

Exhibit A - Precedence



STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES SOUTHCOST REGION

Change Order

Project No.: 68353R

Change Order No. 2

Project Name: Baranof Warm Springs Harbor Improvements Re-Bid

Contractor:	Turnagain Marine Construction	Change Order Summary:	
Address:	8241 Dimond Hook Drive #A	Calendar Days (+ / -):	N/A
	Anchorage, AK 99507	New Completion Date:	N/A
		Amount of Change Order:	\$88,706.03

Recommended By: Paul C. Nege Date: 5-12-17

Title: Construction Group Chief

Approved By: Vito Winters Date: 5-12-17

Title: Regional Construction Engineer

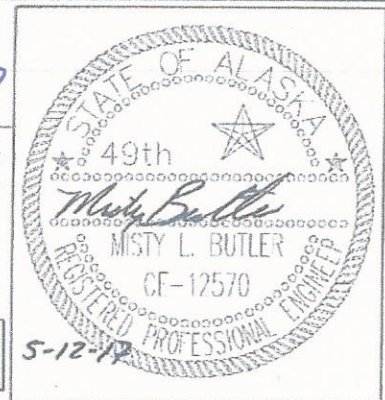
This change order constitutes agreement to terms, conditions and prices stated below.

Accepted By: BOB Date: 5/15/17
Contractor's Representative

Acknowledgement indicates only receipt of Change Order and not mutual agreement for basis of payment or time allowance. If a the matter cannot be resolved within 7 days from signature date, an Intent to Claim form must be submitted to the engineer within 14 days.

Acknowledged By: _____ Date: _____
Contractor's Representative

Permission for previously submitted subcontractor(s) to perform all or portions of the work described herein is as checked: ☐ Yes ☐ No ☒ N/A



The following change(s) in the above Contract are hereby made in accordance with the terms of the Contract and under the terms and conditions stated below. Price adjustments resulting from inaccurate cost and pricing data are subject to the provisions of AS 36.30.400(c). This document shall become an amendment to the Contract and all provisions of the Contract will be applicable.

DESCRIPTION OF CHANGE (Use Continuation Sheet 25D-065 as Required)

In accordance with Section 104 of the Standard Specifications, the following changes to the Plans and/or Specifications are hereby made:

Establish New Pay Item 505(2a) Settlement of Differing Site Conditions at Piles 6, A2, and 12

Description:

Provide full compensation for all extra labor, materials, equipment, and drill bit repair costs incurred while working to install Piles 6, A2, and 12.

Exhibit A Precedence

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Change Order No. 2
Project No. 68353R

Continuation Sheet

The following changes to the Bid Plans were approved by the Engineer of Record:

1. Pile 6: Installation of a 1-inch-thick bearing plate on the bottom of the pile, and acceptance of a reduced embedment depth of 17.5 feet after blow counts indicated a bearing capacity of 86 kips.
2. Pile A2: Elimination of pile A2 due to inadequate embedment depth, and installation of a steel cover plate over the opening in the pile hoop. The cover plate is a safety measure to ensure pedestrians do not step or fall into the opening in the deck of the float.

Materials: In accordance with Section 505.

Construction: In accordance with Section 505 and as directed by the Engineer.

Method of Measurement: New Item 505(2a) is a lump sum price and in accordance with 109-1.01 will not be measured for payment.

Scope of Payment: Payment for New Item 505(2a) shall be paid in accordance with 109-1.03, at the agreed upon lump sum amount of \$88,706.03.

Payment will be made under:

Pay Item	Pay Unit
505(2a) Settlement of Differing Site Conditions at Piles 6, A2, and 12	Lump Sum

SUMMARY OF QUANTITIES:

Item No.	Description	Price/Unit	Quantity	Amount
505(2a)	Settlement of Differing Site Conditions at Piles 6, A2, and 12	\$88,706.03	1	(+) \$88,706.03
	TOTAL			(+) \$88,706.03

The Contract amount is **increased** by \$88,706.03.

The Contract Completion Date of December 31, 2016, is not affected as a result of this Change Order.

Please indicate your acceptance or acknowledgement in the space provided, sign, date, and return the original of this document.



**STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHCOAST REGION**

Change Order

Project No.: 68433/0955014

Change Order No. 20

Project Name: Haines Ferry Terminal Improvements

Contractor:	Western Marine Construction	Change Order Summary:	
Address:	2775 Harbor Avenue SW, Suite A	Calendar Days (+ / -):	N/A
	Seattle, WA 98126	New Completion Date:	N/A
		Amount of Change Order:	\$116,195.36

Recommended By: Patrick M. McHugh Date: DEC 2, 2015

Title: Regional Construction Engineer

Approved By: [Signature] Date: 12/2/15

Title: Regional Director

This change order constitutes agreement to terms, conditions and prices stated below.

Accepted By: Patrick M. McHugh Date: 12-3-15
Digitally signed by Patrick M. McHugh
DN: cn=Patrick M. McHugh,
ou=Western Marine Construction, ou,
email=patrick.mc2775.com, c=US
Contractor's Representative

Seal of Alaskan Professional Engineer
(if required)

Acknowledgement indicates only receipt of Change Order and not mutual agreement for basis of payment or time allowance. If a the matter cannot be resolved within 7 days from signature date, an Intent to Claim form must be submitted to the engineer within 14 days.

Acknowledged By: _____ Date: _____
Contractor's Representative

Permission for previously submitted subcontractor(s) to perform all or portions of the work described herein is as checked: ☒ Yes ☐ No ☐ N/A

The following change(s) in the above Contract are hereby made in accordance with the terms of the Contract and under the terms and conditions stated below. Price adjustments resulting from inaccurate cost and pricing data are subject to the provisions of AS 36.30.400(c). This document shall become an amendment to the Contract and all provisions of the Contract will be applicable.

DESCRIPTION OF CHANGE (Use Continuation Sheet 25D-065 as Required)

This Change Order consists of 3 pages including 0 attachments.

In accordance with Section 104-1.02 of the Standard Specifications, the following changes are hereby made:

Reason for Change Order

Due to unforeseen subsurface conditions, the Contractor was unable to install the four tensions pile anchors in mooring dolphin, W3. This Change Order compensates the Contractor for their unsuccessful efforts to install the tension pile anchors in W3, and eliminates them from the Contract.

Exhibit A Precedence

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Change Order No. 20
Project No. 68433/0955014

Continuation Sheet

Add New Pay Item 518(991) Unsuccessful W3 Tension Pile Anchors

Description

Compensate the Contractor for all efforts to install four tension pile anchors in dolphin W3.

Materials

Section 518.

Construction

Section 518.

Method of Measurement

New Item 518(991) Unsuccessful W3 Tension Pile Anchors will be measured for payment in accordance with Subsection 109-1.05, on a Time and Materials basis.

Basis of Payment

New Item 518(991) Unsuccessful W3 Tension Pile Anchors will be paid at the lump sum price of two-hundred eight thousand, one-hundred ninety-five dollars and thirty-six cents, \$208,195.36, in accordance with Subsection 109-1.03.

Payment will be made under:

Pay Item	Pay Unit
518(991) Unsuccessful W3 Tension Pile Anchors	Lump Sum

Reduce Pay Item 518(1) Tension Pile Anchors

Description

Reduce the plan quantity of tension anchors by four, to account for the tension pile anchors at dolphin W3 which were not installed due to a differing site condition.

Summary of Quantities

Item #	Item Description	Quantity	Unit	Unit Price	Amount
518(991)	Unsuccessful W3 Tension Pile Anchors	+1	LS	\$208,195.36	+\$208,195.36
518(1)	Tension Pile Anchors	-4	EA	\$23,000.00	-\$92,000.00

Net Amount = +\$116,195.36

Exhibit A - Precedence

STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Change Order No. 20
Project No. 68433/0955014

Continuation Sheet

Changes to the Contract

The Contract amount is **increased** by one-hundred sixteen thousand, one-hundred ninety-five dollars and thirty six cents, \$116,195.36

The Contract completion date is **unchanged**.

PLEASE INDICATE YOUR ACCEPTANCE OR ACKNOWLEDGEMENT IN THE SPACE PROVIDED, SIGN, DATE, AND RETURN THE ORIGINAL OF THIS DOCUMENT.

