Tax Provisions at SGC Chapter 4.12 Entitled "Property Tax" to Add SGC 4.12.045 Entitled "Exemptions-Disaster Damage" to Allow Reassessment of Property Damaged by Disaster.

DATE: May 13th 2014

The proposed change to SGC 4.12 is intended to bring some property tax relief to those property owners who have sustained more than $10,000 in damages as a result of a disaster.

Every year we have one or two properties that are significantly damaged by fire or mudslides. Property values are based on what was there as of January 1st, without exception. The adoption of this ordinance is allowed by Alaska Statute 29.45.230.

AS 29.45.230. Tax Adjustments On Property Affected By a Disaster.

(a) *The municipality may by ordinance provide for assessment or reassessment and reduction of taxes for property destroyed, damaged, or otherwise reduced in value as a result of a disaster.*
(b) *An assessment or reassessment under this section may be made by the assessor only upon the receipt of a sworn statement of the taxpayer that losses exceed $1,000. A reduction of taxes may be made only on losses in excess of $1,000 for the remainder of the year following the disaster. On reassessment, the municipality shall recompute this tax and refund taxes that have already been paid.*
(c) *The municipality shall give notice of assessment or reassessment under this section and shall hold an equalization hearing as provided in this chapter, except that a notice of appeal must be filed with the board of equalization within 10 days after notice of assessment or reassessment is given to the person appealing. Otherwise, the right of appeal ceases unless the board finds that the taxpayer is unable to comply.*
(d) *In an ordinance authorized by this section, the municipality shall establish criteria for the reduction of taxes on property damaged, destroyed, or otherwise reduced in value as a result of disaster, and may, consistent with this section, prescribe procedures, restrictions, and conditions for assessing or reassessing property and for remitting, refunding, or forgiving taxes.*

TAXPAYER'S CLAIM FOR REDUCTION OF ASSESSMENTS AND THE ABATEMENT OF TAXES RESULTING FROM DAMAGED REAL OR PERSONAL PROPERTY RESULTING FROM A DISASTER AS DEFINED IN SGC 4.12.045

Mail Completed Forms to: Assessor, 100 Lincoln Street, Sitka, AK 99835

"Disaster" means the occurrence or imminent threat of widespread or severe damage, injury, loss of property, or shortage of food, water, or fuel resulting from:

1. An incident such as storm, high water, wind-driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, avalanche, snowstorm, prolonged extreme cold, drought, fire, flood, epidemic, or riot;
2. The release of oil or a hazardous substance if the release requires prompt action to avert environmental danger or mitigate environmental damage; or
3. Equipment failure if the failure is not a predictably frequent or recurring event or preventable by adequate equipment maintenance or operation.

NOTICE TO TAXPAYER: This claim for reduction of assessments and for the abatement of taxes must be filed with the Borough Assessor within sixty (60) days after the date of damage due to a disaster as defined in SGC 4.12.045. If you disagree with the Assessor's determination of value, you may appeal the value to the Board of Equalization within thirty (30) days of the date of notice by submitting a written appeal to the Borough Clerk.

PART 1. TO BE COMPLETED BY TAXPAYER

Pursuant to SGC 4.12.045, I hereby petition for adjustment to the assessed value of the property described below, and for the applicable abatement of taxes.

_____ _____
Taxpayer Phone Number

_____ _____
Mailing Address Property Address

_____ _____
City, State, Zip Code City, State, Zip Code

Borough Parcel ID No._____

Legal Description_____

Check all that apply:

☐ Real Property ☐ Personal Property ☐ Land ☐ Mobile Home ☐ Commercial

Description of property damage: _____

_____

Date damage occurred: ___/___/___ Describe disaster that caused damage: _____

_____

Estimated value of property damage: _____

If property taxes were paid for the tax year of the disaster, state amount paid: $_____

I hereby declare under penalty of perjury that the above information is true and correct to the best of my knowledge and belief.

_____ _____
Date Signed Taxpayer's Signature

PART 2. ASSESSOR'S USE ONLY

Claim: ☐ Qualifies Date filed with Assessor ___/___/___

☐ Does not qualify, because: _____

_____

_____

PART 3. TO BE COMPLETED BY ASSESSOR IF PROPERTY QUALIFIES

Date disaster damage occurred: ___/___/___

1. Assessed value of property prior to damage (_____days) $_____
2. Full and true value of property after damage (_____days) $_____
3. Taxable value of property prior to damage (less exemptions) $_____
4. Taxable value of property after damage (less exemptions) $_____

I hereby certify my determination of the assessed value after damage for the assessment year _____ is as shown on line two (2).

_____ _____ _____

Date Assessor Date sent to Taxpayer

NOTICE TO TAXPAYER

If you disagree with the Assessor's determination of value, you may appeal the value to the Board of Equalization within thirty (30) days of above Date Sent to Taxpayer by submitting a written appeal to the Borough Clerk in accordance with SGC 4.12.045

PART 4. TO BE COMPLETED BY FINANCE DEPARTMENT.
Calculation for amount of taxes in year of disaster

		Number of days	**Mill Rate**	**Yearly Tax**	**Daily Tax**	**Adjusted Yearly Tax**
Original Taxable Value						
_____ *(line 3)*		_____ *(line 1)*	_____	_____	_____	_____
Adjusted Taxable Value						
_____ *(line 4)*		_____ *(line 2)*	_____	_____	_____	_____

Yearly Tax Due $_____ **Yearly Adjusted Taxable Value** $_____

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-103	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Sitka School District Budget Funding for FY15				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	School District Funding				

Date	Ver.	Action By	Action	Result

School District Funding

No action is required if you support the FY15 budget amount of $5,717,521 plus 50% of any Federal Secure Rural Schools funding, plus an amount not to exceed $150,000 for building repair and maintenance.

If you wish to consider anything outside of what is listed above and further described in the attached memo this would be the time to do so.

City and Borough of Sitka
Finance Department

Memo

To: Mayor McConnell and Assembly Members

From: Jay Sweeney, Finance Director

Date: 2/16/2012

Re: School District Funding

AS 14.14.060 (Relationship Between Borough School District and Borough; Finances and Buildings) states in Subsection (e).....

Except as otherwise provided by municipal ordinance, the borough school board shall submit the school budget for the following school year to the borough assembly by May 1 for approval of the total amount. Within 30 days after receipt of the budget the assembly shall determine the total amount of money to be made available from local sources for school purposes and shall furnish the school board with a statement of the sum to be made available. If the assembly does not, within 30 days, furnish the school board with a statement of the sum to be made available, the amount requested in the budget is automatically approved. Except as otherwise provided by municipal ordinance, by June 30, the assembly shall appropriate the amount to be made available from local sources from money available for the purpose.

The Sitka School District budget was officially delivered to the Assembly on April 24. Thus, the May 13 Assembly Meeting is the only Assembly meeting during the 30-day window during which school funding can be discussed, were the Assembly inclined to do so.

The amount requested by the Sitka School District in its FY15 budget is what is also currently contained in the Municipal budget. Accordingly, Administration recommends that the Sitka School District be provided with notification, as required by AS 14.14.060 (e), that the amount of money to be made available from local sources in FY15 shall be equal the amount of $5,717,521 PLUS 50% of any Federal Secure Rural Schools funding received by the Municipality PLUS and amount not exceed $150,000 for building repair and maintenance.

If no action is taken by the Assembly on the Sitka School District budget by May 24, the budget as submitted shall be automatically approved.

CITY AND BOROUGH OF SITKA

100 Lincoln Street,
Sitka, Alaska 99835

Legislation Details

File #:	14-111	Version: 1	Name:		
Type:	Item		Status:	AGENDA READY	
File created:	5/7/2014		In control:	City and Borough Assembly	
On agenda:			Final action:		
Title:	Consider waiving late filing applications for Senior Citizen Exemptions: 1) Jon Shennett and 2) Jeanette Williams				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	SR. Citizen Property Tax Waivers				

Date	Ver.	Action By	Action	Result

Note: Motions should be in the affirmative. These two motions can be combined simply by including both of the late filer names in the motion, if you think the outcome will be the same.

POSSIBLE MOTIONS

I move to approve waiving Jeanette Williams' late filing application for Senior Citizen Real Property Tax Exemption for "good cause" as further defined in the Sitka General Code 4.12.025 (g)

I move to approve waiving Jon Shennett's late filing application for Senior Citizen Real Property Tax Exemption for "good cause" as further defined in the Sitka General Code 4.12.025 (g)

Memorandum

TO: Mark Gorman, Municipal Administrator
Mayor Mim McConnell and Members of the Assembly

FROM: Randy Hughes, Assessing Director

SUBJECT: Late File Applications for the Senior Citizen Real Property Tax Exemption

DATE: May 13th 2014

On February 20th & 28th 2014 the Assessor's Office received separate applications for the 2014 Senior Citizen Exemption from Jeanette Williams and Jon Shennett. Both applicants were informed that the Assessor had no authority to grant exemptions received after the filing deadline and that a late filing could be waived by the Assembly for good cause.

All exemption applications received after February 15th of each year must be taken before the CBS Assembly.

Sitka General Code 4.12.025 Exemptions (g) states:

Exemption application shall be filed by February 15th of each year.

1. The assembly for good cause shown may waive the claimant's failure to make timely application and authorize the assessor to accept the application as if timely filed. "Good cause" shall mean:

a. Extraordinary circumstances beyond the control of the claimant, including but not limited to a medical condition or disability, impaired mental capacity, illiteracy, family emergency, death in the family, or other similar serious condition or event, that substantially impaired the claimant's ability to file a timely application.

b. Extraordinary circumstances for a finding of good cause do not include late filing due to the claimant's inadvertence, oversight, or lack of knowledge regarding the filing requirements or deadline, financial hardship or failure to pick up or read mail or to make arrangements for an appropriate and responsible person to pick up or read mail.

If a failure to timely file has been waived and the application approved, the amount of the tax that the claimant has already paid for the property exempted shall be refunded to the claimant.

2. The city and borough shall not accept a late application for an exemption under subsection A or B of this section that is filed more than ninety days after the date the application was due for the assessment year for which the exemption is sought, regardless of good cause.

Assessor Comments:

- Applicants meet the qualifications to be able to receive the Senior Citizen Property Tax Exemption.
- 04/23/2014 – Letters sent to both applicants requesting good cause documentation and scheduled Assembly hearing date.
- Neither applicant submitted the requested good cause documentation.
- The February 15th 2014 Exemption Deadline was publicized in a newspaper article, paid newspaper advertisements, presented during several Assembly sessions and 2 application letters sent directly to both individuals.
- Unless otherwise instructed by the Assembly, the applications will be accepted and approved for the tax year starting January 1st 2015.

City and Borough of Sitka

100 Lincoln Street Sitka, Alaska 99835

Coast Guard City, USA

April 23, 2014

Jeanette Williams
1615 Halibut Point Rd, #2
Sitka, AK 99835

Re: Senior Citizen Exemption Late File Application

Dear Ms. Williams:

Your late file application for the Senior Citizen Property Tax Exemption will be forwarded to the Borough Assembly for consideration.

The Assembly will meet on Tuesday, May 13rd at 6:00 p.m. in Harrigan Centennial Hall located at 330 Harbor Drive, Sitka, Alaska.

The Applicant bears the burden of proving good cause as a reason for filing after the February 15th deadline. Please submit documentation showing good cause to the Assessor's office no later than 5:00 p.m. Tuesday, May 6th, 2014.

This letter serves as your notice of hearing consideration. I would encourage you to attend.

Sincerely,

Randy Hughes
Assessor

cc: Municipal Clerk

Rec Feb. 28th.

Senior Citizen Exemption 2014

DUE ON OR BEFORE FEBRUARY 15TH OF THE EXEMPTION YEAR
APPLICANTS MUST BE AGE 65 ON OR BEFORE DECEMBER 31ST OF THE PRECEDING YEAR
VERIFICATION OF AGE MUST ACCOMPANY FILING (PASSPORT or BIRTH CERTIFICATE & Photo ID)

Return completed form and requested information to:
City & Borough of Sitka Assessor ·100 Lincoln St · Sitka, AK 99835
907-747-1822

Name: Jeanette Williams Assessor's Parcel Number: 2-5010-002

Mailing Address: 1615 HPR #2 Physical Address: 1615 HPR #2

City: Sitka AK, Zip Alaska 99835 Legal Description: Spc 2, Teachers Tr Ia Ct

Home Phone:	Applicants date of birth:	Spouses name:
Cell Phone: 752-		Spouses date of birth:

I am applying as a:
[X] Senior age 65+ and spouse [ ] Individual age 65 or older [ ] Surviving spouse age 60 or older

Dwelling type:
[ ] Single Family [ ] Condominium [X] Mobile Home [ ] Multi-Family [ ] Other Myself

What percent of ownership do you alone (or jointly with your spouse) have in this property? _____%

Is any portion of this property used for **Commercial Purposes**? [ ] Yes [X] No **Rental Purposes**? [ ] Yes [X] No

Is occupancy shared with someone other than your spouse and/or minor children? [X] Yes [ ] No
If yes, when did shared occupancy begin? Date 26 year 15 What percent of the home do they occupy? _____%
If live in care is medically necessary, attach a letter from the doctor.

Do you or your spouse own property in another state? [ ] Yes [X] No Do you receive any exemptions on that property? [ ] Yes [X] No

When traveling outside the state of Alaska, at what address do you primarily reside?
1615 HPR #2 Sitka, Alaska 99835

Did you receive a 2013 Alaska Permanent Fund Dividend? [X] Yes [ ] No

Will you qualify for a 2014 AK Permanent Fund Dividend? [X] Yes [ ] No Will you or have you applied? [X] Yes [ ] No

If you answered "No" to any of the PFD questions, you must also complete the CBS Supplemental Form #1 (available at the Assessing Department or online) at - www.cityofsitka.com/government/departments/assessing

I CERTIFY:
This property is my primary residence and permanent place of abode. I will occupy it for a minimum of 185 days prior to each year in which I receive the exemption. The property is not used for non residential, temporary or vacation purposes, and is my true and fixed permanent residence. I hereby certify that the information I am supplying on and with this form is **TRUE** and **CORRECT** to the best of my knowledge. I understand that willful misrepresentation is punishable by fine or imprisonment under AS 11.56.210 & Sitka General Code 1.12.10, and will disqualify me from receiving this exemption. I will notify the CBS Assessor's office if there is any change which may affect my exemption.

(Jeanette Williams)
Jeanette Williams Jeanette Williams Feb. 1, 2014
Print or type Applicants name **Signature** **Date**

*******ASSESSOR'S USE ONLY*******

_____*New Filing* _____*Occupancy* _____*Age* _____*Denied* _____*Approved* _____*Entered by*
_____*Prior Filing* _____*Ownership* ____/____*Perm Fund* _____*Full* _____*Variable* _____*Contig*

City and Borough of Sitka

100 Lincoln Street Sitka, Alaska 99835

Coast Guard City, USA

April 23, 2014

Jon M. Shennett
P.O. Box 1106
Sitka, AK 99835

Re: Senior Citizen Exemption Late File Application

Dear Mr. Shennett:

Your late file application for the Senior Citizen Property Tax Exemption will be forwarded to the Borough Assembly for consideration.

The Assembly will meet on Tuesday, May 13rd at 6:00 p.m. in Harrigan Centennial Hall located at 330 Harbor Drive, Sitka, Alaska.

The Applicant bears the burden of proving good cause as a reason for filing after the February 15th deadline. Please submit documentation showing good cause to the Assessor's office no later than 5:00 p.m. Tuesday, May 6th, 2014.

This letter serves as your notice of hearing consideration. I would encourage you to attend.

Sincerely,

Randy Hughes
Assessor

cc: Municipal Clerk

HAND Delivered
LATE FILE

Senior Citizen Exemption 2014

RH

DUE ON OR BEFORE FEBRUARY 15TH OF THE EXEMPTION YEAR
APPLICANTS MUST BE AGE 65 ON OR BEFORE DECEMBER 31ST OF THE PRECEDING YEAR
VERIFICATION OF AGE MUST ACCOMPANY FILING (PASSPORT or BIRTH CERTIFICATE & Photo ID)

Rec Feb 20th

Return completed form and requested information to:
City & Borough of Sitka Assessor ·100 Lincoln St · Sitka, AK 99835
907-747-1822

Name: Jon M. Shennett Assessor's Parcel Number: _____

Mailing Address: P.O. Box 1104 Physical Address: 1209 H. P. R.

City: Sitka AK, Zip 99835 Legal Description: _____

Home Phone: 747-	Applicants date of birth:	Spouses name: —
Cell Phone: 738-		Spouses date of birth: —

I am applyi

[N] Senior age 65+ and spouse [X] Individual age 65 or older [ ] Surviving spouse age 60 or older

Dwelling type:
[X] Single Family [ ] Condominium [ ] Mobile Home [ ] Multi-Family [ ] Other _____

What percent of ownership do you alone (or jointly with your spouse) have in this property? 100% %

Is any portion of this property used for **Commercial Purposes**? [ ] Yes [X] No **Rental Purposes**? [ ] Yes [X] No

Is occupancy shared with someone other than your spouse and/or minor children? [X] Yes [ ] No
If yes, when did shared occupancy begin? Date 9/16/10 What percent of the home do they occupy? 20 %
If live in care is medically necessary, attach a letter from the doctor.

Do you or your spouse own property in another state? [ ] Yes [X] No Do you receive any exemptions on that property? [ ] Yes [ ] No

When traveling outside the state of Alaska, at what address do you primarily reside?

