From: Hoppe Kirsten
Sent: Monday, October 07, 2024 2:30 PM
To: Schick, Lesli J (DNR)
Cc: Rupert Stephanie; Mamelli Brian; Jessica Fisher; Miller, Jessica A (DNR); Keppers Craig
Subject: RE: [EXTERNAL] RE: New Well at ODS with Water Rights Established
Attachments: Change Order Review for ODS Drinking Water System PWSID 2330024, Including Additional Well #6

Lesli,

I am about to send an application check for $450 to your 7th Ave address in Anchorage. The fee will cover an amendment to the existing Water Right LAS 25850. As described in the e-mail below, our off-shore island called Oooguruk Drillsite (ODS) has had drinking water well problems. At one point, no drinking water wells were functioning on the island. With the changing of the seasons, it became an urgent situation to find a drill rig, barge it to the island, drill the replacement well and barge it back to land. During this time, Eni worked with ADEC engineering to get approvals to alter the drinking water system and to drill replacement wells. Since the drill rig was on ODS, Eni decided to drill a contingency well in addition to the replacement well. Each well is labeled #5 and #6. Details of the well location and engineering documentation are in the attached e-mail. Let me know if you need additional information to add these wells to the existing water right.

As a side note, I've added Jessica Fisher (Hilcorp) to this e-mail. Beginning Nov 1st, this water right will be transferred to Hilcorp's water group. Feel free to contact me via cell phone after Nov 1st-I will be employed with Hilcorp but working in a different group.

Kirsten

Kirsten Hoppe
Environmental Permitting and Compliance Coordinator
Eni Petroleum

eni us operating
3800 Centerpoint Dr., Suite 300
Anchorage, AK 99503
Tel. 907-865-3300 Fax 907-865-3380

August 27, 2024

Michael Gerard
Alaska Department of Environmental Conservation
Division of Water
Engineering Support and Plan Review
610 University Ave
Fairbanks, Alaska 99709

Re: Modification to Drinking Water System PWSID 2330024 at Eni Petroleum Oooguruk Drill Site (ODS) – Additional Source Well, Change Order to Request Dated July 8, 2024

Dear Mr. Gerard:

The drinking water system operated by Eni Petroleum at Oooguruk Drill Site (ODS) on the North Slope (PWSID-2330024) had a Source Water Well failure of two wells originally, as stated in the documents and cover letter dated July 8, 2024. Since the original request, the third (and last remaining) well has also failed. Eni wishes to abandon the failed wells and drill a planned replacement well (#5) and a contingency well (#6) just east of the drilling support complex on ODS. Eni's intension is to drill well #6, and delay installation to the existing drinking water system at a later date (if needed). Eni requests permission to construct these new wells as a modification to its existing system. The supporting documentation is a change order to the original review.

Source Well (#5):
The new well will be placed approximately 20 ft south of the existing well #4. The new wells location is (see attached plan):

LAT: N 70 deg 29' 41.24"
LONG: W 150 Deg 15' 03.28"

Source Well (#6), change order review:
The new well will be placed East of the Drilling Support Complex at ODS. The new wells location is (see attached plan):

LAT: N 70 deg 29' 43.87"
LONG: W 150 Deg 15' 02.69"

The new source wells will be a vertical well to a depth of approximately -75ft MSL The well receives sea water influenced ground water. The well is expected to be capable of producing 60 gpm using a Grundfos Model 96405811 submersible pump (or equivalent). The new well will be of the same design as existing wells.

Failed wells #1 & #4 will be disconnected and abandoned. These wells are located at:

Well #1	Well #4
LAT: N 70 deg 29' 43.984"	LAT: N 70 deg 26' 41.54"
LONG: W 150 Deg 15' 09.247"	LONG: W 150 Deg 15' 04.52"

The new well (#5) will be tied into the raw water header in the location of the abandoned well #4 using the same materials as previously used.