Exhibit A Precedence



STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES SOUTHEAST REGION

Change Order

Project No.: 89432 / SHAK-MGE-STP-0943(25)

Change Order No. 1

Project Name: Wrangell Ferry Terminal Improvements

Contractor:	Pacific Pile & Marine	Change Order Summary:	
Address:	582 South Riverside Drive		
	Seattle, WA 99108		
		Calendar Days (+ / -):	+3
		New Completion Date:	September 4, 2013
		Amount of Change Order:	+\$41,925.48

Recommended By: [Signature]

Date: 8.29.14

Title: Project Manager

Approved By: [Signature]

Date: 8/29/14

Title: Construction Group Chief

This change order constitutes agreement to terms, conditions and prices stated below.

Accepted By: [Signature]

Date: 9/3/14

Contractor's Representative

Acknowledgement indicates only receipt of Change Order and not mutual agreement for basis of payment or time allowance. If a the matter cannot be resolved within 7 days from signature date, an Intent to Claim form must be submitted to the engineer within 14 days.

Acknowledged By: [Signature]

Date: 9/3/14

Contractor's Representative

Permission for previously submitted subcontractor(s) to perform all or portions of the work described herein is as checked: ☐ Yes ☐ No ☒ N/A

Seal of Alaskan Professional Engineer
(if required)

Not Required

The following change(s) in the above Contract are hereby made in accordance with the terms of the Contract and under the terms and conditions stated below. Price adjustments resulting from inaccurate cost and pricing data are subject to the provisions of AS 36.30.400(c). This document shall become an amendment to the Contract and all provisions of the Contract will be applicable.

DESCRIPTION OF CHANGE (Use Continuation Sheet 25D-065 as Required)

In accordance with Section 104.1.02 of the Standard Specifications, the following changes are hereby made:

Establish New Item 504(3A) Underwater Survey and Debris Removal (N2)

Description:

This item compensates the Contractor for difficulties encountered during the installation of structure #N2, including unanticipated standby time, costs associated in hiring a specialty dive subcontractor to perform an underwater survey, and removal of debris from seafloor.

Material Requirements:

None.

Construction Requirements:

None.

Exhibit A Preceding

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Change Order No. 1

Project No. 69432 / SHAK-MGE-STP-0943(25)

Continuation Sheet

Method of Measurement:

New Item 504(3A) Underwater Survey and Debris Removal (N2) will not be measured for payment.

Basis of Payment:

New Item 504(3A) Underwater Survey and Debris Removal (N2) will be paid at the agreed upon "lump sum" price of \$41,925.48 and be full compensation for all labor, equipment, materials, specialty diving subcontractor, and all costs associated with underwater survey, debris removal, and standby time (complete) and accepted.

Payment will be made under:

Pay Item	Pay Unit
504(3A) Underwater Survey & Debris Removal (N2)	Lump Sum

Summary of Quantities:

Item No	Item	Unit	Price	Quantity	Amount
504(3A)	Underwater Survey & Debris Removal (N2)	L.S.	+\$41,925.48	All Req'd	+\$41,925.48
				TOTAL	+\$41,925.48

Changes to the Contract:

The Contract amount is **increased** forty one thousand nine hundred twenty five and 48/100^{ths} dollars, **+\$41,925.48**. The Contract completion date is changed from September 1, 2013 to **September 4, 2013** by Change Order No. 1.

PLEASE SIGN AS ACCEPTED OR ACKNOWLEDGED AND RETURN THE ORIGINAL OF THIS CHANGE ORDER.

Exhibit A Proceeding



STATE OF ALASKA
DEPARTMENT OF TRANSPORTATION
AND PUBLIC FACILITIES
SOUTHEAST REGION

Change Order

Project No.: 69432 / SHAK-MGE-STP-0943(25)

Change Order No. 2

Project Name: Wrangell Ferry Terminal Improvements

Contractor:	Pacific Pile & Marine	Change Order Summary:	
Address:	582 South Riverside Drive	Calendar Days (+ / -):	+2
	Seattle, WA 99108	New Completion Date:	September 6, 2013
		Amount of Change Order:	+\$43,768.04

Recommended By: DC UM Date: 8.29.14

Title: Project Manager

Approved By: T. Paul C. Hight Date: 8/29/14

Title: Construction Group Chief

This change order constitutes agreement to terms, conditions and prices stated below.