Did you receive a 2013 Alaska Permanent Fund Dividend? [X] Yes [ ] No

Will you qualify for a 2014 AK Permanent Fund Dividend? [X] Yes [ ] No Will you or have you applied? [X] Yes [ ] No

If you answered "No" to any of the PFD questions, you must also complete the CBS Supplemental Form #1 (available at the Assessing Department or online) at - www.cityofsitka.com/government/departments/assessing

I CERTIFY:
This property is my primary residence and permanent place of abode. I will occupy it for a minimum of 185 days prior to each year in which I receive the exemption. The property is not used for non residential, temporary or vacation purposes, and is my true and fixed permanent residence. I hereby certify that the information I am supplying on and with this form is **TRUE** and **CORRECT** to the best of my knowledge. I understand that willful misrepresentation is punishable by fine or imprisonment under AS 11.56.210 & Sitka General Code 1.12.10, and will disqualify me from receiving this exemption. I will notify the CBS Assessor's office if there is any change which may affect my exemption.

Jon M. Shennett	Jon M. Shennett	2-7-14
Print or type Applicants name	**Signature**	**Date**

*******ASSESSOR'S USE ONLY*******

_____*New Filing* _____*Occupancy* _____*Age* _____*Denied* _____*Approved* _____*Entered by*
_____*Prior Filing* _____*Ownership* ____/____*Perm Fund* _____*Full* _____*Variable* _____*Contig*

100 Lincoln Street,
Sitka, Alaska 99835

CITY AND BOROUGH OF SITKA

Legislation Details

File #:	14-112	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Approve a Purchase Agreement for Raw Water between the CBS and I Water, LLC				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	Purchase Agreement for Raw Water				

Date	Ver.	Action By	Action	Result

POSSIBLE MOTION

I move to approve a Water Purchase Agreement for Raw Water between I Water LLC and City and Borough of Sitka attached.

Sawmill Cove
INDUSTRIAL PARK
329 Harbor Dr. Suite 212, Sitka, AK 99835 907-747-2660

Thursday, May 01, 2014

MEMORANDUM

To: Mark Gorman – CBS Administrator

From: Garry White, SCIP Director

Subject: I Water LLC Lease and Water Purchase Agreement

Introduction

I Water, LLC (I Water), a California based limited liability company is requesting to lease property at the SCIP with an option to purchase. I Water plans to construct a water bottling plant on the property. I Water is additionally requesting to acquire a guaranteed water allocation for bottling and export purposes.

The SCIP Board met with an I Water LLC representative at its March 19th meeting to discuss I Water's proposals. The SCIP Board met again on April 10th to discuss the proposals and finalize terms. The SCIP Board recommends the Assembly approve a land lease with option to purchase and water purchase agreement based on the terms detailed below.

Property

I Water LLC requests to purchase lots 3, 6, &7 at the SCIP. Total property is estimated to be 107,810 SF with an estimated assessed value of $431,240.*
**Lots 3 & 6 are currently leased to S&S General Contractors at a rate of $.36/SF/YR until March 1, 2015.*

Proposed lease terms

- Lease term of 2 years with an option to purchase property once both the following benchmarks are met:
  - A building is constructed with certified construction costs of at least $3 million dollars.
  - 500,000 gallons of water in an annual cycle are purchased from the CBS for bottling operations.

- Annual lease rate of $0.36/SF/YR.

- An appraisal is performed on the property upon execution of the lease. Sales price for purchase option would be set by the appraisal. CBS will select appraiser. I Water will be responsible for cost of appraisal.

- I Water LLC has an option to renew lease for 4 – 5 year lease renewals with concurrence of both parties if they chose not to purchase property.

- If I Water LLC chooses not to renew lease or purchase property, all buildings on the property at the end of lease term become property of the CBS or must be removed from the property.

- I Water LLC will be responsible for all utility connections to buildings, including raw water line and meters.

- All other standard lease terms

Water Allocation

I Water LLC request to acquire a guaranteed water allocation agreement for a 10 year period. They propose to purchase the water for $0.01/gallon with $15,000 paid up front to be used as water credits.

CBS Water Allocation Background

The CBS has a total of 29,235 Acre-feet of water annually available for export. The CBS currently has a water purchase agreement with Alaska Bulk Water Inc. (formerly True Alaska Bottling Company) for 27,773 Acre-feet annually.

The CBS currently has 1,462 Acre-feet or 476,394,162 US gallons of water available for export annually. The sale of this water allocation is limited to export in containers of a 20' container van or smaller per current water purchase agreement with Alaska Bulk Water Inc.

Proposed water purchase agreement

- I Water LLC is allocated 200 million gallons of water annually for export in containers less than a 20' container van for a 10 year term at a price of $0.01/gallon.
    - When 150 million gallons is exported annually, I Water LLC's allocation is increased by an additional 50 million gallons of water annually depending on CBS availability.
    - When 200 million gallons is exported annually, I Water LLC's allocation can increase again, depending on CBS availability.

- I Water LLC must export 500,000 gallons of water within 30 months of lease execution. If I Water LLC fails to export 500,000 gallons by the set benchmark date, the CBS can terminate the water purchase agreement.

- I Water LLC must export at least 500,000 gallons of water between 30 months and 60 months of lease execution. If I Water LLC fails to export 500,000 gallons by the set benchmark date, the CBS can terminate the water purchase agreement.

- I Water LLC must export at least 500,000 gallons of water between 60 months and 84 months of lease execution. If I Water LLC fails to export 500,000 gallons

by the set benchmark date, the CBS can terminate the water purchase agreement.

- I Water LLC must export at least 500,000 gallons of water between 84 months and 108 months of lease execution. If I Water LLC fails to export 500,000 gallons by the set benchmark date, the CBS can terminate the water purchase agreement.

- I Water LLC will pay the CBS a $15,000 non-refundable fee that can be used as water credits within the 30 months of lease execution.

- CBS's water delivery availability is limited by State of Alaska Regulations, Municipal needs, and Force Majeure.

- All other standard Water purchase agreement terms.

Action

- Assembly approval of land lease agreement with option to purchase and water purchase agreement.

PURCHASE AGREEMENT
FOR RAW WATER

BETWEEN: **CITY AND BOROUGH OF SITKA**
100 Lincoln Street
Sitka, Alaska 99835

AND **I WATER, LLC**
1125 W. Olive St. Suite A
Sand Diego, CA 92103

1. Term and Documents Comprising this Agreement.

1.1 The initial term of this Purchase Agreement for Raw Water ("Agreement") shall begin on the effective date and shall end 120 months after effective date. The City and Borough of Sitka ("Sitka") hereby grants to I Water, LLC ("I Water"), the right to purchase raw water for water bottling operations, on the terms and conditions set forth herein.

1.2 The Agreement shall consist of the 18 sections in this Agreement plus Appendix A (a map) and Appendix B (the "Prospective Purchaser Agreement Between the State of Alaska and the City and Borough of Sitka for the Former Alaska Pulp Corporation Pulp Mill Property" dated April 28, 1999, including all attachments, which specifically includes "Memorandum of Understanding between the State of Alaska and the City and Borough of Sitka [:] Management Plan for Sawmill Cove Property (Former APC Property).")

2. Definitions.

In this Agreement, the following terms shall have the definitions stated:

a) "annually" means 12 consecutive months.

b) "beneficial use" means the application of water, purchased by I Water for export or for use at the point of delivery, to a useful purpose, including domestic, commercial, agricultural, wildlife, and recreational uses.

c) "raw water" means untreated water delivered by Sitka from Blue Lake via the Blue Lake penstock, a conduit which transports water from Blue Lake to the Blue Lake Powerhouse as shown on Exhibit A.

d) "deliver" or " to deliver" or "delivered" means the act by Sitka of making a specific quantity of water available to I Water at the point of delivery to be defined by CBS Public Works.

e) "gallon" means one US gallon or 3.785 liters.

f) "per day" means calendar day starting at midnight.

g) "per week" means during a period of seven (7) consecutive days.

h) "per year" means during a period of 12 consecutive months.

i) "point of delivery" means that physical location where the legal possession, ownership, and risk associated with the raw water which is the subject of this Agreement transfers from Sitka to I Water, as specified in this Agreement.

j) "water rights" means those rights to the beneficial use of water which are held by Sitka under certificates of appropriation issued by the State of Alaska pursuant to Alaska law.

3. Water Volumes Contracted by I Water from Sitka.

3.1 Sitka will make available to I Water a total of 200 million gallons of raw water for water bottling operations for a period of 30 months after the effective date of this Agreement. At the point when I Water exports 150 million gallons of raw water in an annual cycle, Sitka will make available an additional 50 million gallons of water for export in containers less than 20'. At the conclusion of the 30-month period described in the previous sentence, I Water's access to water will revert to the benchmarks outlined in Subsection 3.2 of this agreement. During the 30-month period immediately after the effective date of this Agreement, I Water must take delivery of and export at least 500,000 gallons of water. If I Water does not take delivery of and export at least 500,000 gallons of water from Sitka, pursuant to this Agreement, in the first 30 months after the effective date of this Agreement, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45^{th}) day after Sitka gives notice to I Water by certified mail that I Water has breached or failed to comply with one of more of the conditions or requirements of this Agreement, unless within said 45-day period, I Water cures the specified default or defaults to Sitka's satisfaction, as determined by Sitka in its sole discretion.

3.2 Thirty (30) months after the effective date of this Agreement, the Benchmarks described in this subsection start. The quantities of raw water which is available for export by I Water from Sitka under this Agreement are set forth below:

Benchmark 1: Benchmark 1 begins 30 months after the effective date of this Agreement. I Water must have taken delivery of and exported from Sitka a minimum of 500,000 gallons of water within the 30-month period immediately previous to the most recent Benchmark Anniversary Date of Benchmark 1. If I Water does not meet the requirement set out in the previous sentence of Benchmark 1, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45th) day after Sitka gives notice to I Water by certified mail that I Water has failed to meet such requirement, unless within the 45-day period, I Water cures such failure as determined by Sitka in its sole discretion.

Benchmark 2: Benchmark 2 begins 60 months after effective date of this Agreement. I Water must have taken delivery of and exported from Sitka a minimum of 500,000 gallons of water

within the 30-month period immediately previous to the most recent Benchmark Anniversary Date of Benchmark 2. If I Water does not meet the requirement set out in the previous sentence of Benchmark 2, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45th) day after Sitka gives notice to I Water by certified mail that I Water has failed to meet such requirement, unless within the 45-day period, I Water cures such failure as determined by Sitka in its sole discretion.

Benchmark 3: Benchmark 3 begins 84 months after effective date of this Agreement. I Water must have taken delivery of and exported from Sitka a minimum of 500,000 gallons of water within the 24-month period immediately previous to the most recent Benchmark Anniversary Date of Benchmark 3. If I Water does not meet the requirement set out in the previous sentence of Benchmark 3, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45th) day after Sitka gives notice to I Water by certified mail that I Water has failed to meet such requirement, unless within the 45-day period, I Water cures such failure as determined by Sitka in its sole discretion.

Benchmark 4: Benchmark 4 begins 106 months after effective date of this Agreement. I Water must have taken delivery of and exported from Sitka a minimum of 500,000 gallons of water within the 24-month period immediately previous to the most recent Benchmark Anniversary Date of Benchmark 4. If I Water does not meet the requirement set out in the previous sentence of Benchmark 4, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45th) day after Sitka gives notice to I Water by certified mail that I Water has failed to meet such requirement, unless within the 45-day period, I Water cures such failure as determined by Sitka in its sole discretion.

4. The Parties' Rights and Obligations Regarding Water Delivered for Export.

4.1 By this contract, Sitka is entering into an Agreement to sell raw water under water rights issued to Sitka by the State of Alaska under water export authority contained in Water Appropriation Certificates LAS 19669 and ADL 43826. Sitka's contractual obligation to deliver water to I Water in the quantities specified in this Agreement is subject to these limitations:

a) Sitka shall retain first right and priority to water required for its municipal drinking water supply system and its municipal hydroelectric system, and it may suspend or limit raw water deliveries to I Water to meet the requirements of its municipal drinking water and hydroelectric systems, including planned expansion of its hydroelectric system.

b) Sitka will abide by the 1992 Blue Lake Watershed Control Plan as approved by the U.S. Environmental Protection Agency and described in City and Borough of Sitka Ordinance No. 92-1091.

c) Sitka may temporarily suspend raw water deliveries in order to perform planned and routine maintenance on its municipal drinking water, hydroelectric and/or water delivery systems, provided that Sitka shall give not less than 60 days prior notice to I Water of any such planned suspensions.

d) Sitka shall be relieved of its obligation to deliver raw water to I Water in the event of an interruption in water supply due to Force Majeure, or due to unforeseen circumstances that require repairs to or reconstruction of the municipal drinking water, hydroelectric systems, water delivery system, or other of Sitka's facilities, to the extent that the availability of raw water for delivery to I Water under this Agreement is adversely affected, and for so long as is required to effect such repairs or reconstruction, for such time as is necessary to address such circumstances.

e) The volumes of Sitka's raw water deliveries to I Water for export are subject to Sitka's compliance with all conditions contained in Water Appropriation Certificates ADL 43826, LAS 19669, and LAS 20526, including compliance with the rule curve and the support of spawning, incubation, and rearing of certain species of fish in Sawmill Creek and Blue Lake. Interpretation of applicable requirements and the means used to achieve compliance with such requirements shall be in Sitka's sole discretion.

f) In the event Sitka is relieved of its obligation to make agreed quantities I Waters obligation to take delivery of and to export water shall be reduced to the volumes actually delivered by Sitka during that period of time and the time for I Water's performance shall be extended for the same period of time Sitka has been so relieved of its obligation.

g) Sitka's point of delivery will be the heated water valve building or closer location contingent upon Sitka approval.

4.2 I Water agrees and warrants that the raw water delivered by Sitka to it for export shall be put to one or more beneficial uses.

5. No Warranty by Sitka of Water Quality or Fitness for a Particular Purpose.

5.1 Sitka does not warrant the quality or fitness for a particular purpose of any water contracted by it for delivery, and/or actually delivered, to I Water under this Agreement. I Water acknowledges and agrees that before entering into this Agreement, it has examined Sitka's water source, Sitka's methods of diversion, and Sitka's means of delivery to I Water of the quantities of water which are contracted under this Agreement, and that it has found all such items adequate and satisfactory for I Water's purposes.

5.2 I Water acknowledges and agrees that Sitka's planned expansion and routine alterations in its hydroelectric operations may produce temporary changes in water quality due to turbidity, and that the occurrence of such events shall not alter or affect I Water's contractual obligations under this Agreement.

5.3 I Water acknowledges and agrees that the quality of water contracted by Sitka to be delivered to it for export may vary due to natural events over which Sitka has no control, which include, without limitation, rainfall, drought, snowfall, avalanches, earthquakes and landslides, and that the occurrence of such events shall not alter or affect's I Water contractual obligations under this Agreement, except

that the quantity of water I Water is obligated to take delivery of and to export shall be reduced to the quantity Sitka can and does make available for delivery to I Water, as a consequence of an occurrence of any of such natural events.

5.4 I Water shall be solely responsible and liable for the quality and usefulness for any particular purpose of all water exported by, transported by, used by, or sold by, or delivered by I Water.

6. Purchase Price For Raw Water.

6.1 I Water will purchase raw water for export from Sitka under this Agreement, based upon the following prices: Raw water for export shall be priced at U.S. $0.01 (one cent) per gallon.

6.2 I Water shall pay Sitka for all volumes of water delivered to I Water as actually measured by flow meters owned, operated, and documented by I Water and approved and monitored by Sitka at or near the point of delivery. I Water shall pay for each quantity of water loaded no later than fifteen (15) days after the presentation of an invoice by Sitka to I Water for such water. Failure by I Water to make timely payment shall be cause for Sitka to suspend water delivery to I Water.

6.3 I Water agrees to pay Sitka a non-refundable payment of $15,000 at time of execution of this agreement. The non-refundable payment can be applied towards export water payments owned during the duration of this agreement. If no export occurs, Sitka shall retain payment unencumbered.

7. Conditions for Maintaining I Water's Purchase Right and Obligation; Termination.

7.1 Notwithstanding any other provision of this Agreement, this Agreement shall, at Sitka's election, terminate and expire without further action by Sitka on the forty-fifth (45th) day after Sitka gives notice to I Water by certified mail that I Water has breached or failed to comply with one or more of the conditions or requirements of this Agreement, unless within said 45-day period, I Water cures the specified default or defaults to Sitka's satisfaction, as determined by Sitka in its sole discretion.

7.2 Upon termination, all legal rights and obligations as between Sitka and I Water under this Agreement shall cease, except that I Water's obligations to Sitka under Sections 10, 11, 12, 14, 15, 16, and 17 of this Agreement shall survive termination.

8. Sitka's Permitting Actions.

Sitka agrees to take any and all actions which it determines, in the exercise of its sole discretion, to be reasonable, necessary, and economically feasible to maintain in good standing any permit, license, certificate, allocation, appropriation or other authorization which may authorize Sitka to fulfill its obligations under this Agreement.

9. Delivery of Water.

The parties agree that I Water shall be solely responsible for the costs of acquisition, construction and installation of any structure or facility which it determines to be required or convenient for bottling and

transportation of water delivered to it by Sitka, and for initiating and completing such acquisition, construction and installation. All structures and facilities must comply with all Federal, State, and local law, including zoning requirements.

