Addendum No. 1

Owner: City of Unalaska

Project: **PYRAMID WTP MICROTURBINE PROJECT**
DPW Project No. 17401

Date: **May 19, 2019**

Please acknowledge receipt of this Addendum in the appropriate blanks on the bid form. The following corrections, changes, additions, deletions, revisions, and/or clarifications are hereby made a part of the contract documents for the subject project. In case of conflicts between this Addendum and previously issued documents, this Addendum shall take precedence.

Item 1
Reference Unalaska Pyramid WTP Microturbine Project BID SET DRAWINGS

Replace drawing **'P3.1 – VALVE SCHEDULE, SHEET 2 OF 3'** with drawing included as an attachment to this addendum. Valves V109A and V109B are 'NEW' valves, not 'RELOCATED'.

Item 2
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

ADD specification **'22 08 16 – DISINFECTION OF POTABLE WATER PIPING'** to the specifications. This specification is provided as an attachment to this addendum.

Item 3
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **'22 11 13 – FACILITY WATER DISTRIBUTION PIPING'**

REVISE Section 1.4, A, 1 to say:

1. PIPE - Stainless steel, 304L, schedule 40/40S, welded or seamless, ASTM A312/A312M

Pipe 12" NPS and larger shall be allowed in standard wall thickness instead of schedule 40.

Item 4
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **'22 11 13 – FACILITY WATER DISTRIBUTION PIPING'**

Section 1.4, A, 1 Process Piping in Water Service

ADD the following:

3. FITTINGS – Stainless steel, Grooved Ends, Schedule 40/40S Bore, AWWA C-606 and ASTM F-1476, with gaskets per ASTM D-2000

Item 5
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS GENERAL CONDITIONS

REVISE General Conditions, Article 15, Section **"15.1 Notification"** to say:

15.1 Notification

15.1.1 In addition to the notice requirements set out elsewhere in this Contract, if the CONTRACTOR becomes aware of any act or occurrence which may form the basis of a claim by the CONTRACTOR for additional compensation or an extension of time for performance, or if any dispute arises regarding a question of fact or interpretation of the contract, the CONTRACTOR shall immediately inform the Project Manager.

15.1.2 If the matter cannot be resolved by agreement within 7 days, the CONTRACTOR shall, within the next 14 days, submit an Intent to Claim in writing to the Project Manager.

15.1.3 If the claim or dispute is not resolved by the City, then the CONTRACTOR shall submit a written claim to the Project Manager, in writing, within 90 days after the CONTRACTOR becomes aware of the basis of the claim or should have known the basis of the claim, whichever is earlier.

15.1.4 CONTRACTOR waives any right to claim if the PROJECT MANAGER was not notified properly or afforded the opportunity to inspect conditions or monitor actual costs or if the Claim is not submitted within the time required.

No changes to sections 15.2 through 15.6

Item 6
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **'22 11 13 – FACILITY WATER DISTRIBUTION PIPING'**

Clarification: On site NDE is required for any field welding. The 10% RT requirement can be met by inspection on pipe spools welded in the shop. 100% VT inspection is required per ASME 31.3, but can be performed in the shop if the contractor intends to only bolt up the spools on site.

Item 7
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS CONTRACT FORMS

REVISE Contract Forms, Section **"00500 – STANDARD FORM OF AGREEMENT BETWEEN THE OWNER AND CONTRACTOR"** Article 2.1, *ADD* verbiage at the end of 2.1 to say:

2.1 "… Select work can be performed prior to the construction window if the contractor's work does not interfere with operations of the Pyramid WTP and the City of Unalaska DPW is informed and agrees to the scope."

Item 8
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **"01 10 00 – PROJECT SUMMARY"**

ADD Section 1.7 to say:

1.7 HYDROPOWER FUNCTIONAL CHECK OUT

A. The City is procuring under direct contract the two turbine generators and main electrical control panel shown in the drawing package. The contractor's work includes the installation and all testing necessary to allow the power range testing and commissioning to be complete. The installation of the equipment will be as per the drawings and specifications. Additional reference material on the equipment including the O&M documentation will also be available for reference.

B. The testing to be performed prior to power range testing includes that defined in the specifications such as mechanical, hydro, flushes, electrical continuity, grounding checks, etc. The contractor will be expected to provide on-site support during this testing period to address any issues that may be related to its work. It is expected that the GC is to be needed for up to 5 days for this period.

C. The City will develop and conduct a power range testing program with the support of the hydropower system equipment suppliers and Rentricity. The power range testing is not considered part of the GC's proposed construction schedule.

Item 9
Reference Unalaska Pyramid WTP Microturbine Project BID SET DRAWINGS

Replace drawing **'S6.3 – STRAINER TROLLEY DETAILS'** with drawing included as an attachment to this addendum. The trolley model is specified on the drawing. The CJP weld callout has been changed to allow contractor to use prequalified welding procedure with backing bar.

Item 10

Reference Unalaska Pyramid WTP Microturbine Project BID SET DRAWINGS

Replace drawing **'S6.2 – PIPE RACK BEAM DETAILS'** with drawing included as an attachment to this addendum. Detail 4 was added, "Intermediate W-Beam to W-Beam Connection Detail"

Item 11
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **"03 30 53 – MISCELLANEOUS CAST-IN-PLACE CONCRETE"**

REVISE Section 3.9 A to say:

A. Testing Agency: Owner to engage a qualified testing agency to perform tests and inspections.

Item 12
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **'05 12 00 – STRUCTURAL STEEL FRAMING'**

ADD Section 3.5 E to say:

E. Special inspections and test of structural steel framing in the field shall comply with IBC chapter 17.

Item 13
Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS TECHNICAL SPECIFICATIONS

Specification **'05 12 00 – STRUCTURAL STEEL FRAMING'**

REVISE Section 1.7 A to say:

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated and AISC-Certified Plant, Category STD. Fabricator shall be approved in accordance with IBC Section 1704.2.5.1.