Accepted By: [Signature] Date: 9/2/14
Contractor's Representative

Acknowledgement indicates only receipt of Change Order and not mutual agreement for basis of payment or time allowance. If a the matter cannot be resolved within 7 days from signature date, an Intent to Claim form must be submitted to the engineer within 14 days.

Acknowledged By: [Signature] Date: 9/2/14
Contractor's Representative

Permission for previously submitted subcontractor(s) to perform all or portions of the work described herein is as checked: ☐ Yes ☐ No ☒ N/A

Seal of Alaskan Professional Engineer
(if required)

Not Required

The following change(s) in the above Contract are hereby made in accordance with the terms of the Contract and under the terms and conditions stated below. Price adjustments resulting from inaccurate cost and pricing data are subject to the provisions of AS 36.30.400(c). This document shall become an amendment to the Contract and all provisions of the Contract will be applicable.

DESCRIPTION OF CHANGE (Use Continuation Sheet 25D-065 as Required)

In accordance with Section 104.1.02 of the Standard Specifications, the following changes are hereby made:

Establish New Item 504(4A) Underwater Debris and Steep Slope, S2:

Description:

This item compensates the Contractor for additional labor and equipment costs associated with difficulties in drilling pile sockets for installation of structure #S-2. Existing steel debris on seafloor and a steep underwater slope were unforeseen and required considerable effort by the Contractor to install this structure at Plan location. The increased costs are a result of differing site conditions.

Material Requirements:

None.

Construction Requirements:

None.

Exhibit A Precedence

STATE OF ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES

Change Order No. 2

Project No. 69432 / SHAK-MGE-STP-0943(25)

Continuation Sheet

Method of Measurement:

New Item 504(4A) Underwater Debris and Steep Slope, S2, will not be measured for payment.

Basis of Payment:

New Item 504(4A) Underwater Debris and Steep Slope, S2, will be paid at the agreed upon "lump sum" price of \$43,768.04 and be full compensation for all labor, equipment, materials, and costs associated with removal of underwater debris and additional time associated in drilling pile sockets (complete) and accepted.

Payment will be made under:

Pay Item	Pay Unit
504(4A) Underwater Obstruction and Steep Slope, S2	Lump Sum

Summary of Quantities:

Item No	Item	Unit	Price	Quantity	Amount
504(4A)	Underwater Obstruction and Steep Slope, S2	L.S.	+\$43,768.04	All Req'd	+\$43,768.04
				TOTAL	+\$43,768.04

Changes to the Contract:

The Contract amount is increased forty three thousand seven hundred sixty eight and 04/100^{ths} dollars, **+\$43,668.04**.
The Contract completion date is from September 4, 2013 to **September 6, 2013** by Change Order No. 2.

PLEASE SIGN AS ACCEPTED OR ACKNOWLEDGED AND RETURN THE ORIGINAL OF THIS CHANGE ORDER.

Exhibit B - Expert Analysis * Important *

jimmy@tamico.net

From: Spark Johnston <SJohnston@condon-johnson.com>
Sent: Friday, September 01, 2017 2:00 PM
To: jimmy@tamico.net
Subject: FW: Sitka Transient Float socketing issues

Jimmy,

Below is the Email thread I had with the City of Sitka's Engineer Dan Tadic.

As you can see in my response to Dan Tadic, it appears to me that there is a differing site condition at the project. I still can't believe that it has taken over 2 years to resolve.



Spark Johnston | P.E.
Office: (503) 455-8550
Mobile: (206) 551-6729
1239 NE 92nd Ave
Portland, OR 97220
condon-johnson.com

From: Spark Johnston
Sent: Monday, May 02, 2016 8:30 AM
To: 'Dan Tadic'
Subject: RE: Sitka Transient Float socketing issues

Dan,

I cannot find where in the Geotechnical Report that there is notification or discussion of the presence of debris. As far as when they gave notice of their differing site conditions I don't know how it went down.

Regarding obstructions responsibility I read that if the obstructions is in the upper 5 feet that they are to be removed by the contractor. If they are below 5 feet in the overburden then it is additional work.

Spark

From: Dan Tadic [<mailto:dan.tadic@cityofsitka.org>]
Sent: Friday, April 29, 2016 4:34 PM
To: Spark Johnston
Subject: RE: Sitka Transient Float socketing issues

Hi Spark,

I appreciate your thoughts. We notified them of the presence of debris (see geotechnical report) and it wasn't until there were 2 weeks left in the job when the debris became an issue. Before that point it was an "impossible spec to

Exhibit B - Expert Analysis

achieve", "the time constraints were too tight" and "the sloping bedrock" were the issues. The claims evolved considerably during their 2 months on site.