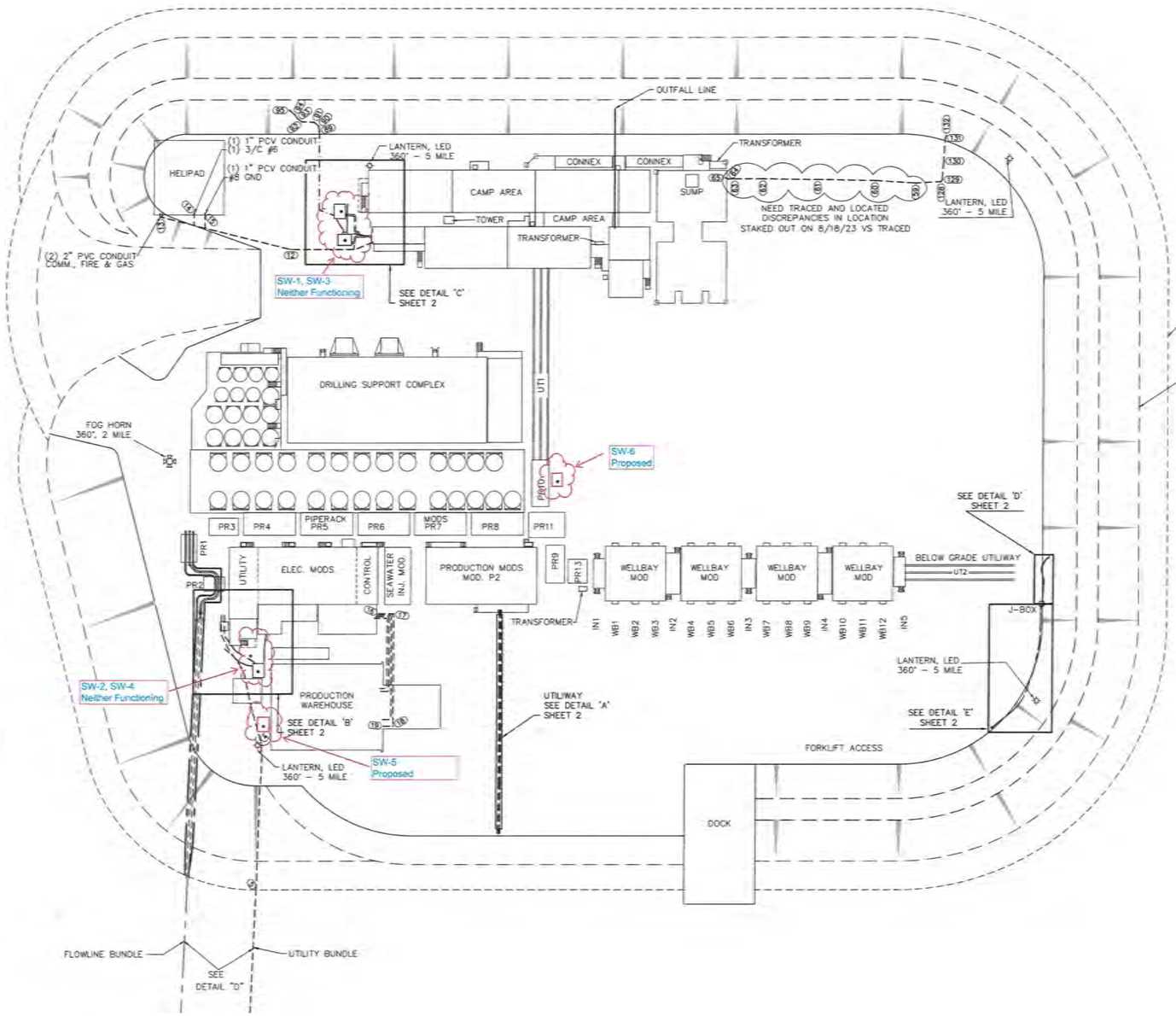
Please review the completed checklist and the enclosed supporting materials and if you have questions or require additional information, please contact me at 907-670-6515 or douglas.kitchen@eni.com.