Item 14
The City of Unalaska has changed the bidding requirements to allow emailed bid submissions.

Reference Unalaska Pyramid WTP Microturbine Project BID DOCUMENTS BIDDING REQUIREMENTS

REVISE Section "**00030 INVITATION TO BID**" to say:

"Sealed Bids for the City of Unalaska **PYRAMID WATER TREATMENT PLANT MICROTURBINE PROJECT**, addressed to the City of Unalaska, will be received at the following location:

City of Unalaska
Office of the City Clerk
P.O. Box 610
43 Raven Way
Unalaska, Alaska 99685
Tel. 907-581-1251
Fax 907-581-1417

In addition to paper copies, bids received by email will be acceptable. The Bid Form, Addenda Acknowledgement, Bid Bond (5% of Bid), Alaska Business and Contractors Licenses shall be attached to an email in scanned or electronically signed pdf compatible format file(s). The Subject line shall say "BID ENCLOSED – Pyramid Water Treatment Plant Microturbine" and emailed to the following address:

mveeder@ci.unalaska.ak.us

Sealed bids will be received until 2:00 p.m., local time on **May 28, 2020** and then will be publicly opened and read aloud. Any bids received after the time and date specified will not be considered."

REVISE Section "**00100 INSTRUCTIONS TO BIDDERS**" item 12 **Submission of Bids** to say:

"…shall be enclosed in an opaque sealed envelope or attached to an emailed submission"

REVISE Section "**00100 INSTRUCTIONS TO BIDDERS**" item 13 **Modification and Withdrawal of Bids** to say:

"Such notice shall be in writing over the signature of the Bidder, by email to the City Clerk, or by facsimile"

End of Addendum No. 1

Attachments

Drawing **P3.1 – VALVE SCHEDULE, SHEET 2 OF 3** (1-page)
Drawing **S6.2 – PIPE RACK BEAM DETAILS** (1-page)
Drawing **S6.3 – STRAINER TROLLEY DETAILS** (1-page)
Specification Section **22 08 16 DINSINFECTION OF POTABLE WATER PIPING**, (5-pages)