I am curious about your thoughts on the specification section that details who is responsible for obstructions based on where they were encountered. As I read it, debris pushed through the overburden to the bedrock surface is the Contractor's responsibility. How do you read that section?

Thanks,

Dan Tadic, P.E.

Municipal Engineer
City and Borough of Sitka
Department of Public Works
100 Lincoln Street
Sitka, AK 99835
P (907) 747-1807
F (907) 747-3158
dan.tadic@cityofsitka.org

From: Spark Johnston [<mailto:SJohnston@condon-johnson.com>]
Sent: Thursday, April 28, 2016 8:04 AM
To: Dan Tadic <dan.tadic@cityofsitka.org>
Subject: RE: Sitka Transient Float socketing issues

Dan,

I have roughly read through the correspondence and my initial response is that Tamico and NCS have a fairly strong case. Anytime you have unknown man-made obstructions it is generally a strong case for the contractor.

I do not know the intricate details of the job and the exact set-up Tamico had but from my brief review it does not appear that they were set-up initially for failure.

Tamico's set-up is a little different from how I would set-up but their set-up (without seeing it or know exactly how it is set-up) appears to OK.

Your biggest problem is the obstructions. They seem to have a case with that. From my experience whenever there is unknown man-made obstructions the contractor has a very good case for a change of conditions claim.

As I said I do not know the intricate details of everything but from my brief review of the documents and correspondence it appears to me that Tamico and NCS have a reasonable case for a change of conditions.

Please feel free to contact me with any questions. I am working in and out of a tunnel right now so I may be delayed receiving or getting back to you if you do contact me.

Spark Johnston, P.E.
Condon-Johnson & Associates
9012 S. 208th St.
Kent, WA 98031

Exhibit B- Export Analysis

Office: 425-988-2150

Cell: 206-551-6729

From: Dan Tadic [<mailto:dan.tadic@cityofsitka.org>]

Sent: Wednesday, April 27, 2016 12:33 PM

To: Spark Johnston

Subject: Sitka Transient Float socketing issues

<https://www.dropbox.com/sh/3ppji0845gcrv73/AABMNE4V-DU4uvxOFppOMCw1a?dl=0>

Hi Spark,

Thanks for taking the time to speak with me about the issues we have encountered with the completion of the Sitka Transient Float project. A dropbox link is attached which includes the following files:

1. Conformed plans and specifications
2. Bid tab
3. Tamico Pile Installation and Socketing Plan 2-1-16
4. City of Sitka Substantial Completion Concerns 2-16-16
5. Northern Construction Service Pile Plan 2-19-16
6. Tamico Pile Socketing Concerns Letter 2-27-16
7. Tamico Pile Load Test RFI 3-4-16
8. Northern Construction Service Notice of Claim 3-15-16
9. City of Sitka Claim Response 3-24-16
10. Tamico Response 3-28-16 (received by CBS 4-26-16)

I believe if you start with Item 3 above and read through those docs sequentially you will get a very good synopsis of the situation. The plans & specs and bid tab are also included for your reference.

I am hoping you can provide me with a fee proposal to provide the following:

1. An independent evaluation of the situation as a 3rd party Contractor. Are we off base in our thought processes? Did we provide sufficient information and place requirements on the Contractor sufficient for them to understand and/or be responsible to understand site conditions? We obviously disagree with the GC and sub on this key element. What I don't know is how this appears from an outsiders perspective.
2. From a purely technical standpoint, was Tamico set up for success or failure on this project with their equipment, approach and schedule they afforded themselves to complete it? The NUMA literature seems to back my position as opposed to the statements made by Tamico. How would you have approached the project and conditions encountered by Tamico vs how they approached it?

Please let me know if you have any questions or require any additional information. I would like to establish a small contract or purchase order to compensate you for your time spend on these efforts. I look forward to hearing back from you.

Thanks,

Dan Tadic, P.E.

Municipal Engineer
City and Borough of Sitka
Department of Public Works
100 Lincoln Street
Sitka, AK 99835
P (907) 747-1807

Exhibit C - Contractor Support

Smart Construction Co., Inc.