10. Indemnification of Sitka.

Notwithstanding anything to the contrary in this Agreement, I Water shall defend, indemnify, and hold Sitka harmless from any claim, demand, action, or proceeding of any kind or nature, based upon, arising out of, or related to:

a. any defect or flaw in the quality of water supplied under this agreement;

b. any delays on the part of Sitka in the delivery of water under this agreement as the result of the mechanical or physical breakdown of equipment or facilities owned or operated by the Sitka;

c. claims arising from the transportation or shipment of water after such water has left Sitka's water delivery system and as such has passed the point of delivery;

d. injuries to employees of I Water or any of its contractors;

e. damages resulting from accidents involving cargo loading operations, including but not limited to claims for personal injury, property damage, and pollution.

11. Assignment.

This Agreement, which is in the nature of a personal services contract, may not be assigned by either party without the prior written consent of the other party, which shall have full discretion to grant or withhold such approval, in its sole and absolute discretion except as provided below.

12. Waiver and Integration.

This Agreement, in conjunction with all land lease agreements between Sitka and I Water, integrates the entire Agreement between the parties regarding the sale and purchase of water. This Agreement supersedes all previous agreements, discussions, and negotiations, whether written or oral. Each party specifically acknowledges and represents that it has had ample opportunity to consult with legal counsel regarding this Agreement, and that any rule that an agreement should be construed against its drafter shall not apply to this Agreement.

13. Force Majeure.

Neither party shall be in breach of this Agreement as the result of any failure or delay in performing any of the obligations in this Agreement if such failure to perform or delay in performing is directly and proximately caused by any Force Majeure. Sitka shall not be in breach of this Agreement as the result of any failure or delay in performing any of its obligations in this Agreement if such failure to

perform or delay in performing is directly and proximately caused by any order of any United States court of competent jurisdiction, or by any act, rule, regulation, order or directive of any superior governmental unit or any agency thereof, or by any termination, modification, suspension, or revocation of any permit, license, allocation, appropriation, or certificate held by Sitka. In the event Sitka or I Water is relieved of an obligation under this Agreement due to Force Majeure, time frames under this Agreement shall be adjusted accordingly. The party asserting a Force Majeure event must demonstrate direct and proximate cause by clear and convincing evidence.

14. Applicable Law.

Any action or lawsuit brought to construe, interpret, or enforce this Agreement shall be brought in the superior court of the State of Alaska in Sitka, Alaska. Venue for any such action or lawsuit shall lie exclusively in Sitka, Alaska. The parties specifically disavow any application under the removal jurisdiction of the federal courts on grounds of diversity of citizenship, in any litigation concerning this Agreement.

15. Effective Date.

This Agreement is effective as of the last date signed below, which shall be deemed the "effective date" for the purpose of any time period which incorporates that term in this Agreement.

16. Authority.

The parties represent and warrant to each other that they have the full, complete, and absolute authority to enter into this Agreement; that this Agreement has been duly authorized by the governing body of each party; that the person executing this Agreement on its behalf has the full power and authority to do so; and that this Agreement is binding and enforceable against it in accordance with its terms. I Water acknowledges that this Agreement is only effective as against Sitka if the City and Borough of Sitka Assembly votes to authorize the Municipal Administrator to execute this Agreement on behalf of Sitka, and the Municipal Administrator of Sitka represents and warrants by affixing his signature to this Agreement that the Assembly has so voted.

17. Amendment and Severability.

This Agreement may not be amended except by written agreement of both parties. If any provision of this Agreement or any application thereof to any person, entity, or circumstance is held invalid, the remainder of this Agreement and application thereof to any person, entity, or circumstances shall not be affected thereby.

18. Time of Essence.

Time is of the essence in this Agreement.

IN WITNESS THEREOF, the parties have executed this Agreement as of the dates shown below.

I WATER, LLC

_____

Title: _____

CITY AND BOROUGH OF SITKA

_____

Mark Gorman, Municipal Administrator

STATE OF CALIFORNIA)
) **ss.**
COUNTY OF _____ ___)

On this ____ day of _____, 2014, _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, signs this Lease Agreement on behalf of I Water, LLC and affirms by signing this document to be authorized to sign on behalf of the I Water, LLC and does so freely and voluntarily.

_____
Notary Public for California
My Commission Expires: _____

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, Mark Gorman, Municipal Administrator of the City and Borough of Sitka, Alaska, a municipal corporation organized under the laws of the State of Alaska, signs this Lease Agreement on its behalf, and affirms by signing this document to be authorized to sign on its behalf, and does so freely and voluntarily.

_____
Notary Public for Alaska
My Commission Expires: _____

Legislation Details

File #:	14-113	Version:	1	Name:	
Type:	Item			Status:	AGENDA READY
File created:	5/7/2014			In control:	City and Borough Assembly
On agenda:	5/13/2014			Final action:	
Title:	Approve two Lease Agreements between the CBS and I Water, LLC for Block 4, Lots 3, 6 & 7 Sawmill Cove Industrial Park				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	SCIP Leases IWater LLC				

Date	Ver.	Action By	Action	Result

POSSIBLE MOTION

I move to approve Lease Agreements between the City and Borough of Sitka and I Water, LLC for Block 4, Lots 3, 6 & 7 of Sawmill Cove Industrial Park recommended by the Sawmill Cove Industrial Park Board.

Sawmill Cove
INDUSTRIAL PARK
329 Harbor Dr. Suite 212, Sitka, AK 99835 907-747-2660

Thursday, May 01, 2014

MEMORANDUM

To: Mark Gorman – CBS Administrator

From: Garry White, SCIP Director

Subject: I Water LLC Lease and Water Purchase Agreement

Introduction

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- CBS's water delivery availability is limited by State of Alaska Regulations, Municipal needs, and Force Majeure.

- All other standard Water purchase agreement terms.

Action

- Assembly approval of land lease agreement with option to purchase and water purchase agreement.

Sawmill Cove

INDUSTRIAL PARK

LEASE AGREEMENT

CITY & BOROUGH OF SITKA

&

I WATER, LLC

(BLOCK 4, LOT 7)

Contents

EXHIBITS:

LEASE AGREEMENT BETWEEN
CITY AND BOROUGH OF SITKA AND
I WATER, LLC.

PREAMBLE

This Lease Agreement Between City And Borough of Sitka and I Water, LLC, 1125 W. Olive Street, San Diego, California 92103 ("Lease Agreement") is effective upon execution of the Lease Agreement by both Parties, City and Borough of Sitka, 100 Lincoln Street, Sitka, Alaska 99835 ("Sitka" "CBS" or "Lessor") and I Water, LLC ("I Water" or "Lessee"). This Lease Agreement consists of the Special Provisions, the General Provisions, and the attached Exhibits A and B. Exhibit A is a pictorial representation of the area leased, consisting of Block 4, Lot 7 of the Sawmill Cove Industrial Park ("SCIP"). Exhibit B is the "Management Requirements at Sawmill Cove Industrial Park, Sitka, Alaska," which summarizes the Prospective Purchasers Agreement, the Management Plan and the Conveyance Agreement regarding Sawmill Cove Industrial Park ("SCIP). This lease agreement was recommended by SCIP Board of Directors on April 10, 2014, and approved by the Assembly on _____, 2014.

SPECIAL PROVISIONS

ARTICLE I: LEASE, TERM OF LEASE, AND TERMINATION OF LEASE

Section 1.1 Conveyance of Estate in Lease.
Lessor, for and in consideration of the covenants and agreements made by Lessee, does lease to Lessee, and Lessee leases from Lessor, the Subject Property or Premises as shown on Exhibit A, for construction of a water bottling plant on the property. The subject property is Block 4, Lot 7 of the SCIP, consisting of 32,879 square feet. The Term is for two (2) years, commencing upon execution of Lease Agreement as set out in the Preamble. This Lease Agreement may be extended beyond two years, upon mutual consent of the Parties.

Section 1.2 Option to Purchase.
Lessee has the option to purchase Subject Property as long as a building is constructed with certified constructions costs of at least $3 million dollars and additionally, at least 500,000 gallons of water in a 12-month cycle are purchased from Lessor for bottling operations. Purchase price will be set at $4.00/SF or appraisal cost, whichever is higher. CBS will select appraisal firm and I Water will be responsible for cost of appraisal.

Section 1.3 Option to Renew.
Provided there does not exist a continuing material default by Lessee under this Lease and Lessee has chosen not to purchase Subject Property, Lessee shall have the right to exercise the option to renew this Lease Agreement upon the same terms and conditions for up to an additional five (5) years. This option is effective only if (a) Lessee makes a written request to exercise such an option 30 days prior to expiration of the Term; (b) Lessee is in compliance with all applicable laws; and (c) Lessee is not in default under this Lease.

Section 1.4 Disposition of Improvements and Lessee's Personal Property Following Term of Lease Agreement.
Lessee shall remove from the Subject Property any personal property or Improvements constructed, installed, or deposited on the Subject Property, including the water bottling plant as notied in Sections 1.1 and 1.2, at the termination of this Lease Agreement or any extension unless Lessee makes a separate written agreement with Sitka to do otherwise. Any Improvements or personal property not removed after thirty (30) days have passed after termination of this Lease Agreement shall be deemed abandoned and at Lessor's option shall become the property of Lessor, and Lessee shall repay to Sitka any costs of removing such improvements or personal property from the Subject Property if Sitka does not exercise such option. Subject to Sitka's obligations under Subsection 3.1(a) below, Lessee agrees to leave Subject Property in a neat and clean condition at the end of the Term of the Lease Agreement.

Section 1.5 Covenants to Perform.
This Lease Agreement is made upon the above and the following terms and conditions, each of which the Party bound by such covenants and conditions agrees to perform, irrespective of whether the particular provision is in the form of a covenant, an agreement, a condition, a direction, or otherwise, and each Party agrees to provide the other Party with documents or further assurances as may be required to carry out the expressed intentions.

ARTICLE II: RENT

Section 2.1 Calculation & Method of Payment of Rent
Notwithstanding any other provision of this Lease Agreement, on the Term start date set out in Article I, Lessee shall pay the full month rent payment owed under this Lease Agreement, which shall be prorated if the date this Lease is executed is not the first day of the month. Subject to the provision in the previous sentence, Lessee shall pay the lease payments in advance for the Term of the Lease Agreement without the necessity of any billing by Lessor. Lessee will lease the space as shown in Exhibit A for $986.37/month payable at a rate of $0.03/SF/month. Sales tax is to be paid in addition to the stated Rent.

Section 2.2 Reserved.

Section 2.3 Reserved.

Section 2.4 Property Tax Responsibility.
Beginning with the Term, Lessee will be responsible to pay any property taxes to City and Borough of Sitka for its possessory interest in the building, land, and equipment to the extent taxable as determined by the Assessor, which is assessed as of January 1 of each calendar year.

ARTICLE III: RESTRICTIONS UPON USE OF SUBJECT PROPERTY

Section 3.1 Lessee's Obligations as to Construction, Maintenance, Repair and Safety.
(a) Except as provided in this Lease Agreement, Lessee acknowledges the leasehold is in an "as is" condition. At the sole cost and expense of Lessee and in compliance with all legal

requirements, Lessee may purchase, construct, develop, repair, and/or maintain any improvements, using materials of good quality and matching existing finishes.

Lessor reserves the right to expand or modify the Subject Property. In that event, the Lessor and Lessee will work together to complete such expansion or modification in a manner that minimizes disruption to Lessee's use of the Subject Property. Some anticipated disruptions could be operational disturbances from noise, dust and other construction activities.

(b) Lessee acknowledges that Lessor has made no representation or warranty with respect to Lessee's ability to obtain any Federal, state or local permit, license, or approval as described in Section 4.1(a).

(c) Lessee shall also use the Subject Property and any Improvements placed thereon only for lawful uses.

(d) Lessee shall confine its operation on the Subject Property to equipment and materials storage, and operation of a water bottling plant.

(e) Lessee shall not permit the accumulation of waste or refuse matter on the Subject Property, and Lessee shall not obstruct or permit the obstruction of the streets, sidewalks, access ways, or alleys adjoining the Subject Property except as may be permitted by Lessor or other municipal authorities having jurisdiction. Lessee shall do all things necessary during the Term of this Lease Agreement to remove any dangerous condition from time to time existing on the Subject Property as the result of the use by Lessee.

(f) Lessee may erect outdoor signage at its expense with the permission of the City and Borough of Sitka Building Official, the Planning Director, and the Public Works Director. The style, size and physical placement location of the sign will be approved on a case-by-case basis.

Section 3.2 Additional Conditions of Leasing.
Lessee recognizes and shall cause all beneficiaries of Lessee and all permitted successors in interest in or to any part of the Subject Property to recognize that:

(a) Lessee will cooperate with the City and Borough of Sitka Public Works Department and will notify this Department of any maintenance deficiencies or of any equipment failures that require maintenance or repair. Lessee will be provided a 24 hour telephone number to notify the Lessor of any event that requires immediate response by the Lessor.

(b) Lessee will maintain and repair as necessary the storm drain facilities on and adjacent to the Subject Property. This includes, but is not limited to, keeping concrete roadside gutters clean and free of dirt, rock and debris, and periodic clearing/cleaning of filters in the roadside catch basins and drop-inlets. The paved roadways adjacent to the Subject Property shall be cleared of loose soil and rock materials at the end of each shift. Any construction or mining debris (scrap concrete, asphalt, steel, wood; also, plant/organic matter) is to be properly disposed of offsite.

(c) All vehicles operated on the paved roadways within the SCIP shall be subject to the vehicle weight and load limitation provisions under Sitka General Code 11.17. The primary objective of this clause is to limit the use of off-road haul units and other rubber-tired heavy equipment on the paved streets at SCIP.

(d) Lessee covenants and agrees that as it relates to use of the facility, it will not, on the grounds of race, color or national origin, discriminate or permit discrimination against any person or group of person in any manner prohibited by Federal or State laws or regulations promulgated thereunder, and Lessee further grants the Lessor the right to take such action to enforce such covenant as it deems necessary or as it is directed pursuant to any Federal or State law or regulation.

(e) Lessor may, upon at least 10 days prior notice to Lessee, temporarily suspend the supply, if provided on the Subject Property, of water, wastewater service and electric power to perform routine maintenance. Such interruptions shall be of as short duration as necessary to perform such maintenance, and Sitka shall not be responsible for any such costs or expenses as a result of suspending such utilities.

(f) Lessee will pay any applicable City and Borough of Sitka Fire Marshal fees and other building permit fees when due.

(g) Lessee is responsible for taking any measures that Lessee deems necessary to provide security for their property. Sitka is not responsible for theft or vandalism.

(h) City and Borough of Sitka sales tax will apply to lease payments. Sales taxes will also apply to any utility services and will be calculated into each monthly billing from the City and Borough of Sitka. Sales tax rates, limits, exemptions, and exclusions are subject to change by the Assembly of the City and Borough of Sitka.

(i) Lessee shall not store hazardous or explosive materials on the Subject Property or on any property of Sawmill Cove Industrial Park.

Section 3.3 Control of Rodents and Other Creatures on Subject Property.
Lessee shall take reasonable affirmative measures to ensure that its operations do not attract to Subject Property or any portion of the Sawmill Cove Industrial Park property any of the following creatures: rodents, vermin, insects, eagles, crows, ravens, seagulls, or bears.

ARTICLE IV: POSSESSION AND CONSTRUCTION OF IMPROVEMENTS.

Section 4.1 Lessee's Construction Obligations.
At the sole cost and expense of the Lessee and pursuant to building permits and in compliance with all legal requirements, the Lessee shall purchase, construct and/or develop the appropriate improvements, personal property, fixtures or buildings, including but not limited to any structures referred to in Sections 1.1 and 1.2 of this Agreement, and other items on Subject Property in a first class manner, of good quality and all work shall be performed diligently. The items to be purchased, constructed and/or developed shall be those reasonably necessary to conduct Lessee's intended business operations on Subject Property.

(a) In addition to Section 3.1(b) of this Agreement, Lessor, in its proprietary capacity only, agrees to cooperate reasonably with Lessee in its efforts to secure the requisite permits, licenses and approvals to allow the purchase construction and/or development of the project. Notwithstanding the foregoing, Lessee acknowledges that the Lessor has made no representation or warranty with respect to Lessee's ability to obtain any permit, license or approval (including a building permit) or to meet any other requirements for development of the project. Nothing in this Lease Agreement is intended or shall be construed to require that the Lessor exercise its discretionary authority under its regulatory ordinances to further the project nor binds the Lessor to do so. The Lessor will process applications for permits, licenses and approvals as if such application were made without any Lessor participation in such project and shall act in good faith with respect thereto.

(b) Approval by Lessor of any item shall not constitute a representation or warranty by Lessor that such item complies with any legal requirements and Lessor assumes no liability. Lessor has no obligation or duty to design, supervise the design, construct or supervise the construction of the improvements. Lessor's approval of the construction plans, as provided below, is for the sole purpose of protecting its rights as the owner of the land on which the leasehold sits and shall not constitute any representation or warranty, express or implied, as to the adequacy of the design, or any obligation on Lessor to insure that work or materials are in compliance with the construction plans or any building requirements imposed by a governmental agency. Lessor is under no obligation or duty, and disclaims any responsibility, to pay for the cost of construction of the improvements or any other items, the cost of which shall at all times remain the sole liability of Lessee.

(c) For all acts other than the acts of the Lessor, its officers, agents, and employees, unless Lessee violates the prospective Purchaser Agreement, Management Agreement and related documents or otherwise exacerbates or aggravates existing conditions), Lessee covenants to indemnify, defend and hold harmless the Lessor and its agents and employees from and against all claims and demands whatsoever for loss or damage including property damage, personal injury and wrongful death arising out of construction of the improvements, any development or repairs made at anytime on the Subject Property, the performance of this Lease Agreement by the Lessee, its agents, employees, contractors, subcontractors or invitees, any incident, fire or other casualty in respect of the Subject Property, any failure by the Lessee to keep the Subject Property, or any improvements on it, in a safe condition, and all other activies occurring on or at the Subject Property.