UNALASKA VALVE AND CONTROL SCHEDULE -CONT'D

TAG NO.	ITEM	OPERATION	FUNCTION	SIZE	MANUFACTURER/SUPPLIER	MODEL NO	TYPE	ACTUATOR	NOTES
V107A	ELECTRICALLY OPERATED BUTTERFLY VALVE	AUTOMATED	INLET ISOLATION VALVE FOR BUTTERFLY CONTROL VALVE V109A	16	PRATT	HP250II	OP/CL	Auma SA07.6-54B/GS100.3 /VZ4.3/AM01.2	
V107B	ELECTRICALLY OPERATED BUTTERFLY VALVE	AUTOMATED	INLET ISOLATION VALVE FOR BUTTERFLY CONTROL VALVE V109B	16	PRATT	HP250II	OP/CL	Auma SA07.6-54B/GS100.3 /VZ4.3/AM01.2	
V108A	MANUALLY OPERATED BUTTERFLY VALVE	MANUAL	OUTLET ISOLATION VALVE FOR BUTTERFLY CONTROL VALVE V109A	16	PRATT	HP250II	OP/CL	N/A	
V108B	MANUALLY OPERATED BUTTERFLY VALVE	MANUAL	OUTLET ISOLATION VALVE FOR BUTTERFLY CONTROL VALVE V109B	16	PRATT	HP250II	OP/CL	N/A	
V109A	ELECTRICALLY OPERATED BUTTERFLY VALVE	AUTOMATED	FLOW CONTROL	16	PRATT	HP250II	MODULATING	AUMA SAR7.5/GS100.3/ VZ4.3/AC01.2	NEW
V109B	ELECTRICALLY OPERATED BUTTERFLY VALVE	AUTOMATED	FLOW CONTROL	16	PRATT	HP250II	MODULATING	AUMA SAR7.5/GS100.3/ VZ4.3/AC01.2	NEW
V110	CHECK VALVE - SWING	AUTOMATED	BACKFLOW PREVENTION	16	FLOWMATIC	92LW	OP/CL	N/A	
V111	BALL VALVE	MANUAL	ISOLATION OF UVT-1	1/4	-	-	OP/CL	N/A	
V112A	BALL VALVE	MANUAL	DRAIN UVR101A REACTOR LINE	2	-	-	OP/CL	N/A	
V112B	BALL VALVE	MANUAL	DRAIN UVR101B REACTOR LINE	2	-	-	OP/CL	N/A	
V113	BALL VALVE	MANUAL	ISOLATION OF UVT-2	1/4	-	-	OP/CL	N/A	
V114	BALL VALVE	MANUAL	ISOLATION OF CL17 AND HACH 1720E	1/2	-	-	OP/CL	N/A	
V115	BALL VALVE	MANUAL	SAMPLE	1/2	-	-	OP/CL	N/A	
V116	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V117A	BALL VALVE	MANUAL	VENT ON STRAINER ST101A	1/2	-	-	OP/CL	N/A	RELOCATED
V117B	BALL VALVE	MANUAL	VENT ON STRAINER ST101B	1/2	-	-	OP/CL	N/A	RELOCATED
V118	HOSE BIBB	MANUAL	SAMPLE	3/4	-	-	MODULATING	N/A	RELOCATED
V119	VACUUM BREAKER	AUTOMATIC	PREVENTS NEGATIVE PRESSURE IN DISCHARGE LINE	8	VALMATIC	1808VB.1	AUTOMATIC	N/A	NEW
V120	BALL VALVE	MANUAL	DRAIN AT INLET TO STRAINERS	2	-	-	OP/CL	N/A	RELOCATED
V121	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG101	1/2	-	-	OP/CL	N/A	RELOCATED
V122A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG102A	1/2	-	-	OP/CL	N/A	RELOCATED
V122B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG102B	1/2	-	-	OP/CL	N/A	RELOCATED
V123A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG103A	1/2	-	-	OP/CL	N/A	
V123B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG103B	1/2	-	-	OP/CL	N/A	
V124A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG104A	1/2	-	-	OP/CL	N/A	
V124B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG104B	1/2	-	-	OP/CL	N/A	
V125	STAINLESS STEEL CHECK VALVE	-	CHECK VALVW, PREVENT BACKFLOW TO CHLORINE PUMPS	1-1/4	FLOWMATIC	812X - 2423X	-	-	
V126	STAINLESS STEEL CHECK VALVE	-	CHECK VALVW, PREVENT BACKFLOW TO CHLORINE PUMPS	1-1/4	FLOWMATIC	812X - 2423X	-	-	
V127A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG105A	1/2	-	-	OP/CL	N/A	
V127B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG105B	1/2	-	-	OP/CL	N/A	
V128	BALL VALVE	MANUAL	ISOLATION VALVE FOR PRESSURE GAUGE PG106	1/2	-	-	OP/CL	N/A	
V129	BALL VALVE	MANUAL	ISOLATION VALVE FOR CL17-1	1/4	-	-	OP/CL	-	
V130	BALL VALVE	MANAL	ISOLATION VAVLE FOR TURB-2	1/4	-	-	OP/CL	N/A	
V131A	AIR/VACUUM RELEASE VALVE	AUTOMATIC	RELEASE AIR FROM UV REACTOR LINE A (DURING FILLING/START UP)	1/2	VALMATIC	VMC-100S	AUTOMATIC	N/A	
V131B	AIR/VACUUM RELEASE VALVE	AUTOMATIC	RELEASE AIR FROM UV REACTOR LINE B (DURING FILLING/START UP)	1/2	VALMATIC	VMC-100S	AUTOMATIC	N/A	
V132	AIR/VACUUM RELEASE VALVE	AUTOMATIC	RELEASE AIR FROM ELEVATED METER LINE (DURING FILLING/START UP)	1/2	VALMATIC	VMC-100S	AUTOMATIC	N/A	
V133	AIR/VACUUM RELEASE VALVE	AUTOMATIC	RELEASE AIR FROM ELEVATED METER LINE (DURING FILLING/START UP)	1	VALMATIC	VMC-100S	AUTOMATIC	-	RELOCATED
V134A	BALL VALVE	MANUAL	ISOLATION VALVE FOR V131A AIR/VACUUM RELEASE	1/2	-	-	OP/CL	N/A	
V134B	BALL VALVE	MANUAL	ISOLATION VALVE FOR V131B AIR/VACUUM RELEASE	1/2	-	-	OP/CL	N/A	
V135	BALL VALVE	MANUAL	ISOLATION VALVE FOR V132 AIR/VACUUM RELEASE	1/2	-	-	OP/CL	N/A	
V136	BALL VALVE	MANUAL	ISOLATION VALVE FOR V133 AIR/VACUUM RELEASE	1	-	-	OP/CL	N/A	RELOCATED
V137	AIR RELEASE VALVE	AUTOMATIC	RELEASE AIR COLLECTED BETWEEN STRAINERS AND UV REACTORS (DURING OPERATON)	1	VALMATIC	VMC-38	AUTOMATIC	N/A	
V138	DIAPHRAGM VALVE	MANUAL	FLOW CONTROL THROUGH TURB-1	1/2	GEMU	TYPE 611	MANUAL	N/A	
V139	BALL VALVE	MANUAL	ISOLATION VALVE FOR V137 AIR RELEASE	1	-	-	MANUAL	N/A	
V140	DIAPHRAGM VALVE	MANUAL	FLOW CONTROL THROUGH TURB-1	1/2	GEMU	TYPE 611	MANUAL	N/A	
V141	BALL VALVE 150 LB	MANUAL	INLET TO PUMP PMP101	1 1/4	-	-	MANUAL	N/A	
V142	BALL VALVE 150 LB	MANUAL	INLET TO PUMP PMP103	1 1/4	-	-	MANUAL	N/A	
V143	STAINLESS STEEL GLOBE VALVE 300 LB	MANUAL	THROTTLING VALVE ON CHLORINE RETURN, 250 PPD	1 1/4	-	-	MANUAL	N/A	
V144	STAINLESS STEEL GLOBE VALVE 300 LB	MANUAL	THROTTLING VALVE ON CHLORINE RETURN, 50 PPD	1 1/4	-	-	MANUAL	N/A	
V145	STAINLESS STEEL GLOBE VALVE 300 LB	MANUAL	OUTLET FROM PUMP PMP101 (250 PPD)	1 1/4	-	-	MANUAL	N/A	
V146	STAINLESS STEEL GLOBE VALVE 300 LB	MANUAL	OUTLET FROM PUMP PMP103 (50 PPD)	1 1/4	-	-	MANUAL	N/A	