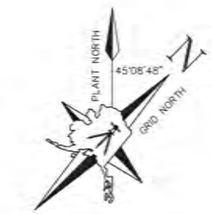
Sincerely,

Douglas Kitchen, P.E.
Eni Facility Engineer

Attachments:
ADEC Form 00-Application -2020; Dated 8-27-2024
ADEC Form 10-General -2020; Dated 8-27-2024
ADEC Form 32b-Source Seawater - 2020; Dated 8-27-2024
Site Plan- Dwg NSK 6.90 – D18; 2 pages w/markups
Piping 04802-1-DG-BC-00001.01 Rev 04; Dated 8-27-2024
Well Section Dwg U-C5.3; Dated 7-8-2024
Raw Water Well Lab Analysis, 12 pages; Dated Aug -2014

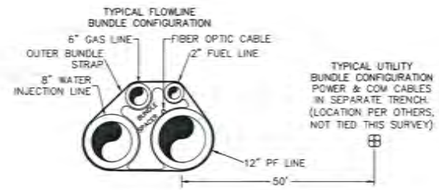
DRAWING NO: NSK 6.90 – D18





STATE OF ALASKA
49 TH
Douglas O Kitchen
AELM12156
REGISTERED PROFESSIONAL ENGINEER

8-27-24
ODS, PROPOSED SW WELLS
FOR REFERENCE ONLY



DETAIL "D"
SUB-SEA PORTION OF FLOWLINE
BOTH BUNDLES BURIED BELOW SEABED
(BURIED DEPTH UNKNOWN)

GRAPHIC SCALE

1 inch = 40 ft.

NOTES:

1. COORDINATES ARE BASED ON ODS LOCAL.
2. ELEVATIONS ARE B.P.M.S.L. DATUM.
3. UNDERGROUND POINT #'S 1 – 19 ARE PROVIDED FROM CAELUS AND HAVE NOT BEEN SURVEYED FOR LOCATION BY LOUNSBURY & ASSOCIATES.
4. BASIS OF THIS DRAWING IS DWG. #04802-6-DG-AD-00001.01, REV. 08 PROVIDED BY CAELUS.

RECEIVED
Document Control
8/29/2023
ODS UG UTIL (RMD)
FORM: DSIZE

REV	DATE	REVISIONS	BY	CHK	REV	DATE	REVISIONS	BY	CHK
6	8/18/23	Add Points 128–132 / Remove Points 54–58	LGM	JFC					
5	8/22/23	ADD POINTS 96–127	LGM	MRT					
4	10/05/19	ADD SEAWATER INJ. MOD. / ENI BORDER	LGM	JFC					
3	08/19/15	ADD POINTS ASBUILT BY OTHERS / ADD POPINTS 81–95	JAH	NRB					
2	04/02/15	ADD POINTS 54–80 / CREAT3 SHEET 2 / CAELUS BORDER	JAH	SZ					
1	07/26/14	ADD U/G PORTIONS AT WELLS U3 & U4	JFC	JAH					

eni us operating

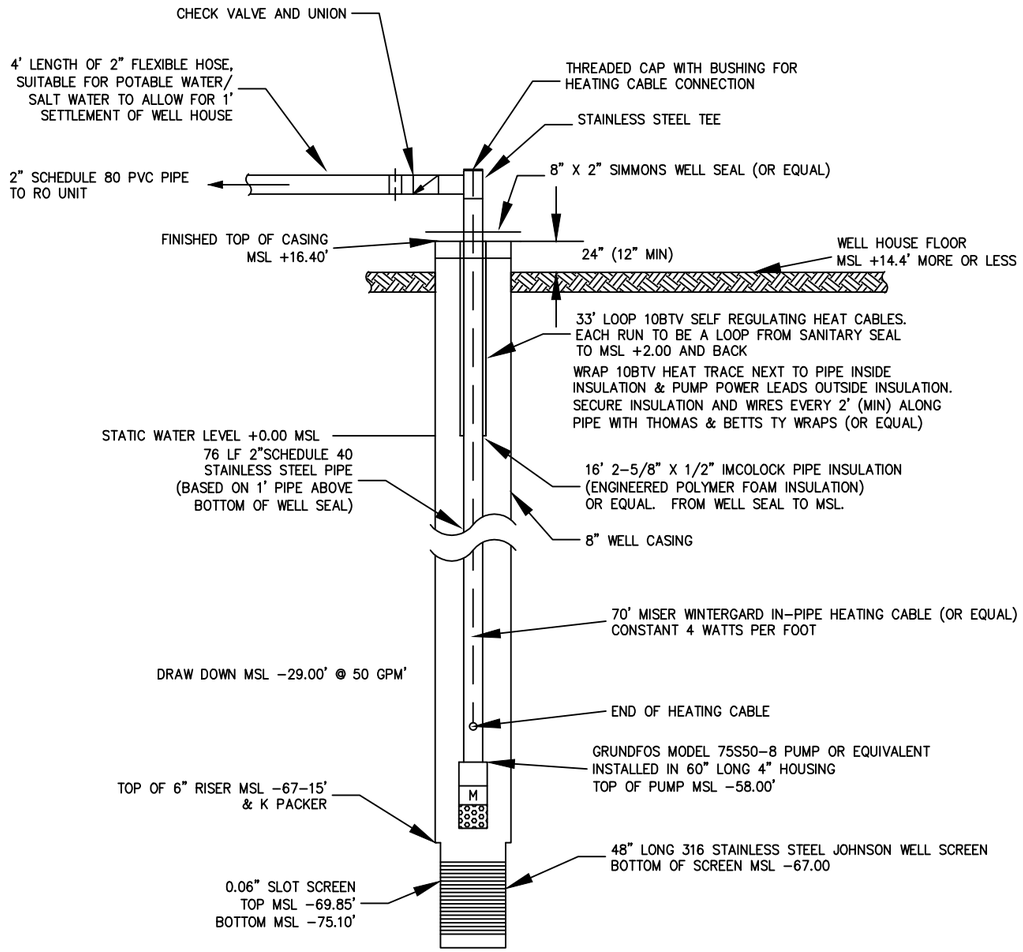
LOUNSBURY & ASSOCIATES
Surveyors · Engineers · Planners