Section 4.2 Schedule and Milestones.
This Lease Agreement may be terminated upon 60 days notice by Lessor to Lessee (subject to the right to remove items from Subject Property as provided in Section 1.4 of this Lease Agreement), if the following milestone is not met by Lessee.

(a) Insurance policy binders are due at Sitka Finance Department for approval, upon Lessee occupying Subject Property or within 30 days from the date of this Lease Agreement, whichever occurs first.

Section 4.3 Rights of Access to Property.
(a) Lessor reserves for itself and any public utility company the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of inspecting or maintaining, or constructing public utilities, if any, located on the Subject Property. Lessor also reserves for itself and the Alaska Department of Environmental Conservation the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of regulation and enforcement of this Lease Agreement. Lessor also reserves for itself the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of (1) inspection of all work being performed in connection with the construction of Improvements; (2) showing Subject Property for exhibiting Subject Property in connection with renting or leasing Subject Property in a matter that will not unreasonably interfere with Lessee's business; and (3) placing "For Sale" or "For Rent" signs on Subject Property. Lessee shall not charge for any of the access allowed in the situations described in this subsection.

(b) Lessee shall not construct any permanent improvements over or within the boundary lines of any easement for public utilities without receiving the written prior consent of Lessor and any applicable utility company.

(c) Lessee acknowledges that the Subject Property is or shall be subject to agreements for ingress and egress, utilities, parking, and maintenance of common areas as described on attached Exhibit A. Lessee agrees that it shall comply with the terms of such cooperative agreements, in accordance with the terms of such agreements, those portions of such maintenance expenses that are attributable to the Subject Property, as more fully set forth therein.

(d) The Lessee shall permit the authorized representatives of Lessor to enter the Subject Property or any part of it at all reasonable times during usual business hours, after reasonable notice, under the circumstances prevailing for the purpose of making reasonable inspections.

ARTICLE V: UTILITY SERVICES & RATES

Section 5.1 Provision of Utility Services.
Currently, no utility services are provided to the Subject Property. If and when utility services are provided, Lessee shall pay the cost of use of such utility services, to be paid monthly upon billing by the City and Borough of Sitka.

Section 5.2 Provision of Raw Water Line and Meter.
Lessee is responsible for installation of raw water line and meter.

Section 5.3 Reserved.

Section 5.4 Lessor Not Limited Liability and Non-Liability.
In the event utility services are provided, and except to the extent that any such failure, injury, or other casualty is due to Lessor's negligence or breach of any obligation under this Lease Agreement, Lessor shall not be liable for any failure of utility services, or for any injury or damages to person or property caused by or resulting from any natural disaster, natural condition, earthquake, hurricane, tornado, flood, wind or similar storms or disturbances, or water, rain, or

snows which may leak or flow from the street, sewer, or from any part of Subject Property, or leakage of sewer, or plumbing works therein, or from any other place. Lessor shall not be held responsible or liable for any claim or action due to or arising from any suspension of operation, breakage, unavoidable accident or injury of any kind occurring to, or caused by the sewer mains through any force majeure.

Section 5.5. Requirement Regarding Potable Water Services.
All potable water services will be metered and protected by approved backflow prevention in accordance with the Sitka General Code at Section 15.05.400.

Section 5.6 Reserved.

ARTICLE VI: LIABILITY AND INDEMNIFICATION

Section 6.1 Liability of Lessee and Indemnification of Lessor.
Lessee agrees to indemnify, defend, and hold harmless Lessor against and from any and all claims by or on behalf of any person, firm, or corporation arising, other than due to acts or omissions of Lessor, from the conduct or management of or from any work or thing whatsoever done in or about the Subject Property and structures and Improvements, including liability arising from products produced on the property. Lessee also agrees to indemnify, defend, and hold Lessor harmless against and from any and all claims and damages arising, other than due to acts or omissions of Lessor, during the Term of this Lease Agreement from: (a) any condition of the Subject Property or Improvements placed on it; (b) any breach or default on the part of the Lessee regarding any act or duty to be performed by Lessee pursuant to the terms of this Lease Agreement; (c) any act or negligence of Lessee or any of its agents, contractors, servants, employees or licensees; and (d) any accident, injury, death or damage caused to any person occurring during the Term of this Lease Agreement in or on the Subject Property. Lessee agrees to indemnify, defend, and hold harmless Lessor from and against all costs, counsel and legal fees, expenses, and liabilities incurred, other than due to acts or omissions of Lessor, in any claim or action or proceeding brought asserting claims of or asserting damages for any alleged act, negligence, omission, conduct, management, work, thing, breach, default, accident, injury, or damage described in the previous two sentences. The above agreements of indemnity are in addition to and not by way of limitation of any other covenants in this Lease Agreement to indemnify the Lessor. The agreements of indemnity by the Lessee do not apply to any claims of damage arising out of the failure of the Lessor to perform acts or render services in its municipal capacity.

Section 6.2 Liability of Lessor and Indemnification of Lessee.
Except to the extent of liabilities arising from Lessee's acts or omissions, Lessor indemnifies, defends, and holds Lessee harmless for liabilities to the extent that they were incurred by reason of conditions existing on the site as of the date of execution of this Lease Agreement or by reasons of Lessor's acts or omissions. Lessor also agrees to indemnify, defend, and hold Lessee harmless against and from any and all claims and damages arising, other than due to acts or omissions of Lessee, during the Term of this Lease Agreement from (a) any condition of the Subject Property or Improvements placed on it; (b) any breach or default on the part of the Lessor regarding any act or duty to be performed by Lessor pursuant to the terms of the Lease

Agreement; (c) any act or negligence of Lessor or any of its agents, contractors, servants, employees, or licensees; and (d) any accident, injury, death, or damage caused to any person occurring during the Term of this Lease Agreement in or on the Subject Property. Lessor agrees to indemnify, defend, and hold harmless Lessee from and against all costs, counsel and legal fees, expenses, and liabilities incurred, other than due to acts or omissions of Lessee, in any claim or action or proceeding brought asserting claims of or asserting damages for any alleged act, negligence, omission, conduct, management, work, thing, breach, default, accident, injury, or damage described in the previous two sentences. The above agreements of indemnity are in addition to and not by way of limitation of any other covenants in this Lease Agreement to indemnify the Lessee.

Section 6.3 Reimbursement of Costs of Obtaining Possession.
Each Party agrees to pay the other Party prevailing in any dispute under this Lease Agreement for all costs and charges, including but not limited to, full attorney and legal fees lawfully incurred in enforcing any provision of this Lease Agreement including obtaining possession of the Subject Property and establishing the Lessor's title free and clear of this Lease Agreement upon expiration or earlier termination of this Lease Agreement.

GENERAL PROVISIONS

ARTICLE VII: DEFINITIONS

Section 7.1 Defined Terms.
For the purposes of this Lease Agreement, the following words shall have the meanings attributed to them in this Section:

(a) "Event of Default" means the occurrence of any action specified in Section 14.1.

(b) "Imposition" means all of the taxes, assessments, utility rates or charges, levies and other governmental charges, levied or assessed against the Subject Property, any part thereof, any right or interest therein or any rent and income received therefrom as well as sales taxes on rent.

(c) "Improvements" or "improvements" means all improvements of any nature now or hereafter located upon the Land, as well as all apparatus and equipment necessary for the complete and comfortable use, occupancy, enjoyment and operation of the Subject Property, including any construction fencing or signage, excepting only in each case articles of personal property appurtenances and fixtures (including trade fixtures) owned by Lessee, Sublessees, or others, which can be removed without defacing or materially injuring the Improvements remaining on the Subject Property, from the Subject Property with the portion of the Subject Property from which such items are removed being returned to a condition at least as good as that existing on the date of this Lease Agreement. "Improvements" also includes fill, grading, asphalt, and other non-building land improvements.

(d) "Personal Property" means tangible personal property owned or leased and used by the Lessee or any sublessee of the Lessee, in connection with and located upon the Subject Property.

(e) "Premises" means the "Subject Property."

(f) "Rent" means the lease rate, which is the amount Lessee periodically owes and is obligated to pay Lessor as lease payments under this Lease Agreement for the use of the demise.

(g) "Subject Property" is the area leased as shown on Exhibit A or elsewhere in the document.

(h) "Sublessee" and "Sublease" -- any reference to "sublessee" shall mean any subtenant, concessionaire, licensee, or occupant of space in or on the Subject Property holding by or through the Lessee; the term "sublease" shall mean any lease, license, concession or other agreement for the use and occupancy of any part of the Subject Property made by any Person holding by or through the Lessee.

(i) "Term" means the period of time Lessee rents or leases the Subject Property from Lessor.

ARTICLE VIII: INSURANCE

Section 8.1 Insurance.
Lessee shall maintain property damage and comprehensive general liability insurance in the amount of three million dollars ($3,000,000), including leasehold improvements. Lessor shall be named as an additional insured.

Section 8.2 Notification of Claim, Loss, or Adjustment.
Lessee shall advise Lessor of any claim, loss, adjustment, or negotiations and settlements involving any loss under all policies of the character described in Section 7.1.

Section 8.3 Waiver of Subrogation.
The Party insured (or so required) releases the other Party from any liability the other Party may have on account of the loss, cost, damage or expense to the extent of any amount recoverable by reason of insurance whenever: (i) any loss, cost, damage or expense resulting from fire, explosion or any other casualty or occurrence is incurred by either of the Parties to this Lease Agreement, or anyone claiming under it in connection with the Subject Property or Improvements; and (ii) the Party is then covered in whole or in part by insurance with respect to loss, cost, damage or expense or is required under this Lease Agreement to be so insured.

In such coverage the Parties hold on or waives any right of subrogation which might otherwise exist in or accrue to any person on account of it, provided that the release of liability and waiver of the right of subrogation shall not be operative in any case where the effect is to invalidate the insurance coverage or increase its cost. In the case of increased cost, the other Party shall have the right, within thirty (30) days following written notice, to pay the increased cost keeping the release and waiver in full force and effect.

ARTICLE IX: RESTRICTIONS REGARDING ASSIGNMENT, SUBLEASES, AND TRANSFERS OF SUBJECT PROPERTY

Section 9.1 Lessee Without Power to Assign Lease or Transfer or Encumber Subject Property.
Lessee has no power under this Lease Agreement to assign the Lease Agreement or transfer the Subject Property, except with the approval of the SCIP Board of Directors and Sitka Assembly. Lessee has no power to encumber Subject Property or pledge its interest in Subject Property as collateral for a loan, mortgage, debt or liability.

Section 9.2 Limitations on Subleases.
Lessee shall not sublease the Subject Property or any portion of it except with the approval of the SCIP Board of Directors and the Sitka Assembly. All subleases entered into demising all or any part of the Improvements or the Subject Property shall be expressly subject and subordinate to this Lease Agreement, including Exhibits A and B. Lessor's consent to a sublease of the Subject Property shall not release Lessee from its obligations under the Lease Agreement. Lessor's consent to a sublease shall not be deemed to give any consent to any subsequent subletting.

ARTICLE X: USE AND PROTECTION OF THE SUBJECT PROPERTY

Section 10.1 Property As Is - Repairs.
Lessee acknowledges that it has examined the Subject Property and the present improvements including any public improvements presently located there and knows the condition of them and accepts them in their present condition and without any representations or warranties of any kind whatsoever by Lessor as to their condition or as to the use or occupancy which may be made of them. Lessee assumes the sole responsibility for the condition of the improvements located on the Subject Property. The foregoing shall not be deemed to relieve Lessor of its general municipal obligations, or of its obligations under Section 3.1.

Section 10.2 Compliance with Laws.
Lessee shall throughout the Term of this Lease Agreement and any extension, at Lessee's sole expense, promptly comply with all the laws and ordinances and the orders, rules, regulations, and requirements of all federal, state, and municipal governments and appropriate departments, commissions, boards, and officers (whether or not the same require structural repairs or alterations) and all other legal requirements that may be applicable to the use of the Subject Property. Nothing in the foregoing sentence shall be deemed to relieve Lessor of its general obligations in its municipal capacity.

Section 10.3 Notification of City and Borough of Sitka's Public Works Director of Discovery of Contamination.
Lessee shall promptly notify the Public Works Director of the City and Borough of Sitka within 24 hours if any contaminated soils or other media that require special handling are encountered on the Subject Property.

Lessee shall be responsible for all clean-up costs associated with contamination of soils of Subject Property, adjoining property, and/or buildings caused by or attributed to Lessee though

its operations on the Subject Property. In the event of Lessee's failure to clean-up to applicable regulatory standards or to the satisfaction of the Public Works Director, the Lessor may perform clean-up or contract for clean-up and all charges for such work shall be payable by Lessee.

Section 10.4 Use of Utility Lines.
No utility services are currently provided. If Lessee desires utilities, Lessee and Lessor shall negotiate and enter an amendment to this Lease Agreement regarding which utility services to provide, the costs associated with such services, and the rate for such utility service.

If such utility services are requested and granted, Lessee shall connect or otherwise discharge to such utility lines, including electrical, water and/or wastewater lines, as are approved by the appropriate City and Borough of Sitka Department, which may include Department of Public Works and/or Electrical Department, and shall obtain any permits and comply with any conditions specified by the Director of Public Works and/or Electric Department for such connections.

Section 10.5 Permits and Approvals for Activities.
Lessee shall be responsible for obtaining all necessary permits and approvals for its activities unless otherwise specifically allowed by Lessor. Not less than ten (10) days in advance of applying for permits to any public entity other than the City and Borough of Sitka, Lessee shall provide copies of all permit applications and associated plans and specifications to the Director of Public Works of the City and Borough of Sitka to facilitate review by departments of the City and Borough of Sitka. The City and Borough of Sitka is not obligated to comment on the permit applications and plans, and the result of any review by the City and Borough of Sitka does not affect Lessee's obligation to comply any applicable laws.

ARTICLE XI: LESSOR'S RIGHT TO PERFORM LESSEE'S COVENANTS; REIMBURSEMENT OF LESSOR FOR AMOUNTS SO EXPENDED

Section 11.1 Performance of Lessee's Covenants To Pay Money.
Lessee covenants that if it shall at any time default or shall fail to make any other payment (other than rent) due and the failure shall continue for ten (10) days after written notice to the Lessee, then the Lessor may, but shall not be obligated so to do, and without further notice to or demand upon the Lessee and without releasing the Lessee from any obligations of the Lessee under this Lease Agreement, make any other payment in a manner and extent that the Lessor may deem desirable.

Section 11.2 Lessor's Right To Cure Lessee's Default.
If there is a default involving the failure of the Lessee to keep the Subject Property in good condition and repair in accordance with the provisions of this Lease Agreement, to make any necessary renewals or replacements or to remove any dangerous condition in accordance with the requirements of this Lease Agreement or to take any other action required by the terms of this Lease Agreement, then the Lessor shall have the right, but shall not be required, to make good any default of the Lessee. The Lessor shall not in any event be liable for inconvenience, annoyance, disturbance, loss of business, or other damage of or to the Lessee by reason of bringing materials, supplies and equipment on the Subject Property during the course of the work

required to be done to make good such default, and the obligations of the Lessee under this Lease Agreement shall remain unaffected by such work, provided that the Lessor uses reasonable care under the circumstances prevailing to avoid unnecessary inconvenience, annoyance, disturbance, loss of business, or other damage to the Lessee.

Section 11.3 Reimbursement of Lessor and Lessee.
All sums advanced by the Lessor pursuant to this Article and all necessary and incidental costs, expenses and attorney fees in connection with the performance of any acts, together with interest at the highest rate of interest allowed by law from the date of the making of advancements, shall be promptly payable by the Lessee, in the respective amounts so advanced, to the Lessor. This reimbursement shall be made on demand, or, at the option of the Lessor, may be added to any rent then due or becoming due under this Lease Agreement and the Lessee covenants to pay the sum or sums with interest, and the Lessor shall have (in addition to any other right or remedy) the same rights and remedies in the event of the nonpayment by the Lessee as in the case of default by the Lessee in the payment of any installment of rent. Conversely, the Lessee shall be entitled to receive from the Lessor prompt payment or reimbursement on any sums due and owing from the Lessor to the Lessee, together with interest at the highest rate allowed by law. However, nothing contained in this Lease Agreement shall entitle the Lessee to withhold any rent due to the Lessor or to offset or credit any sums against rent, except with respect to unpaid rental due from the Lessor to the Lessee under any sublease of building space to the Lessor.

ARTICLE XII: MECHANIC'S LIENS

Section 12.1 Discharge of Mechanics' Liens.
The Lessee shall neither suffer nor permit any mechanics' liens to be filed against the title to the Subject Property, nor against the Lessee's interest in the property, nor against the Improvements by reason of work, labor, services or materials supplied or claimed to have been supplied to the Lessee or anyone having a right to possession of the Subject Property or Improvements as a result of an agreement with or the assent of the Lessee. If any mechanics' lien shall at the time be filed against the Subject Property including the Improvements, the Lessee shall cause it to be discharged of record within 30 days after the date that Lessee has knowledge of its filing.

ARTICLE XIII: LIEN FOR RENT AND OTHER CHARGES

Section 13.1 Lien for Rent.
The whole amount of the Rent and each and every installment, and the amount of all taxes, assessments, water rates, insurance premiums and other charges and impositions paid by the Lessor under the provisions of this Lease Agreement, and all costs, attorney's fees and other expenses which may be incurred by the Lessor in enforcing the provisions of this Lease Agreement or on account of any delinquency of the Lessee in carrying out any of the provisions of this Lease Agreement, shall be and they are declared to constitute a valid and prior lien upon the Lessee and Lessee's Improvements to the Subject Property, and upon the Lessee's leasehold estate, and may be enforced by equitable remedies including the appointment of a receiver.