V147	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #1, 250 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V148	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #2, 250 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V149	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #3, 250 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V150	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 250 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V151	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 250 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V152	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V153	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V154	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #1, 100 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V155	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #2, 100 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V156	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #3, 100 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V157	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 100 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V158	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 100 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V159	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V160	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V161	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #1, 50 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V162	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #2, 50 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V163	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #3, 50 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V164	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 50 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V165	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 50 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V166	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V167	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V168	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #1, 25 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V169	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #2, 25 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V170	KYNAR BALL VALVE	MANUAL	CHLORINE CONTROL #3, 25 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V171	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 25 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V172	KYNAR BALL VALVE	MANUAL	FLOW CONTROL, 25 PPD SYSTEM	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V173	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V174	KYNAR BALL VALVE	MANUAL	PRESSURE GAUGE ISOLATION	1/4	MILLER PLASTICS	-	MANUAL	N/A	
V175	STAINLESS STEEL CHECK VALVE	-	PREVENT BACKFLOW TO CHLORINE PUMPS	1-1/4	FLOWMATIC	812X - 2423X	-	-	
V176	STAINLESS STEEL CHECK VALVE	-	PREVENT BACKFLOW TO CHLORINE PUMPS	1-1/4	FLOWMATIC	812X - 2423X	-	-	
V177	HOSE BIBB	MANUAL	SAMPLE EFFLUENT FROM ST101A	3/4	-	-	MANUAL	N/A	
V178	HOSE BIBB	MANUAL	SAMPLE EFFLUENT FROM ST101B	3/4	-	-	MANUAL	N/A	
V178A	BALL VALVE	MANUAL	LOW POINT DRAIN AFTER STRAINER ST101A	3/4	-	-	OP/CL	N/A	RELOCATED
V178B	BALL VALVE	MANUAL	LOW POINT DRAIN AFTER STRAINER ST101B	3/4	-	-	OP/CL	N/A	RELOCATED
V179	REMOVED FROM SYSTEM	-	-	-	-	-	MANUAL	N/A	
V180	BALL VALVE	MANUAL	ISOLATION FOR WATER TO CHLORINE PUMPS	2	-	-	MANUAL	N/A	
V181	KYNAR BALL VALVE	MANUAL	CHLORINE GAS FEED TO 250 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V182	KYNAR BALL VALVE	MANUAL	CHLORINE GAS FEED TO 100 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V183	KYNAR BALL VALVE	MANUAL	CHLORINE GAS FEED TO 50 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V184	KYNAR BALL VALVE	MANUAL	CHLORINE GAS FEED TO 25 PPD SYSTEM	1/2	MILLER PLASTICS	-	MANUAL	N/A	
V185	KYNAR BALL VALVE	MANUAL	ISOLATION VALVE ON CHLORINE RETURN LINE	1-1/4	MILLER PLASTICS	-	MANUAL	N/A	
V186	PVC BALL VALVE	MANUAL	ISOLATION VALVE FOR PH/TEMP INSTRUMENT	1/2	GEORGE FISHER	514	MANUAL	N/A	
V187	PVC BALL VALVE	MANUAL	ISOLATION VALVE FOR CL17-2	1/4	-	-	MANUAL	N/A	
V188A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG118A	1/2	-	-	MANUAL	N/A	
V188B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG118B	1/2	-	-	MANUAL	N/A	
V189A	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG119A	1/2	-	-	MANUAL	N/A	
V189B	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG119B	1/2	-	-	MANUAL	N/A	
V190	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG123	1/4	-	-	MANUAL	N/A	
V191	BALL VALVE	MANUAL	ISOLATION VALVE FOR PG122	1/4	-	-	MANUAL	N/A	
V192	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V193	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V194	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V195	DIAPHRAGM VALVE	MANUAL	FLOW CONTROL THROUGH CL17-1	1/4	GEMU	TYPE 611	MANUAL	N/A	
V196	DIAPHRAGM VALVE	MANUAL	FLOW CONTROL THROUGH PH/TEMP	3/8	GEMU	TYPE 611	MANUAL	N/A	
V197	DIAPHRAGM VALVE	MANUAL	FLOW CONTROL THROUGH CL17-2	1/4	GEMU	TYPE 611	MANUAL	N/A	
V198	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V199	REMOVED FROM SYSTEM	-	-	-	-	-	-	-	
V200	BALL VALVE	MANUAL	ISOLATION VALVE FOR CARBON FILTER	3/4	-	-	MANUAL	N/A	
V201	BALL VALVE	MANUAL	ISOLATION VALVE FOR CARBON FILTER	3/4	-	-	MANUAL	N/A	