William S. Smart
PO Box 8200
Ketchikan, AK 99901
907-617-5805/907-617-5808
btsmart@gci.net

September 1, 2017

Jim Martinsen
Tamico Inc
PO Box 1540
400 Mitkof Hwy
Petersburg, AK 99833

Jim:

The following is a bit of history from a project I subbed under Dawson Construction Inc. at Old Thompson Harbor in Sitka, AK in approximately 2006-2007:

Immediately upon start up to drill sockets, we encountered substantial debris in the harbor causing drilling equipment damage. This debris was not limited to winches, cable, steel, rope and chain. After frequent delays because of attempting to drill sockets through the debris and then down time because of equipment repairs, I began using a dredge bucket to clear areas of debris, before drilling sockets for piling. I feel this was the only alternative for completing the project.

Hope this information is helpful.

Sincerely,



Bill S. Smart

Exhibit C - Contractor Support

jimmy@tamico.net

From: Jim Rogers <jrogers@dawson.com>
Sent: Tuesday, September 05, 2017 1:53 PM
To: jimmy@tamico.net
Subject: Re: Pile Socket Drilling in Old Thomsen Harbor-Sitka

Flag Status: Flagged

Jimmy,

My recollection of the 2006-2007 Old Thomsen Harbor Replacement project in regard to drilling and debris/obstructions to drilling are as follows.

Where minimum embedment by driving could not be reached per the PND requirements, then drilling sockets through the overburden would be required. I am not recalling the required minimum depth of the sockets. Regardless, we experienced very difficult drilling due to drifting off of location. We used a self-centering bit but the rock was layered and tilted. This caused the bit to follow the layers and drift. I recall being very unsatisfied with the final appearance of the headwalk of Old Thomsen because the piling did not end up in a straight line.

We also encountered steel debris within the overburden of several holes. Most noticeable was a metal mooring bitt or capstan of considerable size, several hundred pounds worth that caused the bit to jam in the hole overnight. We were forced to cut the drill string apart to free the crane barge up so we could lay the leads down and jerk the drill string up out of the hole. We clam-shell dredged the area at the hole and that is when this obstruction came up. Hole drilled fine after welding the drill string back together. Areas where we could vib or hammer the piling in to minimum embedment went fine. The drilling on this job was a struggle.

Respectfully,

dawson

JIM ROGERS

C | 907.841.2167

T | 360.756.1000 x124

F | 360.756.1001

www.dawson.com

Quality People, Quality Work

Exhibit D - Drill Manufacturer

jimmy@tamico.net

From: Kris St. Onge <kris.st.onge@numahammers.com>
Sent: Wednesday, August 30, 2017 11:18 AM
To: jimmy@tamico.net
Cc: 'Vinnie DiFabio'
Subject: RE: Sitka

Jimmy,

No problem, anytime. I understand your situation and have added my comments in red below.

There is not much else we can do at this point as both letters that were sent and my comments below have touched on all aspects of the issues you have faced.

I hope this helps to clarify things.

Regards,

Kris St. Onge

This message may contain confidential information and is intended only for the individual named. If you are not the named addressee you should not disseminate, distribute or copy this email. Please notify the sender immediately by email if you have received this email by mistake and delete this email from your system. Email transmission cannot be guaranteed to be secure or error-free as information could be intercepted, corrupted, lost, destroyed, arrive late or incomplete, or contain viruses. The sender therefore does not accept liability for any errors or omissions in the contents of this message, which arise as a result of email transmission.

From: jimmy@tamico.net [mailto:jimmy@tamico.net]
Sent: Tuesday, August 29, 2017 5:29 PM
To: Kris St. Onge
Cc: 'Vinnie DiFabio'
Subject: Sitka

Kris,

Thanks for talking about our issues yesterday, it was really appreciated.

As I mentioned we are in a real tough position as the financial issues have a way of catching up with you!

I was wondering if you could reply via email or letter about the basics of air consumption and annular velocity and such? It would go along way towards hopefully the engineers "getting it" when it comes to drilling through debris.