ARTICLE XIV: DEFAULT PROVISIONS

Section 14.1 Events of Default.
Each of the following events is defined as an "Event of Default":

(a) The failure of the Lessee to pay any installment of Rent, or any other payments or deposits of money, or furnish receipts for deposits as required, when due and the continuance of the failure for a period of ten (10) days after notice in writing from the Lessor to the Lessee.

(b) The failure of the Lessee to perform any of the other covenants, conditions and agreements of this Lease Agreement including payment of taxes on the part of the Lessee to be performed, and the continuance of the failure for a period of thirty (30) days after notice in writing (which notice shall specify the respects in which the Lessor contends that the Lessee has failed to perform any of the covenants, conditions and agreements) from the Lessor to the Lessee unless, with respect to any default which cannot be cured within thirty (30) days, the Lessee, or any person holding by, through or under the Lessee, in good faith, promptly after receipt of written notice, shall have commenced and shall continue diligently and reasonably to prosecute all action necessary to cure the default within an additional sixty (60) days.

(c) The filing of an application by the Lessee (the term, for this purpose, to include any approved transferee other than a sublessee of the Lessee's interest in this Lease Agreement): (i) for a consent to the appointment of a receiver, trustee or liquidator of itself or all its assets; (ii) of a voluntary petition in bankruptcy or the filing of a pleading in any court of record admitting in writing of its inability to pay its debts as they come due; (iii) of a general assignment for the benefit of creditors; (iv) of an answer admitting the material allegations of, or its consenting to, or defaulting in answering, a petition filed against it in any bankruptcy proceeding.

(d) The entry of an order, judgment or decree by any court of competent jurisdiction, adjudicating the Lessee a bankrupt, or appointing a receiver, trustee or liquidator of it or of its assets, and this order, judgment or decree continuing unstayed and in effect for any period of sixty (60) consecutive days, or if this Lease Agreement is taken under a writ of execution.

Section 14.2 Assumption or Assignment of Lease to Bankruptcy Trustee.
In the event that this Lease Agreement is assumed by or assigned to a trustee pursuant to the provisions of the bankruptcy reform Act of 1978 (referred to as "Bankruptcy Code") (11 U.S.C. § 101 *et seq.*), and the trustee shall cure any default under this Lease Agreement and shall provide adequate assurances of future performance of this Lease Agreement as are required by the Bankruptcy Code (including but not limited to, the requirement of Code § 365(b)(1)) (referred to as "Adequate Assurances"), and if the trustee does not cure such defaults and provide such adequate assurances under the Bankruptcy Code within the applicable time periods provided by the Bankruptcy Code, then this Lease Agreement shall be deemed rejected automatically and the Lessor shall have the right immediately to possession of the Subject Property immediately and shall be entitled to all remedies provided by the Bankruptcy Code for damages for breach or termination of this Lease Agreement.

Section 14.3 Remedies in Event of Default.
The Lessor may treat any one or more of the Events of Default as a breach of this Lease Agreement and at its option, by serving written notice on the Lessee and each Secured Party and Leasehold Mortgagee of whom Lessor has notice (such notice not to be effective unless served on each such person) of the Event of Default of which the Lessor shall have received notice in writing, the Lessor shall have, in addition to other remedies provided by law, one or more of the following remedies:

(a) The Lessor may terminate this Lease Agreement and the Term created, in which event the Lessor may repossess the entire Subject Property and Improvements, and be entitled to recover as damages a sum of money equal to the value, as of the date of termination of this Lease Agreement, of the Rent provided to be paid by the Lessee for the balance of the stated term of this Lease Agreement less the fair rental value as of the date of termination of this Lease Agreement of the fee interest in the Subject Property and Improvements for the period, and any other sum of money and damages due under the terms of this Lease Agreement to the Lessor and the Lessee. Any personal property not removed after such termination shall be addressed as provided for in Section 1.4 above.

(b) The Lessor may terminate the Lessee's right of possession and may repossess the entire Subject Property and Improvements by forcible entry and detainer suit or otherwise, without demand or notice of any kind to the Lessee (except as above expressly provided for) and without terminating this Lease Agreement, in which event the Lessor may, but shall be under no obligation to do so, relet all or any part of the Subject Property for rent and upon terms as shall be satisfactory in the judgment reasonably exercised by the Lessor (including the right to relet the Subject Property for a term greater or lesser than that remaining under the stated Term of this Lease Agreement and the right to relet the Subject Property as a part of a larger area and the right to change the use made of the Subject Property). For the purpose of reletting, the Lessor may make any repairs, changes, alterations or additions in or to the Subject Property and Improvements that may be reasonably necessary or convenient in the Lessor's judgment reasonably exercised; and if the Lessor shall be unable, after a reasonable effort to do so, to relet the Subject Property, or if the Subject Property is relet and a sufficient sum shall not be realized from reletting after paying all of the costs and expenses of repairs, change, alterations and additions and the expense of reletting and the collection of the rent accruing from it, to satisfy the rent above provided to be paid, then the Lessee shall pay to the Lessor as damages a sum equal to the amount of the rent reserved in this Lease Agreement for the period or periods as and when payable pursuant to this Lease Agreement, or, if the Subject Property or any part of it has been relet, the Lessee shall satisfy and pay any deficiency upon demand from time to time; and the Lessee acknowledges that the Lessor may file suit to recover any sums falling due under the terms of this Section from time to time and that any suit or recovery of any portion due the Lessee shall be no defense to any subsequent action brought for any amount not reduced to judgment in favor of the Lessor. Any personal property not removed after such termination shall be addressed as provided for in Section 1.4 above.

(c) In the event of any breach or threatened breach by the Lessee of any of the terms, covenants, agreements, provisions or conditions in this Lease Agreement, the Lessor shall have the right to

invoke any right and remedy allowed at law or in equity or by statute or otherwise as through reentry, summary proceedings, and other remedies were not provided for in this Lease Agreement.

(d) Upon the termination of this Lease Agreement and the Term created, or upon the termination of the Lessee's right of possession, whether by lapse of time or at the option of the Lessor, the Lessee will at once surrender possession of the Subject Property and dispose of personal property and Improvements as described in Section 1.4. If possession is not immediately surrendered, the Lessor may reenter the Subject Property and Improvements and repossess itself of it as of its former estate and remove all persons and their personal property, using force as may be necessary without being deemed guilty of any manner of trespass or forcible entry or detainer. Lessor may at its option seek expedited consideration to obtain possession if Lessor determines that the Lease Agreement has terminated as described in the first sentence of this paragraph, and Lessee agrees not to oppose such expedited consideration.

(e) In the event that the Lessee shall fail to make any payment required to be made provided for in this Lease Agreement or defaults in the performance of any other covenant or agreement which the Lessee is required to perform under this Lease Agreement during the period when work provided for in this Lease Agreement shall be in process or shall be required by the terms of this Lease Agreement to commence, the Lessor may treat the default as a breach of this Lease Agreement and, in addition to the rights and remedies provided in this Article, but subject to the requirements of service of notice pursuant to this Agreement, the Lessor shall have the right to carry out or complete the work on behalf of the Lessee without terminating this Lease Agreement.

(f) Lessee shall not pursue any unjust enrichment claim in the event they abandon the water bottling plant referred to in Sections 1.1 and 1.2 of this Agreement.

Section 14.4 Waivers and Surrenders To Be In Writing.
No covenant or condition of this Lease Agreement shall be deemed to have been waived by the Lessor unless the waiver be in writing, signed by the Lessor or the Lessor's agent duly authorized in writing and shall apply only with respect to the particular act or matter to which the consent is given and shall not relieve the Lessee from the obligation, wherever required under this Lease Agreement, to obtain the consent of the Lessor to any other act or matter.

ARTICLE XV: LESSOR'S TITLE AND LIEN

Section 15.1 Lessor's Title and Lien Paramount.
The Lessor has title to the Land, and the Lessor's lien for Rent and other charges shall be paramount to all other liens.

Section 15.2 Lessee Not To Encumber Lessor's Interest.
The Lessee shall have no right or power to and shall not in any way encumber the title of the Lessor in and to the Subject Property. The fee-simple estate of the Lessor in the Subject Property shall not be in any way subject to any claim by way of lien or otherwise, whether

claimed by operation of law or by virtue of any express or implied lease or contract or other instrument made by the Lessee, and any claim to the lien or otherwise upon the Subject Property arising from any act or omission of the Lessee shall accrue only against the leasehold estate of the Lessee in the Subject Property and the Lessee's interest in the Improvements, and shall in all respects be subject to the paramount rights of the Lessor in the Subject Property.

ARTICLE XVI: REMEDIES CUMULATIVE

Section 16.1 Remedies Cumulative.
No remedy conferred upon or reserved to the Lessor shall be considered exclusive of any other remedy, but shall be cumulative and shall be in addition to every other remedy given under this Lease Agreement or existing at law or in equity or by statute. Every power and remedy given by this Lease Agreement to the Lessor may be exercised from time to time and as often as occasion may arise or as may be deemed expedient by the Lessor. No delay or omission of Lessor to exercise any right or power arising from any default shall impair any right or power, nor shall it be construed to be a waiver of any default or any acquiescence in it.

Section 16.2 Waiver of Remedies Not To Be Inferred.
No waiver of any breach of any of the covenants or conditions of this Lease Agreement shall be construed to be a waiver of any other breach or to be a waiver of, acquiescence in, or consent to any further or succeeding breach of it or similar covenant or condition.

Section 16.3 Right to Terminate Not Waived.
Neither the rights given to receive, sue for or distrain from any rent, moneys or other payments, or to enforce any of the terms of this Lease Agreement, or to prevent the breach or nonobservance of it, nor the exercise of any right or of any other right or remedy shall in any way impair or toll the right or power of the Lessor to declare ended the Term granted and to terminate this Lease Agreement because of any event of default.

ARTICLE XVII: SURRENDER AND HOLDING OVER

Section 17.1 Surrender at End of Term.
Lessee shall peaceably and quietly leave, surrender and deliver the entire Subject Property to the Lessor at the termination of the Lease Agreement, subject to the provisions of Section 1.4, in good repair, order, and condition, environmentally clean and free of contaminants, reasonable use, wear and tear excepted, free and clear of any and all mortgages, liens, encumbrances, and claims. At the time of the surrender, the Lessee shall also surrender any and all security deposits and rent advances of Sublessees to the extent of any amounts owing from the Lessee to the Lessor. If the Subject Property is not so surrendered, the Lessee shall repay the Lessor for all expenses which the Lessor shall incur by reason of it, and in addition, the Lessee shall indemnify, defend and hold harmless the Lessor from and against all claims made by any succeeding Lessee against the Lessor, founded upon delay occasioned by the failure of the Lessee to surrender the Subject Property.

Section 17.2 Rights Upon Holding Over.
At the termination of this Lease Agreement, by lapse of time or otherwise, the Lessee shall yield up immediately possession of the Land to the Lessor and, failing to do so, agrees, at the option of the Lessor, to pay to the Lessor for the whole time such possession is withheld, a sum per day equal to one hundred and seventy-five percent (175%) times 1/30th of the aggregate of the Rent paid or payable to Lessor during the last month of the Term of the Lease Agreement the day before the termination of the Lease Agreement. The provisions of this Article shall not be held to be a waiver by the Lessor of any right or reentry as set forth in this Lease Agreement, nor shall the receipt of a sum, or any other act in apparent affirmance of the tenancy, operate as a waiver of the right to terminate this Lease Agreement and the Term granted for the period still unexpired for any breach of the Lessee under this Lease Agreement.

ARTICLE XIII: MODIFICATION

Section 18.1 Modification.
None of the covenants, terms or conditions of this Lease Agreement to be kept and performed by either Party to this Lease Agreement shall in any manner be waived, modified, changed or abandoned except by a written instrument duly signed, acknowledged, and delivered by both Lessor and Lessee.

ARTICLE XIV: INVALIDITY OF PARTICULAR PROVISIONS

Section 19.1 Invalidity of Provisions.
If any provision of this Lease Agreement or the application of it to any person or circumstances shall to any extent be invalid or unenforceable, the remainder of this Lease Agreement, or the application of such provision to persons or circumstances other than those as to which it is invalid or unenforceable, shall not be affected, and each provision of this Lease Agreement shall be valid and be enforced to the fullest extent permitted by law.

ARTICLE XX: APPLICABLE LAW AND VENUE

Section 20.1 Applicable Law.
This Lease Agreement shall be construed and enforced in accordance with the laws of the State of Alaska. The forum and venue for any action seeking to interpret, construe, or enforce this Lease Agreement shall be only in the Superior Court for the State of Alaska at Sitka, Alaska.

ARTICLE XXI: NOTICES

Section 21.1 Manner of Mailing Notices.
In every case where under any of the provisions of this Lease Agreement or otherwise it shall or may become necessary or desirable to make or give any declaration or notice of any kind to the Lessor or the Lessee, it shall be sufficient if a copy of any declaration or notice is sent by United States mail, postage prepaid, return receipt requested, addressed: If to Lessor at: Municipal Administrator, City and Borough of Sitka, of 100 Lincoln Street, Sitka, Alaska 99835, with a copy to: Municipal Clerk at address listed above; and if to Lessee, at: the address set out in the

Preamble. Each Party from time to time may change its address for purposes of receiving declarations or notices by giving notice of the changed address, to become effective seven days following the giving of notice.

Section 21.2 Notice to Leasehold Mortgagee and Secured Parties.
The Lessor shall provide each Leasehold Mortgagee and Secured Party, who has so requested, copies of all notices from Lessor to Lessee relating to existing or potential default under, or other noncompliance with the terms of this Lease Agreement. All notices, demands or requests which may be required to be given by the Lessor or the Lessee to any Leasehold Mortgagee and Secured Parties shall be sent in writing, by United States registered or certified mail or express mail, postage prepaid, addressed to the Leasehold Mortgagee at a place as the Leasehold Mortgagee may from time to time designate in a written notice to the Lessor and Lessee. Copies of all notices shall simultaneously be sent to the other of the Lessor or the Lessee, as the case may be.

Section 21.3 Sufficiency of Service.
Service of any demand or notice as in this Article provided shall be sufficient for all purposes.

Section 21.4 When Notice Deemed Given or Received.
Whenever a notice is required by this Lease Agreement to be given by any Party to the other Party or by any Party to a Leasehold Mortgagee, the notice shall be considered as having been given when a registered or certified notice is placed in the United States Post Office mail as provided by this Article and shall be deemed received on the third business day thereafter and for all purposes under this Lease Agreement of starting any time period after notice, the time period shall be conclusively deemed to have commenced three business days after the giving of notice and whether or not it is provided that a time period commences after notice is given or after notice is received.

ARTICLE XXII: MISCELLANEOUS PROVISIONS

Section 22.1 Captions.
The captions of this Lease Agreement and the index preceding it are for convenience and reference only and in no way define, limit or describe the scope or intent of this Lease Agreement, nor in any way affect this Lease Agreement.

Section 22.2 Conditions and Covenants.
All the provisions of this Lease Agreement shall be deemed and construed to be "conditions" as well as "covenants," as though the words specifically expressing or importing covenants and conditions were used in each separate provision.

Section 22.3 Entire Agreement.
This Lease Agreement contains the entire agreement between the Parties and shall not be modified in any manner except by an instrument in writing executed by the Parties or their respective successors or assigns in interest.

Section 22.4 Time of Essence as to Covenants of Lease Agreement.
Time is of the essence as to the covenants in this Lease Agreement.

ARTICLE XXIII: COVENANTS TO BIND AND BENEFIT RESPECTIVE PARTIES AND TO RUN WITH THE SUBJECT PROPERTY

Section 23.1 Covenants to Run with the Subject Property.
All covenants, agreements, conditions and undertakings in this Lease Agreement shall extend and inure to the benefit of and be binding upon the successors and assigns of each of the Parties, the same as if they were in every case named and expressed, and they shall be construed as covenants running with the Subject Property. Wherever in this Lease Agreement reference is made to any of the Parties, it shall be held to include and apply to, wherever applicable, also the officers, directors, successors and assigns of each Party, the same as if in each and every case so expressed.

Section 23.2 Interest in Deposits Automatically Transferred.
The sale, conveyance or assignment of the interest of the Lessee (pursuant to the terms of this Lease Agreement) or of the Lessor in and to this Lease Agreement shall act automatically as a transfer to the assignee of the Lessor or of the Lessee, as the case may be, of its respective interest in any funds on deposit with and held by any Construction Lender and the Lessor, and every subsequent sale, conveyance or assignment by any assignee of the Lessor or of the Lessee also shall act automatically as a transfer of their respective rights to the deposits with such Construction Lender and the Lessor to the subsequent assignee.

ARTICLE XXIV: ADDITIONAL GENERAL PROVISIONS

Section 24.1 Absence of Personal Liability.
No member, official, or employee of the Lessor shall be personally liable to the Lessee, its successors and assigns, or anyone claiming by, through or under the Lessee or any successor in interest to the Subject Property, in the event of any default or breach by the Lessor or for any amount which may become due to the Lessee, its successors and assigns, or any successor in interest to the Subject Property, or on any obligation under the terms of this Lease Agreement. No member, official, or employee of the Lessee shall be personally liable to the Lessor, its successors and assigns, or anyone claiming by, through, or under the Lessor or any successor in interest to the Subject Property, in the event of any default or breach by the Lessee or for any amount which become due to the Lessor, its successors and assigns, or any successor in interest to the Subject Property, or on any obligation under the terms of this Lease Agreement.