CITY OF UNALASKA
PORT OF DUTCH HARBOR
53° 54' N 166° 32' W

STATE OF ALASKA
49 TH
ZACHARY B BOLDRICK
ME-14283
APR 17, 2020
REGISTERED PROFESSIONAL ENGINEER

No.	Revision/Issue	Date
1	ISSUED FOR ADDENDUM 1	5/18/20
0	ISSUED FOR CONSTRUCTION	4/17/20

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Anchorage, AK 99503

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175 Varrick Street
8th Floor
New York, NY 10014
rentricity

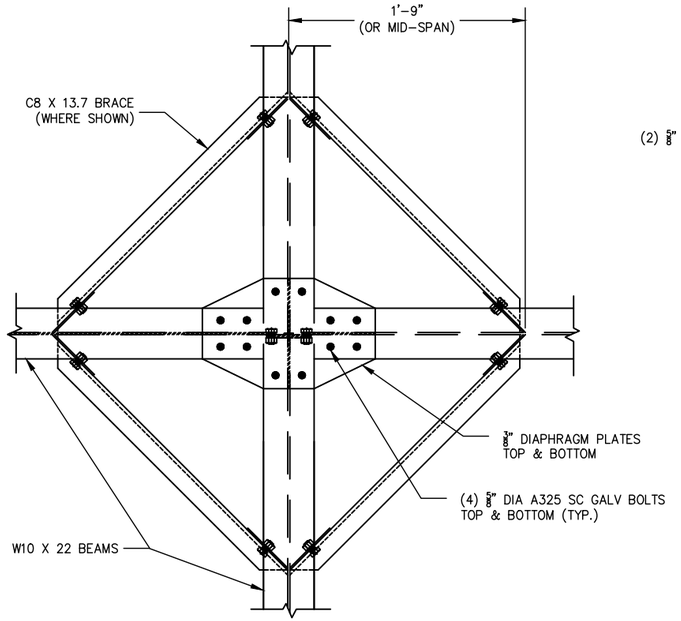
CITY OF UNALASKA

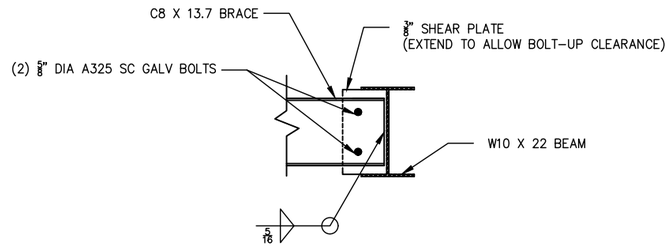
PYRAMID WATER TREATMENT PLANT

VALVE SCHEDULE, SHEET 2 OF 3

Drawn By:	ZBB
Checked By:	ZBB
Approved By:	ZBB

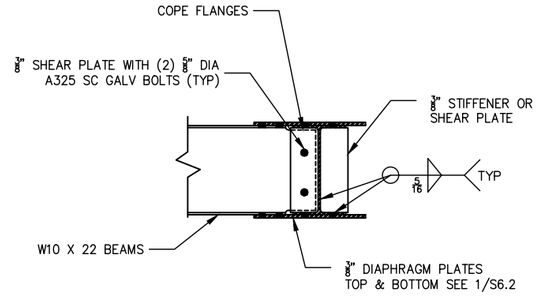
SN Project No.: -	Drawing No. P3.1
Date: 5/18/2020	
Scale: N/A	





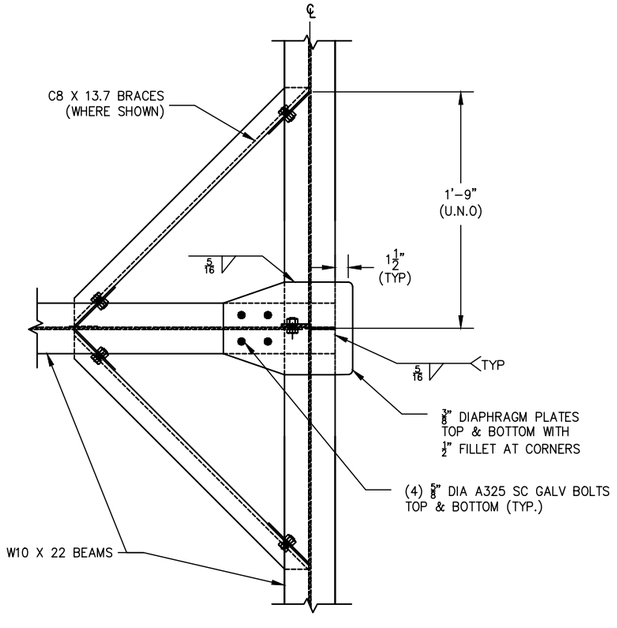
2 / S6.2 **C-BRACE TO W-BEAM CONNECTION**

SCALE: 1-1/2" = 1'-0"



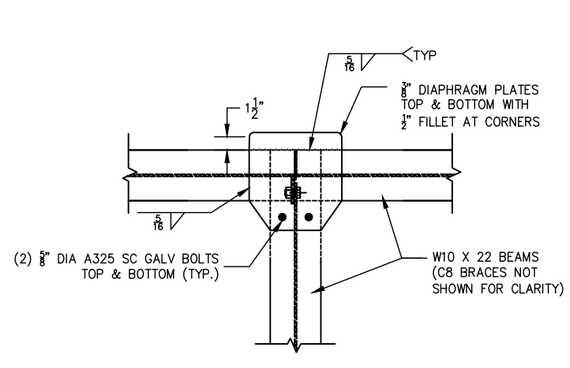
3 / S6.2 **W-BEAM TO W-BEAM SHEAR CONNECTION**

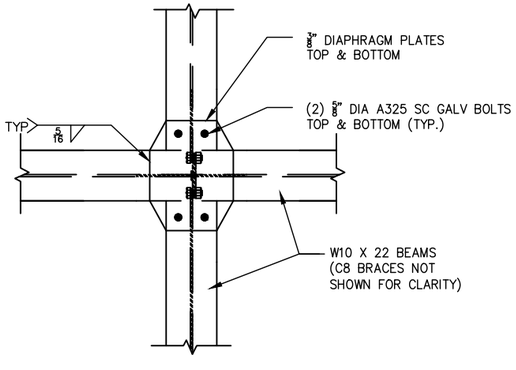
SCALE: 1-1/2" = 1'-0"



1 / S6.2 **W-BEAM TO W-BEAM CONNECTION**

SCALE: 1 1/2" = 1'-0"





4 / S6.2 **INTERMEDIATE W-BEAM TO W-BEAM CONNECTION**

SCALE: 1 1/2" = 1'-0"

CITY OF UNALASKA
PORT OF DUTCH HARBOR
53° 54' N 166° 32' W

STATE OF ALASKA
49 TH
Curtis Nuttall
Curtis R. Nuttall
CE-7371
APR 17, 2020
REGISTERED PROFESSIONAL ENGINEER

No.	Revision/Issue	Date
1	ISSUED FOR ADDENDUM 1	5/18/20
0	ISSUED FOR CONSTRUCTION	4/17/20