If you could touch on – Air consumption is typically dictated by the hammer size used and figuring for proper up-hole velocity for hole cleaning. In your case a P125 hammer was used along with a T560 SJ Bit. This hammer requires 1300-2300 CFM to operate between 150-250 PSI. Beyond this we then have to look at figuring up-hole velocity between 4,000-7,000 FPM to be sure the hole is properly cleaned. To obtain proper up-hole velocity may require additional volume/s of air or larger drill rod OD size. You state that you had 3600 FPM of up-hole velocity and although we recommend 4,000-7,000 FPM, numbers as low as 3,000 FPM can & will clean a hole providing the hammer and bit are lifted off bottom to flush the hole every couple of feet or so. Basically what we state is a guide line for properly cleaning the hole and continually drilling without stopping to clean. Now other issues could arise from lower up-hole velocities such as poor bit life, reduced drilling speeds and lost drill tools.

Bit life – 3000-4000 ft – Without knowing the formation/s and characteristics of them I would tell customers that they should expect to see plus or minus 3,000'-3,500' per SJ Bit and two sets of replacement wings and plus or minus 3,500'-

Exhibit D- Drill manufacturer

4,000' on Conventional Bits. These numbers are basic guidelines and are subject to change based on formation/s and operation.

The impact of bit life of running at 3600 ft/min annular and that it should be on the lower side of the bit life range but definitely not the numbers we have – being less than 300 lf – Bit life drilling with lower up-hole velocity may decrease the products overall life expectancy. However I would put this at the lower end or slightly below the footage numbers I stated above. You state only 300' of life was obtained which is significantly lower than expected. Numbers this low are usually only seen in catastrophic events or abrupt failures. Typically drilling with lower up-hole velocity will result in faster carbide wear (flats) or bit body material wear. This is usually noticed right away and operation adjusted accordingly.

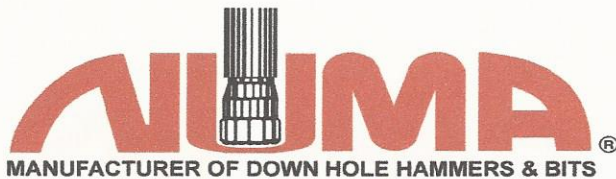
Impacts of debris – bigger issue than slightly lower annular velocity – Impacting on foreign material/s (such as metals, wires, etc.) is one of the causes for significantly reduced bit life and or catastrophic failure modes (as seen on your bit (letter sent on this). Impacting on foreign material can and will cause quick failures leading to reduced bit life/low footage. Where lower up-hole velocities generally will cause the product to wear but will get some decent footage on them before worn out if the operation is not adjusted accordingly.

Also if you could state that NUMA, PACO and Tamico were all involved in putting this drill together and to your knowledge from discussions with PACO and Tamico it has performed well in the past –Not quite sure why this is being questioned as the system was discussed, sold (in 2008 & 2011) and to my knowledge has done multiple jobs with no issues until the Sitka job. Again just because something is not listed in our product books does not mean that we will not make it. We state that other sizes/shanks may be available upon request. If it's something we agree to make all the aspects/concerns/requirements would be stated to the customer at that time.

I would be extremely grateful and definitely a NUMA customer for life!

Jimmy Martinsen
Tamico Inc
Box 1540
400 Mitkof Hwy
Petersburg, AK 99833
Ph: 907 772 4585
Fax: 907 772 3974
Cell: 907 340 6494
Email: Jimmy@tamico.net

Exhibit D - Drill



646 Thompson Road
Thompson, CT 06277 USA
Telephone: (860) 923-9551
Fax: (860) 923-2617
Website: www.numahammers.com

Vinnie Di Fabio
Sales Director
Paco Ventures
250 South Webster St
Seattle, WA 98108

Re:
Jimmy Martinson
Tamico
Sitka, Alaska

Vinnie,

I received your emailed pictures (attached below) of items that have been removed while Tamico was drilling holes at their jobsite in Sitka Alaska. I would like to point out the effect this may have on product life.

We know that operation, formations, and ground conditions play a major role in product life and performance. The cause and effect of the wear/loss of performance and product life depends on the drilling operation, varying formations, hardness, and abrasiveness of the materials that may be drilled in. All these variables can lead to many different types of problems or failures (connection failures, steel wear of the hammer and bit, carbide wear/breakage etc.) if not addressed. The same would also hold true if encountering foreign materials in the hole while drilling.