Section 24.2 Lease Agreement Only Effective As Against Lessor Upon Approval.
This Lease Agreement is effective as against Lessor only upon the approval of this Lease Agreement by the Sawmill Cove Industrial Park Board of Directors, in accordance with the Sitka General Code at Chapter 2.38, and signed by the Municipal Administrator.

Section 24.3 Binding Effects and Attorneys Fees.
This Lease Agreement shall be binding up and inure to the benefit of the respective successors and assigns of the Parties. In the event of litigation over this Lease Agreement, the Parties agree that the prevailing Party shall receive full attorneys' fees.

Section 24.4 Duplicate Originals.
This Lease Agreement may be executed in any number of copies, each of which shall constitute an original of this Lease Agreement. The warranties, representations, agreements and undertakings shall not be deemed to have been made for the benefit of any person or entity, other than the Parties.

Section 24.5 Declaration of Termination.
With respect to Lessor's rights to obtain possession of the Subject Property or to revest title in itself with respect to the leasehold estate of the Lessee in the Subject Property, the Lessor shall have the right to institute such actions or proceedings as it may deem desirable to effectuate its rights including, without limitation, the right to execute and record or file with the Recorder of Sitka Recording District, a written declaration of the termination of all rights and title of Lessee in the Subject Property, and the revesting of any title in the Lessor as specifically provided in this Lease Agreement.

Section 24.6 Authority.
Lessor and Lessee represent to each other that each has, and has exercised, the required corporate power and authority and has complied with all applicable legal requirements necessary to adopt, execute and deliver this Lease Agreement and perform its obligations. Both Parties also represent that this Lease Agreement has been duly executed and delivered by each and constitutes a valid and binding obligation of each enforceable in accordance with its terms, conditions, and provisions.

I WATER, LLC

_____

_____

CITY AND BOROUGH OF SITKA

_____

Mark Gorman, Municipal Administrator

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, signs this Lease Agreement on behalf of I Water, LLC and affirms by signing this document to be authorized to sign on behalf of the I Water, LLC and does so freely and voluntarily.

_____

Notary Public for Alaska
My Commission Expires: _____

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, MARK GORMAN, MUNICIPAL ADMINISTRATOR of the City and Borough of Sitka, Alaska, a municipal corporation organized under the laws of the State of Alaska, signs this Lease Agreement on its behalf, and affirms by signing this document to be authorized to sign on its behalf, and does so freely and voluntarily.

_____

Notary Public for Alaska
My Commission Expires: _____

Sawmill Cove

INDUSTRIAL PARK

LEASE AGREEMENT

CITY & BOROUGH OF SITKA

&

I WATER, LLC

(BLOCK 4, LOTS 3 AND 6)

Contents

EXHIBITS:

LEASE AGREEMENT BETWEEN
CITY AND BOROUGH OF SITKA AND
I WATER, LLC.

PREAMBLE

This Lease Agreement Between City And Borough of Sitka and I Water, LLC, 1125 W. Olive Street, San Diego, California 92103 ("Lease Agreement") is effective upon execution of the Lease Agreement by both Parties, City and Borough of Sitka, 100 Lincoln Street, Sitka, Alaska 99835 ("Sitka" "CBS" or "Lessor") and I Water, LLC ("I Water" or "Lessee"). This Lease Agreement consists of the Special Provisions, the General Provisions, and the attached Exhibits A and B. Exhibit A is a pictorial representation of the area leased, consisting of Block 4, Lots 3 and 6 of the Sawmill Cove Industrial Park ("SCIP"). Exhibit B is the "Management Requirements at Sawmill Cove Industrial Park, Sitka, Alaska," which summarizes the Prospective Purchasers Agreement, the Management Plan and the Conveyance Agreement regarding Sawmill Cove Industrial Park ("SCIP). This lease agreement was recommended by SCIP Board of Directors on April 10, 2014, and approved by the Assembly on _____, 2014. The CBS has an active lease agreement for lots 3 and 6 until March 1, 2015. I Water's lease will begin March 1st, 2015 or sooner if the CBS agrees to terminate the current lease agreement:

SPECIAL PROVISIONS

ARTICLE I: LEASE, TERM OF LEASE, AND TERMINATION OF LEASE

Section 1.1 Conveyance of Estate in Lease.
Lessor, for and in consideration of the covenants and agreements made by Lessee, does lease to Lessee, and Lessee leases from Lessor, the Subject Property or Premises as shown on Exhibit A, for construction of a water bottling plant on the property. The subject property is Block 4, Lots 3 and 6 of the SCIP, consisting of 74,931 square feet. The Term is for two (2) years, commencing upon execution of Lease Agreement as set out in the Preamble. This Lease Agreement may be extended beyond two years, upon mutual consent of the Parties.

Section 1.2 Option to Purchase.
Lessee has the option to purchase Subject Property as long as a building is constructed with certified constructions costs of at least $3 million dollars and additionally, at least 500,000 gallons of water in a 12-month cycle are purchased from Lessor for bottling operations. Purchase price will be set at $4.00/SF or appraisal cost, whichever is higher. CBS will select appraisal firm and I Water will be responsible for cost of appraisal.

Section 1.3 Option to Renew.
Provided there does not exist a continuing material default by Lessee under this Lease and Lessee has chosen not to purchase Subject Property, Lessee shall have the right to exercise the option to renew this Lease Agreement upon the same terms and conditions for up to an additional five (5) years. This option is effective only if (a) Lessee makes a written request to exercise such

an option 30 days prior to expiration of the Term; (b) Lessee is in compliance with all applicable laws; and (c) Lessee is not in default under this Lease.

Section 1.4 Disposition of Improvements and Lessee's Personal Property Following Term of Lease Agreement.
Lessee shall remove from the Subject Property any personal property or Improvements constructed, installed, or deposited on the Subject Property, including the water bottling plant as notied in Sections 1.1 and 1.2, at the termination of this Lease Agreement or any extension unless Lessee makes a separate written agreement with Sitka to do otherwise. Any Improvements or personal property not removed after thirty (30) days have passed after termination of this Lease Agreement shall be deemed abandoned and at Lessor's option shall become the property of Lessor, and Lessee shall repay to Sitka any costs of removing such improvements or personal property from the Subject Property if Sitka does not exercise such option. Subject to Sitka's obligations under Subsection 3.1(a) below, Lessee agrees to leave Subject Property in a neat and clean condition at the end of the Term of the Lease Agreement.

Section 1.5 Covenants to Perform.
This Lease Agreement is made upon the above and the following terms and conditions, each of which the Party bound by such covenants and conditions agrees to perform, irrespective of whether the particular provision is in the form of a covenant, an agreement, a condition, a direction, or otherwise, and each Party agrees to provide the other Party with documents or further assurances as may be required to carry out the expressed intentions.

ARTICLE II: RENT

Section 2.1 Calculation & Method of Payment of Rent
Notwithstanding any other provision of this Lease Agreement, on the Term start date set out in Article I, Lessee shall pay the full month rent payment owed under this Lease Agreement, which shall be prorated if the date this Lease is executed is not the first day of the month. Subject to the provision in the previous sentence, Lessee shall pay the lease payments in advance for the Term of the Lease Agreement without the necessity of any billing by Lessor. Lessee will lease the space as shown in Exhibit A for $2,247.93 /month payable at a rate of $0.03/SF/month. Sales tax is to be paid in addition to the stated Rent.

Section 2.2 Reserved.

Section 2.3 Reserved.

Section 2.4 Property Tax Responsibility.
Beginning with the Term, Lessee will be responsible to pay any property taxes to City and Borough of Sitka for its possessory interest in the building, land, and equipment to the extent taxable as determined by the Assessor, which is assessed as of January 1 of each calendar year.

ARTICLE III: RESTRICTIONS UPON USE OF SUBJECT PROPERTY

Section 3.1 Lessee's Obligations as to Construction, Maintenance, Repair and Safety.
(a) Except as provided in this Lease Agreement, Lessee acknowledges the leasehold is in an "as is" condition. At the sole cost and expense of Lessee and in compliance with all legal

requirements, Lessee may purchase, construct, develop, repair, and/or maintain any improvements, using materials of good quality and matching existing finishes.

Lessor reserves the right to expand or modify the Subject Property. In that event, the Lessor and Lessee will work together to complete such expansion or modification in a manner that minimizes disruption to Lessee's use of the Subject Property. Some anticipated disruptions could be operational disturbances from noise, dust and other construction activities.

(b) Lessee acknowledges that Lessor has made no representation or warranty with respect to Lessee's ability to obtain any Federal, state or local permit, license, or approval as described in Section 4.1(a).

(c) Lessee shall also use the Subject Property and any Improvements placed thereon only for lawful uses.

(d) Lessee shall confine its operation on the Subject Property to equipment and materials storage, and operation of a water bottling plant.

(e) Lessee shall not permit the accumulation of waste or refuse matter on the Subject Property, and Lessee shall not obstruct or permit the obstruction of the streets, sidewalks, access ways, or alleys adjoining the Subject Property except as may be permitted by Lessor or other municipal authorities having jurisdiction. Lessee shall do all things necessary during the Term of this Lease Agreement to remove any dangerous condition from time to time existing on the Subject Property as the result of the use by Lessee.

(f) Lessee may erect outdoor signage at its expense with the permission of the City and Borough of Sitka Building Official, the Planning Director, and the Public Works Director. The style, size and physical placement location of the sign will be approved on a case-by-case basis.

Section 3.2 Additional Conditions of Leasing.
Lessee recognizes and shall cause all beneficiaries of Lessee and all permitted successors in interest in or to any part of the Subject Property to recognize that:

(a) Lessee will cooperate with the City and Borough of Sitka Public Works Department and will notify this Department of any maintenance deficiencies or of any equipment failures that require maintenance or repair. Lessee will be provided a 24 hour telephone number to notify the Lessor of any event that requires immediate response by the Lessor.

(b) Lessee will maintain and repair as necessary the storm drain facilities on and adjacent to the Subject Property. This includes, but is not limited to, keeping concrete roadside gutters clean and free of dirt, rock and debris, and periodic clearing/cleaning of filters in the roadside catch basins and drop-inlets. The paved roadways adjacent to the Subject Property shall be cleared of loose soil and rock materials at the end of each shift. Any construction or mining debris (scrap concrete, asphalt, steel, wood; also, plant/organic matter) is to be properly disposed of offsite.

(c) All vehicles operated on the paved roadways within the SCIP shall be subject to the vehicle weight and load limitation provisions under Sitka General Code 11.17. The primary objective of this clause is to limit the use of off-road haul units and other rubber-tired heavy equipment on the paved streets at SCIP.

(d) Lessee covenants and agrees that as it relates to use of the facility, it will not, on the grounds of race, color or national origin, discriminate or permit discrimination against any person or group of person in any manner prohibited by Federal or State laws or regulations promulgated thereunder, and Lessee further grants the Lessor the right to take such action to enforce such covenant as it deems necessary or as it is directed pursuant to any Federal or State law or regulation.

(e) Lessor may, upon at least 10 days prior notice to Lessee, temporarily suspend the supply, if provided on the Subject Property, of water, wastewater service and electric power to perform routine maintenance. Such interruptions shall be of as short duration as necessary to perform such maintenance, and Sitka shall not be responsible for any such costs or expenses as a result of suspending such utilities.

(f) Lessee will pay any applicable City and Borough of Sitka Fire Marshal fees and other building permit fees when due.

(g) Lessee is responsible for taking any measures that Lessee deems necessary to provide security for their property. Sitka is not responsible for theft or vandalism.

(h) City and Borough of Sitka sales tax will apply to lease payments. Sales taxes will also apply to any utility services and will be calculated into each monthly billing from the City and Borough of Sitka. Sales tax rates, limits, exemptions, and exclusions are subject to change by the Assembly of the City and Borough of Sitka.

(i) Lessee shall not store hazardous or explosive materials on the Subject Property or on any property of Sawmill Cove Industrial Park.

Section 3.3 Control of Rodents and Other Creatures on Subject Property.
Lessee shall take reasonable affirmative measures to ensure that its operations do not attract to Subject Property or any portion of the Sawmill Cove Industrial Park property any of the following creatures: rodents, vermin, insects, eagles, crows, ravens, seagulls, or bears.

ARTICLE IV: POSSESSION AND CONSTRUCTION OF IMPROVEMENTS.

Section 4.1 Lessee's Construction Obligations.
At the sole cost and expense of the Lessee and pursuant to building permits and in compliance with all legal requirements, the Lessee shall purchase, construct and/or develop the appropriate improvements, personal property, fixtures or buildings, including but not limited to any structures referred to in Sections 1.1 and 1.2 of this Agreement, and other items on Subject Property in a first class manner, of good quality and all work shall be performed diligently. The items to be purchased, constructed and/or developed shall be those reasonably necessary to conduct Lessee's intended business operations on Subject Property.

(a) In addition to Section 3.1(b) of this Agreement, Lessor, in its proprietary capacity only, agrees to cooperate reasonably with Lessee in its efforts to secure the requisite permits, licenses and approvals to allow the purchase construction and/or development of the project. Notwithstanding the foregoing, Lessee acknowledges that the Lessor has made no representation or warranty with respect to Lessee's ability to obtain any permit, license or approval (including a building permit) or to meet any other requirements for development of the project. Nothing in this Lease Agreement is intended or shall be construed to require that the Lessor exercise its discretionary authority under its regulatory ordinances to further the project nor binds the Lessor to do so. The Lessor will process applications for permits, licenses and approvals as if such application were made without any Lessor participation in such project and shall act in good faith with respect thereto.

(b) Approval by Lessor of any item shall not constitute a representation or warranty by Lessor that such item complies with any legal requirements and Lessor assumes no liability. Lessor has no obligation or duty to design, supervise the design, construct or supervise the construction of the improvements. Lessor's approval of the construction plans, as provided below, is for the sole purpose of protecting its rights as the owner of the land on which the leasehold sits and shall not constitute any representation or warranty, express or implied, as to the adequacy of the design, or any obligation on Lessor to insure that work or materials are in compliance with the construction plans or any building requirements imposed by a governmental agency. Lessor is under no obligation or duty, and disclaims any responsibility, to pay for the cost of construction of the improvements or any other items, the cost of which shall at all times remain the sole liability of Lessee.

(c) For all acts other than the acts of the Lessor, its officers, agents, and employees, unless Lessee violates the prospective Purchaser Agreement, Management Agreement and related documents or otherwise exacerbates or aggravates existing conditions), Lessee covenants to indemnify, defend and hold harmless the Lessor and its agents and employees from and against all claims and demands whatsoever for loss or damage including property damage, personal injury and wrongful death arising out of construction of the improvements, any development or repairs made at anytime on the Subject Property, the performance of this Lease Agreement by the Lessee, its agents, employees, contractors, subcontractors or invitees, any incident, fire or other casualty in respect of the Subject Property, any failure by the Lessee to keep the Subject Property, or any improvements on it, in a safe condition, and all other activies occurring on or at the Subject Property.

Section 4.2 Schedule and Milestones.
This Lease Agreement may be terminated upon 60 days notice by Lessor to Lessee (subject to the right to remove items from Subject Property as provided in Section 1.4 of this Lease Agreement), if the following milestone is not met by Lessee.

(a) Insurance policy binders are due at Sitka Finance Department for approval, upon Lessee occupying Subject Property or within 30 days from the date of this Lease Agreement, whichever occurs first.

Section 4.3 Rights of Access to Property.
(a) Lessor reserves for itself and any public utility company the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of inspecting or maintaining, or constructing public utilities, if any, located on the Subject Property. Lessor also reserves for itself and the Alaska Department of Environmental Conservation the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of regulation and enforcement of this Lease Agreement. Lessor also reserves for itself the right to access the Subject Property at all reasonable times in a reasonable manner for the purposes of (1) inspection of all work being performed in connection with the construction of Improvements; (2) showing Subject Property for exhibiting Subject Property in connection with renting or leasing Subject Property in a matter that will not unreasonably interfere with Lessee's business; and (3) placing "For Sale" or "For Rent" signs on Subject Property. Lessee shall not charge for any of the access allowed in the situations described in this subsection.

(b) Lessee shall not construct any permanent iinprovements over or within the boundary lines of any easement for public utilities without receiving the written prior consent of Lessor and any applicable utility company.

(c) Lessee acknowledges that the Subject Property is or shall be subject to agreements for ingress and egress, utilities, parking, and maintenance of common areas as described on attached Exhibit A. Lessee agrees that it shall comply with the terms of such cooperative agreements, in accordance with the terms of such agreements, those portions of such maintenance expenses that are attributable to the Subject Property, as more fully set forth therein.

(d) The Lessee shall permit the authorized representatives of Lessor to enter the Subject Property or any part of it at all reasonable times during usual business hours, after reasonable notice, under the circumstances prevailing for the purpose of making reasonable inspections.

ARTICLE V: UTILITY SERVICES & RATES

Section 5.1 Provision of Utility Services.
Currently, no utility services are provided to the Subject Property. If and when utility services are provided, Lessee shall pay the cost of use of such utility services, to be paid monthly upon billing by the City and Borough of Sitka.

Section 5.2 Provision of Raw Water Line and Meter.
Lessee is responsible for installation of raw water line and meter.

Section 5.3 Reserved.