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New York, NY 10014

CITY OF UNALASKA

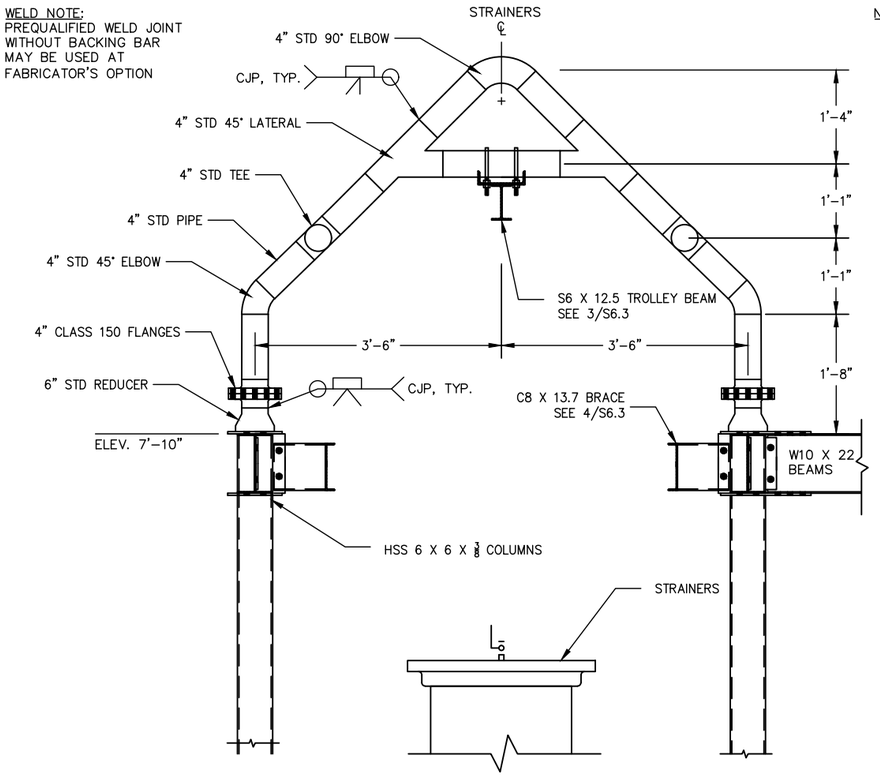
PYRAMID WATER TREATMENT PLANT

MICROTURBINE PROJECT
PIPE RACK BEAM DETAILS

Drawn By:	BDH
Checked By:	ZBB
Approved By:	CRN

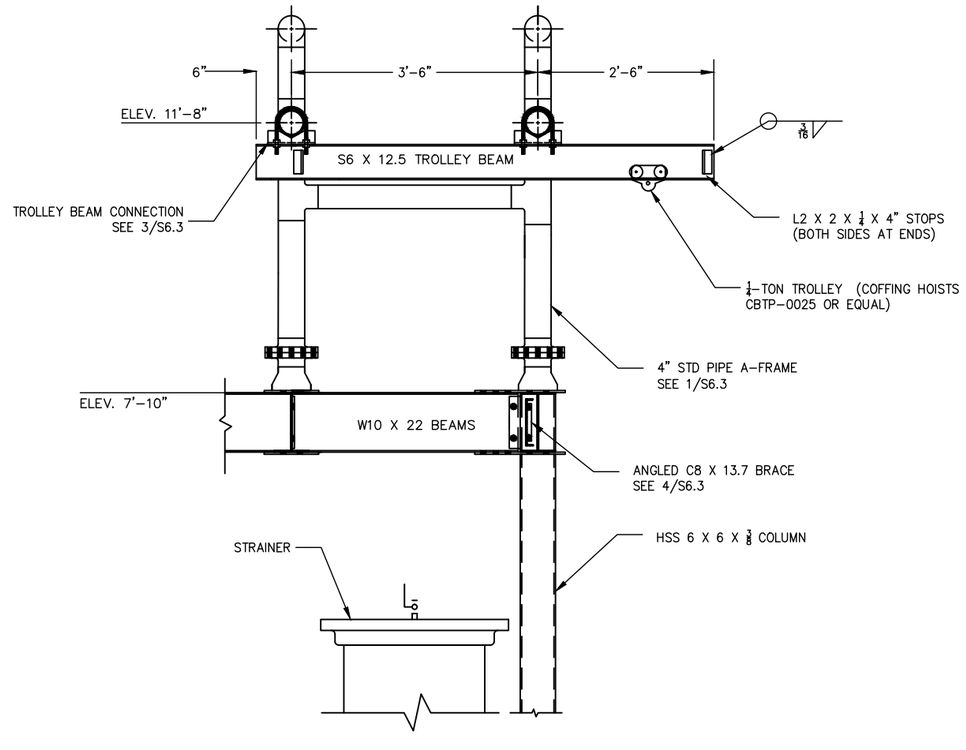
SN Project No.: -	Drawing No. S6.2
Date: 5/18/2020	
Scale: SCALE AS SHOWN	

WELD NOTE:
PREQUALIFIED WELD JOINT WITHOUT BACKING BAR MAY BE USED AT FABRICATOR'S OPTION

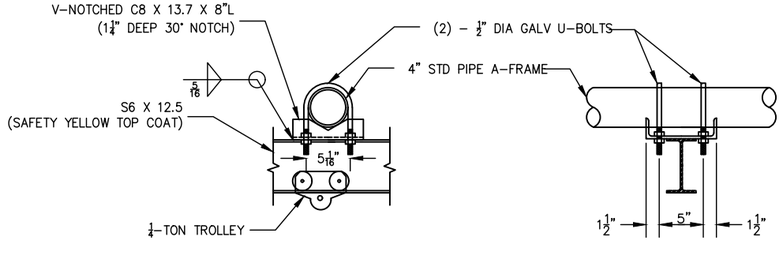


1 / S6.3 **TROLLEY A-FRAME AT STRAINERS (4 REQUIRED)**
SCALE: 1" = 1'-0"