SCALE:	1" = 40'
DRAWN:	JAH
CHECKED:	–
DATE:	10/11/13

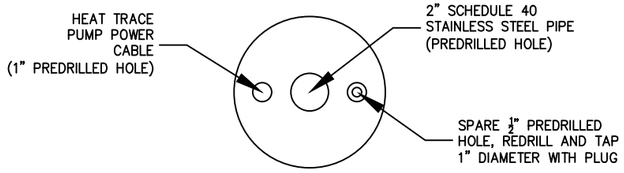
DO NOT SCALE — ABOVE SCALE FOR REFERENCE ONLY

OFFSHORE OOOGURUK DRILL SITE
UNDERGROUND UTILITIES
ASBUILT

CAD FILE NO.	DRAWING NO:	PART:	REV:
LK690D18	NSK 6.90 – D18	1 OF 3	6



WELL SECTION



WELL SEAL DETAIL

NOTES:

1. MOUND SOIL AROUND CASING AND GRADE TO DRAIN AWAY, A MINIMUM OF 10 FEET IN ALL DIRECTIONS
2.
3.

PHASE	REVISION NUMBER	DATE	DESCRIPTION	CONTRACTOR PREPARED	CONTRACTOR VERIFIED	CONTRACTOR APPROVED	COMPANY CHECKED	COMPANY APPROVED
EX-CO	01	8JUL24	WO_2024-015555_WATER_WELL#5	CJK				
EX-CO	00	14SEP07	INITIAL_ISSUE					

COMPANY LOGO AND BUSINESS NAME: Eni US Operating Co., Inc.

COMPANY LEGACY ID: 04802-3-DG-

CONTRACTOR LOGO AND BUSINESS NAME: VEI_CONSULTANTS

CONTRACTOR DOCUMENT ID: U-C5.3

SCALE: N.T.S.

SHEET OF SHEETS: 1 OF 1

DOCUMENT TITLE: OFFSHORE UTILITY_MODULE_U3_&_U4 WATER_WELL_SECTION

PROJECT NAME: ODS_WATER_WELL_#5

FACILITY AND SUB FACILITY NAME: ALASKA-OOOGURK_DRILL_SITE_(ODS)

COMPANY DOCUMENT ID: CO_DOC_ID

REV: 01

P-43101 D
SOURCE WATER LIFT PUMP
CAPACITY: 93 gpm @ 45 psi ΔP

P-43101 E
SOURCE WATER LIFT PUMP
CAPACITY: TBD gpm

P-43101 B
SOURCE WATER LIFT PUMP
CAPACITY: 30 gpm

P-43101 C
SOURCE WATER LIFT PUMP
CAPACITY: 60 gpm

STATE OF ALASKA
49TH
CRAIG J. KEPPERS
No. CE - 10566
REGISTERED PROFESSIONAL ENGINEER
7/18/24

NOTE:
1. WELL ERLING #2 HAS BEEN ABANDONED.
2. WELL ERLING #1 &4 TO BE ABANDONED.
3. MODULE U3 TO BE REUSED FOR NEW WELL #5.
4. MODULE U4 TO BE REMOVED AND STORED.