Section 5.4 Lessor Not Limited Liability and Non-Liability.
In the event utility services are provided, and except to the extent that any such failure, injury, or other casualty is due to Lessor's negligence or breach of any obligation under this Lease Agreement, Lessor shall not be liable for any failure of utility services, or for any injury or damages to person or property caused by or resulting from any natural disaster, natural condition, earthquake, hurricane, tornado, flood, wind or similar storms or disturbances, or water, rain, or

snows which may leak or flow from the street, sewer, or from any part of Subject Property, or leakage of sewer, or plumbing works therein, or from any other place. Lessor shall not be held responsible or liable for any claim or action due to or arising from any suspension of operation, breakage, unavoidable accident or injury of any kind occurring to, or caused by the sewer mains through any force majeure.

Section 5.5. Requirement Regarding Potable Water Services.
All potable water services will be metered and protected by approved backflow prevention in accordance with the Sitka General Code at Section 15.05.400.

Section 5.6 Reserved.

ARTICLE VI: LIABILITY AND INDEMNIFICATION

Section 6.1 Liability of Lessee and Indemnification of Lessor.
Lessee agrees to indemnify, defend, and hold harmless Lessor against and from any and all claims by or on behalf of any person, firm, or corporation arising, other than due to acts or omissions of Lessor, from the conduct or management of or from any work or thing whatsoever done in or about the Subject Property and structures and Improvements, including liability arising from products produced on the property. Lessee also agrees to indemnify, defend, and hold Lessor harmless against and from any and all claims and damages arising, other than due to acts or omissions of Lessor, during the Term of this Lease Agreement from: (a) any condition of the Subject Property or Improvements placed on it; (b) any breach or default on the part of the Lessee regarding any act or duty to be performed by Lessee pursuant to the terms of this Lease Agreement; (c) any act or negligence of Lessee or any of its agents, contractors, servants, employees or licensees; and (d) any accident, injury, death or damage caused to any person occurring during the Term of this Lease Agreement in or on the Subject Property. Lessee agrees to indemnify, defend, and hold harmless Lessor from and against all costs, counsel and legal fees, expenses, and liabilities incurred, other than due to acts or omissions of Lessor, in any claim or action or proceeding brought asserting claims of or asserting damages for any alleged act, negligence, omission, conduct, management, work, thing, breach, default, accident, injury, or damage described in the previous two sentences. The above agreements of indemnity are in addition to and not by way of limitation of any other covenants in this Lease Agreement to indemnify the Lessor. The agreements of indemnity by the Lessee do not apply to any claims of damage arising out of the failure of the Lessor to perform acts or render services in its municipal capacity.

Section 6.2 Liability of Lessor and Indemnification of Lessee.
Except to the extent of liabilities arising from Lessee's acts or omissions, Lessor indemnifies, defends, and holds Lessee harmless for liabilities to the extent that they were incurred by reason of conditions existing on the site as of the date of execution of this Lease Agreement or by reasons of Lessor's acts or omissions. Lessor also agrees to indemnify, defend, and hold Lessee harmless against and from any and all claims and damages arising, other than due to acts or omissions of Lessee, during the Term of this Lease Agreement from (a) any condition of the Subject Property or Improvements placed on it; (b) any breach or default on the part of the Lessor regarding any act or duty to be performed by Lessor pursuant to the terms of the Lease

Agreement; (c) any act or negligence of Lessor or any of its agents, contractors, servants, employees, or licensees; and (d) any accident, injury, death, or damage caused to any person occurring during the Term of this Lease Agreement in or on the Subject Property. Lessor agrees to indemnify, defend, and hold harmless Lessee from and against all costs, counsel and legal fees, expenses, and liabilities incurred, other than due to acts or omissions of Lessee, in any claim or action or proceeding brought asserting claims of or asserting damages for any alleged act, negligence, omission, conduct, management, work, thing, breach, default, accident, injury, or damage described in the previous two sentences. The above agreements of indemnity are in addition to and not by way of limitation of any other covenants in this Lease Agreement to indemnify the Lessee.

Section 6.3 Reimbursement of Costs of Obtaining Possession.
Each Party agrees to pay the other Party prevailing in any dispute under this Lease Agreement for all costs and charges, including but not limited to, full attorney and legal fees lawfully incurred in enforcing any provision of this Lease Agreement including obtaining possession of the Subject Property and establishing the Lessor's title free and clear of this Lease Agreement upon expiration or earlier termination of this Lease Agreement.

GENERAL PROVISIONS

ARTICLE VII: DEFINITIONS

Section 7.1 Defined Terms.
For the purposes of this Lease Agreement, the following words shall have the meanings attributed to them in this Section:

(a) "Event of Default" means the occurrence of any action specified in Section 14.1.

(b) "Imposition" means all of the taxes, assessments, utility rates or charges, levies and other governmental charges, levied or assessed against the Subject Property, any part thereof, any right or interest therein or any rent and income received therefrom as well as sales taxes on rent.

(c) "Improvements" or "improvements" means all improvements of any nature now or hereafter located upon the Land, as well as all apparatus and equipment necessary for the complete and comfortable use, occupancy, enjoyment and operation of the Subject Property, including any construction fencing or signage, excepting only in each case articles of personal property appurtenances and fixtures (including trade fixtures) owned by Lessee, Sublessees, or others, which can be removed without defacing or materially injuring the Improvements remaining on the Subject Property, from the Subject Property with the portion of the Subject Property from which such items are removed being returned to a condition at least as good as that existing on the date of this Lease Agreement. "Improvements" also includes fill, grading, asphalt, and other non-building land improvements.

(d) "Personal Property" means tangible personal property owned or leased and used by the Lessee or any sublessee of the Lessee, in connection with and located upon the Subject Property.

(e) "Premises" means the "Subject Property."

(f) "Rent" means the lease rate, which is the amount Lessee periodically owes and is obligated to pay Lessor as lease payments under this Lease Agreement for the use of the demise.

(g) "Subject Property" is the area leased as shown on Exhibit A or elsewhere in the document.

(h) "Sublessee" and "Sublease" -- any reference to "sublessee" shall mean any subtenant, concessionaire, licensee, or occupant of space in or on the Subject Property holding by or through the Lessee; the term "sublease" shall mean any lease, license, concession or other agreement for the use and occupancy of any part of the Subject Property made by any Person holding by or through the Lessee.

(i) "Term" means the period of time Lessee rents or leases the Subject Property from Lessor.

ARTICLE VIII: INSURANCE

Section 8.1 Insurance.
Lessee shall maintain property damage and comprehensive general liability insurance in the amount of three million dollars ($3,000,000), including leasehold improvements. Lessor shall be named as an additional insured.

Section 8.2 Notification of Claim, Loss, or Adjustment.
Lessee shall advise Lessor of any claim, loss, adjustment, or negotiations and settlements involving any loss under all policies of the character described in Section 7.1.

Section 8.3 Waiver of Subrogation.
The Party insured (or so required) releases the other Party from any liability the other Party may have on account of the loss, cost, damage or expense to the extent of any amount recoverable by reason of insurance whenever: (i) any loss, cost, damage or expense resulting from fire, explosion or any other casualty or occurrence is incurred by either of the Parties to this Lease Agreement, or anyone claiming under it in connection with the Subject Property or Improvements; and (ii) the Party is then covered in whole or in part by insurance with respect to loss, cost, damage or expense or is required under this Lease Agreement to be so insured.

In such coverage the Parties hold on or waives any right of subrogation which might otherwise exist in or accrue to any person on account of it, provided that the release of liability and waiver of the right of subrogation shall not be operative in any case where the effect is to invalidate the insurance coverage or increase its cost. In the case of increased cost, the other Party shall have the right, within thirty (30) days following written notice, to pay the increased cost keeping the release and waiver in full force and effect.

ARTICLE IX: RESTRICTIONS REGARDING ASSIGNMENT, SUBLEASES, AND TRANSFERS OF SUBJECT PROPERTY

Section 9.1 Lessee Without Power to Assign Lease or Transfer or Encumber Subject Property.
Lessee has no power under this Lease Agreement to assign the Lease Agreement or transfer the Subject Property, except with the approval of the SCIP Board of Directors and Sitka Assembly. Lessee has no power to encumber Subject Property or pledge its interest in Subject Property as collateral for a loan, mortgage, debt or liability.

Section 9.2 Limitations on Subleases.
Lessee shall not sublease the Subject Property or any portion of it except with the approval of the SCIP Board of Directors and the Sitka Assembly. All subleases entered into demising all or any part of the Improvements or the Subject Property shall be expressly subject and subordinate to this Lease Agreement, including Exhibits A and B. Lessor's consent to a sublease of the Subject Property shall not release Lessee from its obligations under the Lease Agreement. Lessor's consent to a sublease shall not be deemed to give any consent to any subsequent subletting.

ARTICLE X: USE AND PROTECTION OF THE SUBJECT PROPERTY

Section 10.1 Property As Is - Repairs.
Lessee acknowledges that it has examined the Subject Property and the present improvements including any public improvements presently located there and knows the condition of them and accepts them in their present condition and without any representations or warranties of any kind whatsoever by Lessor as to their condition or as to the use or occupancy which may be made of them. Lessee assumes the sole responsibility for the condition of the improvements located on the Subject Property. The foregoing shall not be deemed to relieve Lessor of its general municipal obligations, or of its obligations under Section 3.1.

Section 10.2 Compliance with Laws.
Lessee shall throughout the Term of this Lease Agreement and any extension, at Lessee's sole expense, promptly comply with all the laws and ordinances and the orders, rules, regulations, and requirements of all federal, state, and municipal governments and appropriate departments, commissions, boards, and officers (whether or not the same require structural repairs or alterations) and all other legal requirements that may be applicable to the use of the Subject Property. Nothing in the foregoing sentence shall be deemed to relieve Lessor of its general obligations in its municipal capacity.

Section 10.3 Notification of City and Borough of Sitka's Public Works Director of Discovery of Contamination.
Lessee shall promptly notify the Public Works Director of the City and Borough of Sitka within 24 hours if any contaminated soils or other media that require special handling are encountered on the Subject Property.

Lessee shall be responsible for all clean-up costs associated with contamination of soils of Subject Property, adjoining property, and/or buildings caused by or attributed to Lessee though

its operations on the Subject Property. In the event of Lessee's failure to clean-up to applicable regulatory standards or to the satisfaction of the Public Works Director, the Lessor may perform clean-up or contract for clean-up and all charges for such work shall be payable by Lessee.

Section 10.4 Use of Utility Lines.
No utility services are currently provided. If Lessee desires utilities, Lessee and Lessor shall negotiate and enter an amendment to this Lease Agreement regarding which utility services to provide, the costs associated with such services, and the rate for such utility service.

If such utility services are requested and granted, Lessee shall connect or otherwise discharge to such utility lines, including electrical, water and/or wastewater lines, as are approved by the appropriate City and Borough of Sitka Department, which may include Department of Public Works and/or Electrical Department, and shall obtain any permits and comply with any conditions specified by the Director of Public Works and/or Electric Department for such connections.

Section 10.5 Permits and Approvals for Activities.
Lessee shall be responsible for obtaining all necessary permits and approvals for its activities unless otherwise specifically allowed by Lessor. Not less than ten (10) days in advance of applying for permits to any public entity other than the City and Borough of Sitka, Lessee shall provide copies of all permit applications and associated plans and specifications to the Director of Public Works of the City and Borough of Sitka to facilitate review by departments of the City and Borough of Sitka. The City and Borough of Sitka is not obligated to comment on the permit applications and plans, and the result of any review by the City and Borough of Sitka does not affect Lessee's obligation to comply any applicable laws.

ARTICLE XI: LESSOR'S RIGHT TO PERFORM LESSEE'S COVENANTS; REIMBURSEMENT OF LESSOR FOR AMOUNTS SO EXPENDED

Section 11.1 Performance of Lessee's Covenants To Pay Money.
Lessee covenants that if it shall at any time default or shall fail to make any other payment (other than rent) due and the failure shall continue for ten (10) days after written notice to the Lessee, then the Lessor may, but shall not be obligated so to do, and without further notice to or demand upon the Lessee and without releasing the Lessee from any obligations of the Lessee under this Lease Agreement, make any other payment in a manner and extent that the Lessor may deem desirable.

Section 11.2 Lessor's Right To Cure Lessee's Default.
If there is a default involving the failure of the Lessee to keep the Subject Property in good condition and repair in accordance with the provisions of this Lease Agreement, to make any necessary renewals or replacements or to remove any dangerous condition in accordance with the requirements of this Lease Agreement or to take any other action required by the terms of this Lease Agreement, then the Lessor shall have the right, but shall not be required, to make good any default of the Lessee. The Lessor shall not in any event be liable for inconvenience, annoyance, disturbance, loss of business, or other damage of or to the Lessee by reason of bringing materials, supplies and equipment on the Subject Property during the course of the work

required to be done to make good such default, and the obligations of the Lessee under this Lease Agreement shall remain unaffected by such work, provided that the Lessor uses reasonable care under the circumstances prevailing to avoid unnecessary inconvenience, annoyance, disturbance, loss of business, or other damage to the Lessee.

Section 11.3 Reimbursement of Lessor and Lessee.
All sums advanced by the Lessor pursuant to this Article and all necessary and incidental costs, expenses and attorney fees in connection with the performance of any acts, together with interest at the highest rate of interest allowed by law from the date of the making of advancements, shall be promptly payable by the Lessee, in the respective amounts so advanced, to the Lessor. This reimbursement shall be made on demand, or, at the option of the Lessor, may be added to any rent then due or becoming due under this Lease Agreement and the Lessee covenants to pay the sum or sums with interest, and the Lessor shall have (in addition to any other right or remedy) the same rights and remedies in the event of the nonpayment by the Lessee as in the case of default by the Lessee in the payment of any installment of rent. Conversely, the Lessee shall be entitled to receive from the Lessor prompt payment or reimbursement on any sums due and owing from the Lessor to the Lessee, together with interest at the highest rate allowed by law. However, nothing contained in this Lease Agreement shall entitle the Lessee to withhold any rent due to the Lessor or to offset or credit any sums against rent, except with respect to unpaid rental due from the Lessor to the Lessee under any sublease of building space to the Lessor.

ARTICLE XII: MECHANIC'S LIENS

Section 12.1 Discharge of Mechanics' Liens.
The Lessee shall neither suffer nor permit any mechanics' liens to be filed against the title to the Subject Property, nor against the Lessee's interest in the property, nor against the Improvements by reason of work, labor, services or materials supplied or claimed to have been supplied to the Lessee or anyone having a right to possession of the Subject Property or Improvements as a result of an agreement with or the assent of the Lessee. If any mechanics' lien shall at the time be filed against the Subject Property including the Improvements, the Lessee shall cause it to be discharged of record within 30 days after the date that Lessee has knowledge of its filing.

ARTICLE XIII: LIEN FOR RENT AND OTHER CHARGES

Section 13.1 Lien for Rent.
The whole amount of the Rent and each and every installment, and the amount of all taxes, assessments, water rates, insurance premiums and other charges and impositions paid by the Lessor under the provisions of this Lease Agreement, and all costs, attorney's fees and other expenses which may be incurred by the Lessor in enforcing the provisions of this Lease Agreement or on account of any delinquency of the Lessee in carrying out any of the provisions of this Lease Agreement, shall be and they are declared to constitute a valid and prior lien upon the Lessee and Lessee's Improvements to the Subject Property, and upon the Lessee's leasehold estate, and may be enforced by equitable remedies including the appointment of a receiver.

ARTICLE XIV: DEFAULT PROVISIONS

Section 14.1 Events of Default.
Each of the following events is defined as an "Event of Default":

(a) The failure of the Lessee to pay any installment of Rent, or any other payments or deposits of money, or furnish receipts for deposits as required, when due and the continuance of the failure for a period of ten (10) days after notice in writing from the Lessor to the Lessee.

(b) The failure of the Lessee to perform any of the other covenants, conditions and agreements of this Lease Agreement including payment of taxes on the part of the Lessee to be performed, and the continuance of the failure for a period of thirty (30) days after notice in writing (which notice shall specify the respects in which the Lessor contends that the Lessee has failed to perform any of the covenants, conditions and agreements) from the Lessor to the Lessee unless, with respect to any default which cannot be cured within thirty (30) days, the Lessee, or any person holding by, through or under the Lessee, in good faith, promptly after receipt of written notice, shall have commenced and shall continue diligently and reasonably to prosecute all action necessary to cure the default within an additional sixty (60) days.

(c) The filing of an application by the Lessee (the term, for this purpose, to include any approved transferee other than a sublessee of the Lessee's interest in this Lease Agreement): (i) for a consent to the appointment of a receiver, trustee or liquidator of itself or all its assets; (ii) of a voluntary petition in bankruptcy or the filing of a pleading in any court of record admitting in writing of its inability to pay its debts as they come due; (iii) of a general assignment for the benefit of creditors; (iv) of an answer admitting the material allegations of, or its consenting to, or defaulting in answering, a petition filed against it in any bankruptcy proceeding.

(d) The entry of an order, judgment or decree by any court of competent jurisdiction, adjudicating the Lessee a bankrupt, or appointing a receiver, trustee or liquidator of it or of its assets, and this order, judgment or decree continuing unstayed and in effect for any period of sixty (60) consecutive days, or if this Lease Agreement is taken under a writ of execution.

Section 14.2 Assumption or Assignment of Lease to Bankruptcy Trustee.
In the event that this Lease Agreement is assumed by or assigned to a trustee pursuant to the provisions of the bankruptcy reform Act of 1978 (referred to as "Bankruptcy Code") (11 U.S.C. § 101 *et seq.*), and the trustee shall cure any default under this Lease Agreement and shall provide adequate assurances of future performance of this Lease Agreement as are required by the Bankruptcy Code (including but not limited to, the requirement of Code § 365(b)(1)) (referred to as "Adequate Assurances"), and if the trustee does not cure such defaults and provide such adequate assurances under the Bankruptcy Code within the applicable time periods provided by the Bankruptcy Code, then this Lease Agreement shall be deemed rejected automatically and the Lessor shall have the right immediately to possession of the Subject Property immediately and shall be entitled to all remedies provided by the Bankruptcy Code for damages for breach or termination of this Lease Agreement.