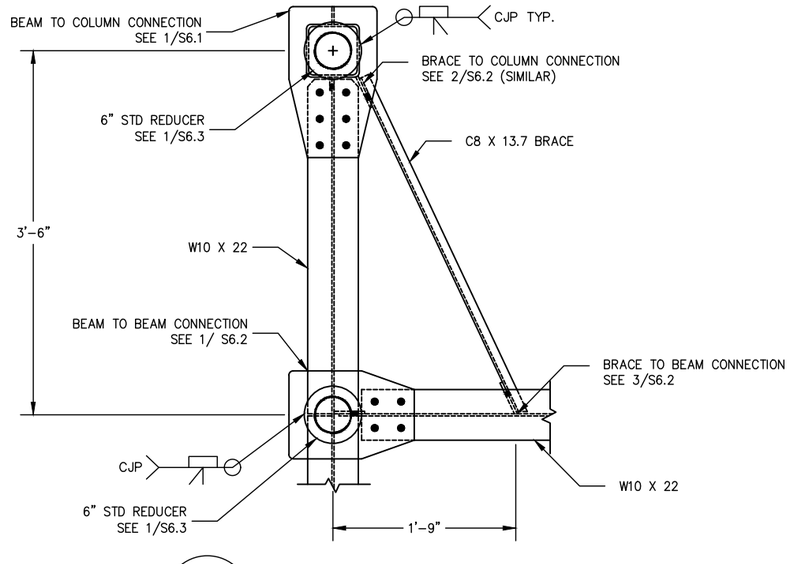
NOTE: RELOCATED HANGING LIGHTS IF REQUIRED



2 / S6.3 **TROLLEY ASSEMBLY AT STRAINERS (2-LOCATIONS)**
SCALE: 1" = 1'-0"



3 / S6.3 **TROLLEY BEAM TO A-FRAME CONNECTION**
SCALE: 1 1/2" = 1'-0"



4 / S6.3 **TROLLEY A-FRAME TO PIPE RACK CONNECTION**
SCALE: 1 1/2" = 1'-0"

CITY OF UNALASKA PORT OF DUTCH HARBOR 53° 54' N 166° 32' W

STATE OF ALASKA 49TH
Curtis Nuttall
Curtis R. Nuttall
CE-7371
APR 17, 2020
REGISTERED PROFESSIONAL ENGINEER

No.	Revision/Issue	Date
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New York, NY 10014

CITY OF UNALASKA

PYRAMID WATER TREATMENT PLANT

MICROTURBINE PROJECT
STRAINER TROLLEY DETAILS

Drawn By:	BDH
Checked By:	ZBB
Approved By:	CRN

SN Project No.: -	Drawing No. S6.3
Date: 5/19/2020	
Scale: SCALE AS SHOWN	

SECTION 220816 – DISINFECTION OF POTABLE WATER PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. AWWA C651, Disinfecting Water Mains

C. 40 CFR 414, National Primary Drinking Water Regulations

D. 18 AAC 80, Drinking Water

1.2 SECTION INCLUDES

A. Disinfection requirements for new, repaired or modified potable water distribution piping systems.

B. Dechlorination procedures for chlorinated water discharge

1.3 CONTRACTOR PERFORMED WORK

A. Water quality testing: Contractor shall perform water quality testing of water samples taken in the presence of an owner's representative from the piping systems for chlorine concentrations and bacteriological quality. Unalaska DPW will approve use of disinfected piping when test results demonstrate compliance with water quality requirements of the Safe Drinking Water Act as described in Section 1.4 C, furnishing disinfection report to Contractor.

1.4 DESCRIPTION

A. Disinfection Requirements

1. Protect interior of pipes, fittings, and valves against contamination during construction
   a. Material delivered for construction shall be protected so as to minimize entrance of foreign material.
   b. Close opening of pipeline when pipe-laying is stopped at the end of the workday or for other reasons, such as breaks.
2. Do not disinfect any pipe until source of potable water supply used for flushing or disinfection is approved by Unalaska DPW.
3. Contractor shall perform water quality testing of water samples taken from piping systems for chlorine concentrations and bacteriological quality as described in Section 1.4 C. Samples shall be taken only when an owner's representative is present. Lab reports shall be submitted to the owner with witnesses listed on report along with date, time, and location of sample.

4. Do not place piping in service until approved by Unalaska DPW that water quality test results are acceptable as described in Section 1.4 C.
5. Re-flush and retest disinfected potable water piping that has been allowed to stand stagnant for more than 30 days before being placed in service.

B. Water Discharge Requirements

1. Neutralized chlorinated water used for disinfection prior to discharge as described in Section 3.4
2. Discharge to neutralized water to land only.
3. Implement appropriate erosion controls and sediment controls at the discharge point to prevent erosion and sediment beyond the disposal area.
4. A written visual inspection record for erosion, daily flow estimate, and sheen must be kept per ADEC requirements.
5. If a sheen is noted all discharge activities must cease until ADEC approval is granted to continue.

C. Water Quality Testing Requirements

1. Notify Unalaska DPW at least 48 hours (2 working days) in advance to arrange for a bacterial quality, free chlorine concentration, or a total chlorine concentration test.
2. Requirements for demonstration of compliance with the maximum contaminant level of the Safe Drinking Water Act:
   a. Total chlorine concentration of less than 1 mg/L (1 ppm)
   b. The absence of any coliform bacteria.
   c. Less than 200 non-coliform bacteria per 100 mL sample.

PART 2 - PRODUCTS

2.1 MATERIAL SAFETY DATA SHEETS

A. Maintain on site Material Safety Data Sheets (MSDS) for chemical products, including disinfection and dichlorination products.