Looking at the pictures sent, it is evident that there is steel and foreign material in the holes being drilled. As carbide is extremely hard, (properties outlined below), impacting on steel objects will lead to instant and or rapid carbide/tooling failures. When this occurs and the carbide on the bit fail/break, others may be damaged upon removal of the broken carbide/s from the hole. Any broken carbide on the bit will also put additional load on the remaining carbide increasing the chance of sheer failures from overloading.

(Tungsten carbide is extremely hard, ranking about 9 on Mohs scale, and with a Vickers number of around 2600. It has a Young's modulus of approximately 530–700 Gpa, a bulk modulus of 630–655 GPa, and a shear modulus of 274 GPa. It has an ultimate tensile strength of 344 MPa, ultimate compression strength of about 2.7 GPa and a Poisson's ratio of 0.31.)

Unfortunately, problems such as these may be encountered and prove to make things difficult and costly from what was originally figured, which is why we stress to have backup onsite.

Exhibit E - Pictures

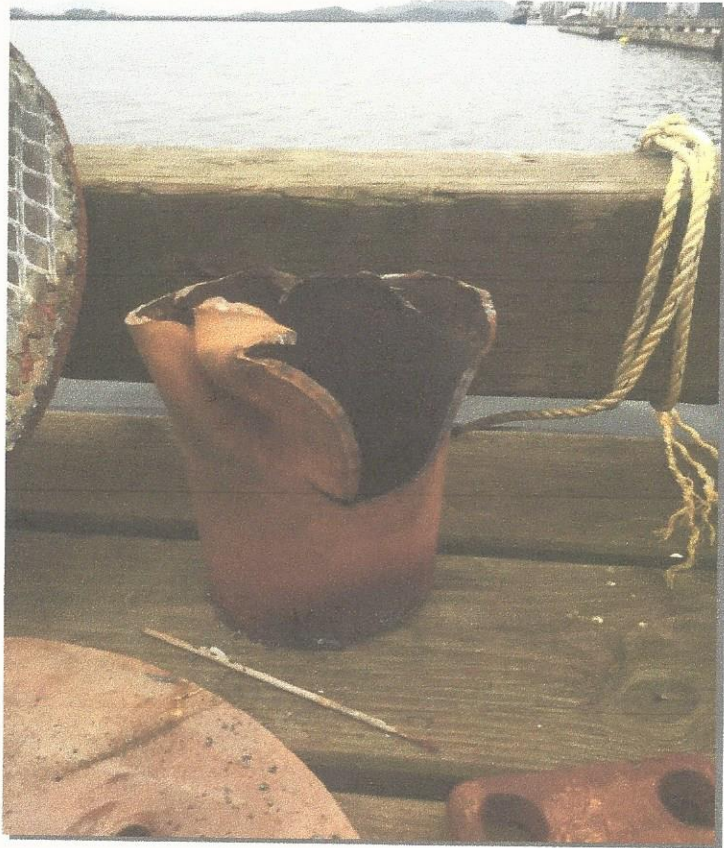
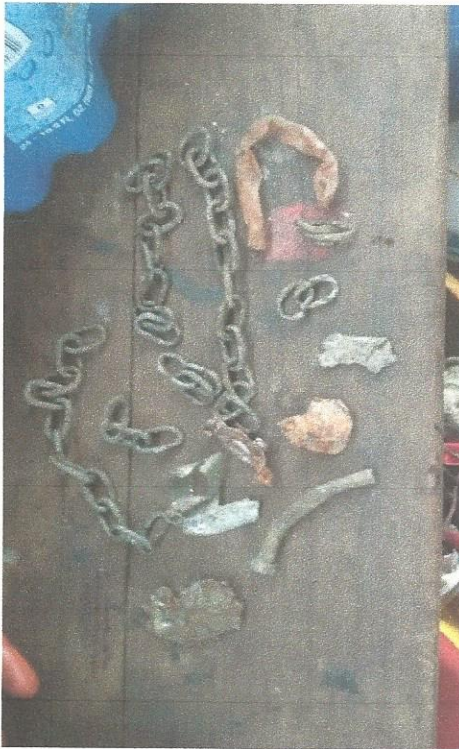


Exhibit E Pictures



Best Regards,

Kris St. Onge
Product Manager-Construction

Cc: Neal Kuszewski
Wendy Bouchey