Section 14.3 Remedies in Event of Default.
The Lessor may treat any one or more of the Events of Default as a breach of this Lease Agreement and at its option, by serving written notice on the Lessee and each Secured Party and Leasehold Mortgagee of whom Lessor has notice (such notice not to be effective unless served on each such person) of the Event of Default of which the Lessor shall have received notice in writing, the Lessor shall have, in addition to other remedies provided by law, one or more of the following remedies:

(a) The Lessor may terminate this Lease Agreement and the Term created, in which event the Lessor may repossess the entire Subject Property and Improvements, and be entitled to recover as damages a sum of money equal to the value, as of the date of termination of this Lease Agreement, of the Rent provided to be paid by the Lessee for the balance of the stated term of this Lease Agreement less the fair rental value as of the date of termination of this Lease Agreement of the fee interest in the Subject Property and Improvements for the period, and any other sum of money and damages due under the terms of this Lease Agreement to the Lessor and the Lessee. Any personal property not removed after such termination shall be addressed as provided for in Section 1.4 above.

(b) The Lessor may terminate the Lessee's right of possession and may repossess the entire Subject Property and Improvements by forcible entry and detainer suit or otherwise, without demand or notice of any kind to the Lessee (except as above expressly provided for) and without terminating this Lease Agreement, in which event the Lessor may, but shall be under no obligation to do so, relet all or any part of the Subject Property for rent and upon terms as shall be satisfactory in the judgment reasonably exercised by the Lessor (including the right to relet the Subject Property for a term greater or lesser than that remaining under the stated Term of this Lease Agreement and the right to relet the Subject Property as a part of a larger area and the right to change the use made of the Subject Property). For the purpose of reletting, the Lessor may make any repairs, changes, alterations or additions in or to the Subject Property and Improvements that may be reasonably necessary or convenient in the Lessor's judgment reasonably exercised; and if the Lessor shall be unable, after a reasonable effort to do so, to relet the Subject Property, or if the Subject Property is relet and a sufficient sum shall not be realized from reletting after paying all of the costs and expenses of repairs, change, alterations and additions and the expense of reletting and the collection of the rent accruing from it, to satisfy the rent above provided to be paid, then the Lessee shall pay to the Lessor as damages a sum equal to the amount of the rent reserved in this Lease Agreement for the period or periods as and when payable pursuant to this Lease Agreement, or, if the Subject Property or any part of it has been relet, the Lessee shall satisfy and pay any deficiency upon demand from time to time; and the Lessee acknowledges that the Lessor may file suit to recover any sums falling due under the terms of this Section from time to time and that any suit or recovery of any portion due the Lessee shall be no defense to any subsequent action brought for any amount not reduced to judgment in favor of the Lessor. Any personal property not removed after such termination shall be addressed as provided for in Section 1.4 above.

(c) In the event of any breach or threatened breach by the Lessee of any of the terms, covenants, agreements, provisions or conditions in this Lease Agreement, the Lessor shall have the right to

invoke any right and remedy allowed at law or in equity or by statute or otherwise as through reentry, summary proceedings, and other remedies were not provided for in this Lease Agreement.

(d) Upon the termination of this Lease Agreement and the Term created, or upon the termination of the Lessee's right of possession, whether by lapse of time or at the option of the Lessor, the Lessee will at once surrender possession of the Subject Property and dispose of personal property and Improvements as described in Section 1.4. If possession is not immediately surrendered, the Lessor may reenter the Subject Property and Improvements and repossess itself of it as of its former estate and remove all persons and their personal property, using force as may be necessary without being deemed guilty of any manner of trespass or forcible entry or detainer. Lessor may at its option seek expedited consideration to obtain possession if Lessor determines that the Lease Agreement has terminated as described in the first sentence of this paragraph, and Lessee agrees not to oppose such expedited consideration.

(e) In the event that the Lessee shall fail to make any payment required to be made provided for in this Lease Agreement or defaults in the performance of any other covenant or agreement which the Lessee is required to perform under this Lease Agreement during the period when work provided for in this Lease Agreement shall be in process or shall be required by the terms of this Lease Agreement to commence, the Lessor may treat the default as a breach of this Lease Agreement and, in addition to the rights and remedies provided in this Article, but subject to the requirements of service of notice pursuant to this Agreement, the Lessor shall have the right to carry out or complete the work on behalf of the Lessee without terminating this Lease Agreement.

(f) Lessee shall not pursue any unjust enrichment claim in the event they abandon the water bottling plant referred to in Sections 1.1 and 1.2 of this Agreement.

Section 14.4 Waivers and Surrenders To Be In Writing.
No covenant or condition of this Lease Agreement shall be deemed to have been waived by the Lessor unless the waiver be in writing, signed by the Lessor or the Lessor's agent duly authorized in writing and shall apply only with respect to the particular act or matter to which the consent is given and shall not relieve the Lessee from the obligation, wherever required under this Lease Agreement, to obtain the consent of the Lessor to any other act or matter.

ARTICLE XV: LESSOR'S TITLE AND LIEN

Section 15.1 Lessor's Title and Lien Paramount.
The Lessor has title to the Land, and the Lessor's lien for Rent and other charges shall be paramount to all other liens.

Section 15.2 Lessee Not To Encumber Lessor's Interest.
The Lessee shall have no right or power to and shall not in any way encumber the title of the Lessor in and to the Subject Property. The fee-simple estate of the Lessor in the Subject Property shall not be in any way subject to any claim by way of lien or otherwise, whether

claimed by operation of law or by virtue of any express or implied lease or contract or other instrument made by the Lessee, and any claim to the lien or otherwise upon the Subject Property arising from any act or omission of the Lessee shall accrue only against the leasehold estate of the Lessee in the Subject Property and the Lessee's interest in the Improvements, and shall in all respects be subject to the paramount rights of the Lessor in the Subject Property.

ARTICLE XVI: REMEDIES CUMULATIVE

Section 16.1 Remedies Cumulative.
No remedy conferred upon or reserved to the Lessor shall be considered exclusive of any other remedy, but shall be cumulative and shall be in addition to every other remedy given under this Lease Agreement or existing at law or in equity or by statute. Every power and remedy given by this Lease Agreement to the Lessor may be exercised from time to time and as often as occasion may arise or as may be deemed expedient by the Lessor. No delay or omission of Lessor to exercise any right or power arising from any default shall impair any right or power, nor shall it be construed to be a waiver of any default or any acquiescence in it.

Section 16.2 Waiver of Remedies Not To Be Inferred.
No waiver of any breach of any of the covenants or conditions of this Lease Agreement shall be construed to be a waiver of any other breach or to be a waiver of, acquiescence in, or consent to any further or succeeding breach of it or similar covenant or condition.

Section 16.3 Right to Terminate Not Waived.
Neither the rights given to receive, sue for or distrain from any rent, moneys or other payments, or to enforce any of the terms of this Lease Agreement, or to prevent the breach or nonobservance of it, nor the exercise of any right or of any other right or remedy shall in any way impair or toll the right or power of the Lessor to declare ended the Term granted and to terminate this Lease Agreement because of any event of default.

ARTICLE XVII: SURRENDER AND HOLDING OVER

Section 17.1 Surrender at End of Term.
Lessee shall peaceably and quietly leave, surrender and deliver the entire Subject Property to the Lessor at the termination of the Lease Agreement, subject to the provisions of Section 1.4, in good repair, order, and condition, environmentally clean and free of contaminants, reasonable use, wear and tear excepted, free and clear of any and all mortgages, liens, encumbrances, and claims. At the time of the surrender, the Lessee shall also surrender any and all security deposits and rent advances of Sublessees to the extent of any amounts owing from the Lessee to the Lessor. If the Subject Property is not so surrendered, the Lessee shall repay the Lessor for all expenses which the Lessor shall incur by reason of it, and in addition, the Lessee shall indemnify, defend and hold harmless the Lessor from and against all claims made by any succeeding Lessee against the Lessor, founded upon delay occasioned by the failure of the Lessee to surrender the Subject Property.

Section 17.2 Rights Upon Holding Over.
At the termination of this Lease Agreement, by lapse of time or otherwise, the Lessee shall yield up immediately possession of the Land to the Lessor and, failing to do so, agrees, at the option of the Lessor, to pay to the Lessor for the whole time such possession is withheld, a sum per day equal to one hundred and seventy-five percent (175%) times 1/30th of the aggregate of the Rent paid or payable to Lessor during the last month of the Term of the Lease Agreement the day before the termination of the Lease Agreement. The provisions of this Article shall not be held to be a waiver by the Lessor of any right or reentry as set forth in this Lease Agreement, nor shall the receipt of a sum, or any other act in apparent affirmance of the tenancy, operate as a waiver of the right to terminate this Lease Agreement and the Term granted for the period still unexpired for any breach of the Lessee under this Lease Agreement.

ARTICLE XIII: MODIFICATION

Section 18.1 Modification.
None of the covenants, terms or conditions of this Lease Agreement to be kept and performed by either Party to this Lease Agreement shall in any manner be waived, modified, changed or abandoned except by a written instrument duly signed, acknowledged, and delivered by both Lessor and Lessee.

ARTICLE XIV: INVALIDITY OF PARTICULAR PROVISIONS

Section 19.1 Invalidity of Provisions.
If any provision of this Lease Agreement or the application of it to any person or circumstances shall to any extent be invalid or unenforceable, the remainder of this Lease Agreement, or the application of such provision to persons or circumstances other than those as to which it is invalid or unenforceable, shall not be affected, and each provision of this Lease Agreement shall be valid and be enforced to the fullest extent permitted by law.

ARTICLE XX: APPLICABLE LAW AND VENUE

Section 20.1 Applicable Law.
This Lease Agreement shall be construed and enforced in accordance with the laws of the State of Alaska. The forum and venue for any action seeking to interpret, construe, or enforce this Lease Agreement shall be only in the Superior Court for the State of Alaska at Sitka, Alaska.

ARTICLE XXI: NOTICES

Section 21.1 Manner of Mailing Notices.
In every case where under any of the provisions of this Lease Agreement or otherwise it shall or may become necessary or desirable to make or give any declaration or notice of any kind to the Lessor or the Lessee, it shall be sufficient if a copy of any declaration or notice is sent by United States mail, postage prepaid, return receipt requested, addressed: If to Lessor at: Municipal Administrator, City and Borough of Sitka, of 100 Lincoln Street, Sitka, Alaska 99835, with a copy to: Municipal Clerk at address listed above; and if to Lessee, at: the address set out in the

Preamble. Each Party from time to time may change its address for purposes of receiving declarations or notices by giving notice of the changed address, to become effective seven days following the giving of notice.

Section 21.2 Notice to Leasehold Mortgagee and Secured Parties.
The Lessor shall provide each Leasehold Mortgagee and Secured Party, who has so requested, copies of all notices from Lessor to Lessee relating to existing or potential default under, or other noncompliance with the terms of this Lease Agreement. All notices, demands or requests which may be required to be given by the Lessor or the Lessee to any Leasehold Mortgagee and Secured Parties shall be sent in writing, by United States registered or certified mail or express mail, postage prepaid, addressed to the Leasehold Mortgagee at a place as the Leasehold Mortgagee may from time to time designate in a written notice to the Lessor and Lessee. Copies of all notices shall simultaneously be sent to the other of the Lessor or the Lessee, as the case may be.

Section 21.3 Sufficiency of Service.
Service of any demand or notice as in this Article provided shall be sufficient for all purposes.

Section 21.4 When Notice Deemed Given or Received.
Whenever a notice is required by this Lease Agreement to be given by any Party to the other Party or by any Party to a Leasehold Mortgagee, the notice shall be considered as having been given when a registered or certified notice is placed in the United States Post Office mail as provided by this Article and shall be deemed received on the third business day thereafter and for all purposes under this Lease Agreement of starting any time period after notice, the time period shall be conclusively deemed to have commenced three business days after the giving of notice and whether or not it is provided that a time period commences after notice is given or after notice is received.

ARTICLE XXII: MISCELLANEOUS PROVISIONS

Section 22.1 Captions.
The captions of this Lease Agreement and the index preceding it are for convenience and reference only and in no way define, limit or describe the scope or intent of this Lease Agreement, nor in any way affect this Lease Agreement.

Section 22.2 Conditions and Covenants.
All the provisions of this Lease Agreement shall be deemed and construed to be "conditions" as well as "covenants," as though the words specifically expressing or importing covenants and conditions were used in each separate provision.

Section 22.3 Entire Agreement.
This Lease Agreement contains the entire agreement between the Parties and shall not be modified in any manner except by an instrument in writing executed by the Parties or their respective successors or assigns in interest.

Section 22.4 Time of Essence as to Covenants of Lease Agreement.
Time is of the essence as to the covenants in this Lease Agreement.

ARTICLE XXIII: COVENANTS TO BIND AND BENEFIT RESPECTIVE PARTIES AND TO RUN WITH THE SUBJECT PROPERTY

Section 23.1 Covenants to Run with the Subject Property.
All covenants, agreements, conditions and undertakings in this Lease Agreement shall extend and inure to the benefit of and be binding upon the successors and assigns of each of the Parties, the same as if they were in every case named and expressed, and they shall be construed as covenants running with the Subject Property. Wherever in this Lease Agreement reference is made to any of the Parties, it shall be held to include and apply to, wherever applicable, also the officers, directors, successors and assigns of each Party, the same as if in each and every case so expressed.

Section 23.2 Interest in Deposits Automatically Transferred.
The sale, conveyance or assignment of the interest of the Lessee (pursuant to the terms of this Lease Agreement) or of the Lessor in and to this Lease Agreement shall act automatically as a transfer to the assignee of the Lessor or of the Lessee, as the case may be, of its respective interest in any funds on deposit with and held by any Construction Lender and the Lessor, and every subsequent sale, conveyance or assignment by any assignee of the Lessor or of the Lessee also shall act automatically as a transfer of their respective rights to the deposits with such Construction Lender and the Lessor to the subsequent assignee.

ARTICLE XXIV: ADDITIONAL GENERAL PROVISIONS

Section 24.1 Absence of Personal Liability.
No member, official, or employee of the Lessor shall be personally liable to the Lessee, its successors and assigns, or anyone claiming by, through or under the Lessee or any successor in interest to the Subject Property, in the event of any default or breach by the Lessor or for any amount which may become due to the Lessee, its successors and assigns, or any successor in interest to the Subject Property, or on any obligation under the terms of this Lease Agreement. No member, official, or employee of the Lessee shall be personally liable to the Lessor, its successors and assigns, or anyone claiming by, through, or under the Lessor or any successor in interest to the Subject Property, in the event of any default or breach by the Lessee or for any amount which become due to the Lessor, its successors and assigns, or any successor in interest to the Subject Property, or on any obligation under the terms of this Lease Agreement.

Section 24.2 Lease Agreement Only Effective As Against Lessor Upon Approval.
This Lease Agreement is effective as against Lessor only upon the approval of this Lease Agreement by the Sawmill Cove Industrial Park Board of Directors, in accordance with the Sitka General Code at Chapter 2.38, and signed by the Municipal Administrator.

Section 24.3 Binding Effects and Attorneys Fees.
This Lease Agreement shall be binding up and inure to the benefit of the respective successors and assigns of the Parties. In the event of litigation over this Lease Agreement, the Parties agree that the prevailing Party shall receive full attorneys' fees.

Section 24.4 Duplicate Originals.
This Lease Agreement may be executed in any number of copies, each of which shall constitute an original of this Lease Agreement. The warranties, representations, agreements and undertakings shall not be deemed to have been made for the benefit of any person or entity, other than the Parties.

Section 24.5 Declaration of Termination.
With respect to Lessor's rights to obtain possession of the Subject Property or to revest title in itself with respect to the leasehold estate of the Lessee in the Subject Property, the Lessor shall have the right to institute such actions or proceedings as it may deem desirable to effectuate its rights including, without limitation, the right to execute and record or file with the Recorder of Sitka Recording District, a written declaration of the termination of all rights and title of Lessee in the Subject Property, and the revesting of any title in the Lessor as specifically provided in this Lease Agreement.

Section 24.6 Authority.
Lessor and Lessee represent to each other that each has, and has exercised, the required corporate power and authority and has complied with all applicable legal requirements necessary to adopt, execute and deliver this Lease Agreement and perform its obligations. Both Parties also represent that this Lease Agreement has been duly executed and delivered by each and constitutes a valid and binding obligation of each enforceable in accordance with its terms, conditions, and provisions.

I WATER, LLC

CITY AND BOROUGH OF SITKA

_____

_____

_____
Mark Gorman, Municipal Administrator

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, _____, whose identity is personally known to me or proved to me on the basis of satisfactory evidence, signs this Lease Agreement on behalf of I Water, LLC and affirms by signing this document to be authorized to sign on behalf of the I Water, LLC and does so freely and voluntarily.

_____
Notary Public for Alaska
My Commission Expires: _____

STATE OF ALASKA)
) **ss.**
FIRST JUDICIAL DISTRICT)

On this ____ day of _____, 2014, MARK GORMAN, MUNICIPAL ADMINISTRATOR of the City and Borough of Sitka, Alaska, a municipal corporation organized under the laws of the State of Alaska, signs this Lease Agreement on its behalf, and affirms by signing this document to be authorized to sign on its behalf, and does so freely and voluntarily.

_____
Notary Public for Alaska
My Commission Expires: _____