2.2 ACCEPTABLE DISINFECTANTS

A. Sodium hypochlorite solution.

B. Disinfection with pure chlorine gas or liquid is not permitted.

2.3 ACCEPTABLE DECHLORINATION (NEUTRALIZING) AGENTS

A. Sodium ascorbate, Vita-D-Chlor or equal.

B. Sodium thiosulfate, technical grade prismatic rice.

2.4 PRECAUTIONS

A. Calcium hypochlorite is a corrosive and is a strong oxidizer. Reducing agents (e.g. sodium ascorbate or thiosulfate), concentrated acids, and organic compound ds (e.g. antifreeze, gasoline), con oxidize, burn or explode if they come into contact with solid-phase calcium hypochlorite.

B. Disinfecting solutions containing chlorine shall not exceed 12% active chlorine; grater concentrations can chemically attack and degrade polyethylene.

PART 3 - EXECUTION

3.1 DISINFECTION OF NEW WATER MAINS

A. Preliminary Flushing

1. Prior to disinfection, fill main with water to eliminate air pockets.
2. Flush new mains, including fire service mains and lead-in connections to fire system risers, thoroughly before connection is made to system piping in order to remove foreign materials that might have entered the main during the course of the installation or that might have been present in existing piping.
3. The minimum rate of flow shall greater than the water demand rate of the system, which is determined by the system design.
4. Follow AWWA C651 “Disinfecting Water Mains” using continuous feed method where practical
5. For all systems, the flushing operation shall be continued for a sufficient time to ensure thorough cleaning.
6. Obtain verification from Unalaska DPW that system has been thoroughly cleaned (flushed) and is ready for chlorination before proceeding.

B. Chlorination of the Main

1. Inject chlorinated water, with a free chlorine concentration of not less than 25 mg/L, into main at a point no more than 10 feet downstream from beginning of new main. Verify free chlorine concentration of not less than 25 mg/L by an initial free chlorine concentration test as described in Section 1.4 C.
2. Leave chlorinated water in the main for at least 24 hours during which time valves and hydrants in system shall be operated to ensure disinfection of the appurtenances.
3. At the end of the 24-hour period, treated water in all portions of the main shall have a free chlorine concentration of not less than 10 mg/L. Verify this by a residual free chlorine concentration test as described in section 1.4 C.
4. After residual free chlorine concentration test has been completed, flush system with potable water until total chlorine concentration in the main is less than 1 mg/L (1 ppm).
5. After final flushing, contact Unalaska DPW to arrange for final total chlorine concentration and bacteriological quality tests as described in section 1.4 C.
6. After final total chlorine concentration and bacteriological quality test have been completed contractor will furnish disinfection report to Unalaska DPW. If water quality tests do not show compliance with water quality requirements of the Safe Drinking Water Act

as described in section 1.4 C, repeat the disinfection steps until test results demonstrate compliance.

7. At the completion of all testing, the contractor shall take another sample of water in the main and have it analyzed at an approved testing laboratory to demonstrate that bacteria contamination is within acceptable limits. The contractor shall furnish to the owner an affidavit outlining the dates and times of the flushing, pressure tests, and continuity tests with laboratory furnished testing results. The names of witnesses as well as the owners representative shall be included with signatures on the certificate.

3.2 DISINFECTION DURING AND FOLLOWING REPAIR OR MINOR MODIFICATION OF EXISTING MAINS OR INTERIOR PIPING.

A. Before Repair
1. Where practical, isolate a section of affected line and shut off all service connections.
2. Swab or spray the inside of new pipe and fittings with a minimum of 1% hypochlorite solution before they are installed. Disinfect tools to be used in the same manner.

B. Flushing After Repair
1. Prior to disinfection, flush affected line to clean out contamination introduced during repairs. If possible, flush from both directions. Flush until discolored water is eliminated and water flows clear. If line segment cannot be isolated, thoroughly flush the segment to a tank or through a fire hydrant. Follow the requirements in the water discharge requirements section

C. Apply chlorine to water to expose interior surfaces of affected segment at the chlorine concentration and contact times as follows; verify total chlorine concentration by an initial total chlorine concentration test.

Chlorine Concentration (mg/L, ppm)	Contact Time
300	15 minutes
250	1 hour
200	1.5 hours
150	2 hours
100	3 hours

D. Retain chlorinated water in piping for the above prescribed time. At the end of the contact period, flush affected line with potable water until total chlorine concentration in the main is less than 1mg/L (1 ppm).

E. After flushing, arrange for final total chlorine concentration and bacteriological quality test.

F. After final total chlorine concentration and bacteriological quality tests have been completed, the contractor will furnish disinfection report to Unalaska DPW.. If water quality tests to not show compliance with the water quality requirements of the Safe Drinking Water Act as described in section 1.4 C, repeat the steps above until tests demonstrate compliance.

3.3 DECHLORINATION OF DISCHARGES (NEUTRALIZATION)

A. It is the Contractor's responsibility to determine the appropriate amount of decholorinator needed to neutralize the chlorine present in discharge water.

B. Provide a mixing tank to allow dichlorination of water prior to discharge.

C. Approximate dosage rate of neutralizer may be calculated from the following table:

Free Chlorine Residual Concen-tration	Sodium Ascorbate (Vita-D-Chlor)	Sodium Thiosul-fate
10 mg/L	2.2 lb/10,000 gal	1.2 lb/10,000 gal
50 mg/L	11 lb/10,000 gal	6 lb/10,000 gal
500 mg/L	110 lb/10,000 gal	60 lb/10,000 gal

D. Do not dose neutralizing chemical beyond the minimum required to neutralize the chlorine actually present in the discharge.