GRADE
TRENCH UT3
2"-RS-A-HD-1001-2F-E
4"x2"
4"x2"
WATER TO R.O. UNITS 1-DG-BC-00002.01 (Z-44101A/B)
TOE EEIS
4"-RS-A-HD-1005-2F-E
4"-RS-A-HD-1005
WATER TO R.O. UNITS 1-DG-BC-00001.02 (Z-44101A/B)
OUTSIDE 2F-E
INSIDE
RIG SUPPORT AREA
4"x2"
2"-RS-A-HD-1002-2F-E
S/ 350
S/ 350
2"-RS-A-HD-1002-2F-E
3/4"
D2XR-S1
TRENCH UT1
2"-RS-A-HD-1002-2F-E

U3-WELL #4
(NOTE 1)
316 SS | HDPE
MCC 43101D
2"
2"
A5RS-HD
A7LO-HD
2F-E
1F-E
S/ Z11
GRADE
GRADE
6" WELL CASING
M
TYPE M.1
P-43101 D

U4-WELL #5
2"-RS-A-HD-XXXX-2F-E
A2SR-HD 2"
A2SR-S1 1"
FIT 43101E
FT 43101E
PI
HS 43101E
PIT 43101E
PT 43101E
316 SS | HDPE
MCC 43101E
2"
A5SS-S1
2F-E
1F-E
PUMP HOUSING
GRADE
GRADE
6" WELL CASING
M
TYPE M.1
P-43101 E

U4-ERLING #1
316 SS | HDPE
2"
2"
A5RS-HD
A7LO-HD
2F-E
1F-E
S/ Z11
GRADE
GRADE
6" WELL CASING
M
TYPE M.1
P-43101 B

U4-WELL #3
2"-RS-A-HD-1002-2F-E
A2SR-HD 2"
A2SR-S1 1"
FIT 43101C
FT 43101C
PI
HS 43101C
PIT 43101C
PT 43101C
316 SS | HDPE
MCC 43101C
2"
A5SS-S1
2F-E
1F-E
PUMP HOUSE
GRADE
GRADE
6" WELL CASING
M
TYPE M.1
P-43101 C

DWG. NO.	TITLE
REFERENCE DRAWINGS	

NO.	DATE	DWN. BY	CHK'D BY	DESCRIPTION
03	30 JAN 17	JPW	EDR	AS-BUILT PER AS FOUND CONDITIONS
02	18 AUG 16	JPW	EDR	ASBUILT PER MOC 2015-001267 ODS POTABLE WATER UPGRADES
01	08 FEB 10	CSM		UPDATED WELLHOUSE GRADE CALLOUT, WELL NAMING AND WATER LINE COMPONENTS
00	21 SEP 06	LWM	TGC	ISSUED FOR CONSTRUCTION
B4	26 JUN 06	LWM	JCZ	ISSUED FOR WATER PERMIT
B3	17 FEB 06	LWM	ELT	ISSUED FOR MARCH 2006 HAZOP
B2	29 NOV 05	JZC	ELT	ISSUED FOR DECEMBER 2005 HAZOP
B1	12 SEP 05	TGC	ELT	ISSUED FOR SEPT. 2005 ESTIMATE
04	08 JUL 24	CJK		WO # 2024-015554 – ADD WATER WELL #5
ISSUES / REVISIONS				

DRAFT CO-ORDINATOR	LEAD DISCIPLINE ENGINEER	PROJECT ENGINEER	PROJECT MANAGER
TGC	MK	TLD	TLD
RGC	GAS	TLD	SGH
JGP	MK	BMF	SH
JGP	TVT	BMF	MWP
JGP	RKA	BMF	MWP
ENGINEERING APPROVAL			

DATE	CLIENT
CLIENT APPROVAL	

COFFMAN ENGINEERS
800 F Street | Anchorage, Alaska 99501
ph 907.276.6664 | fax 907.276.8042
coffman.com
LASTING community | results | relationships

eni petroleum

Eni Petroleum
OOOGURUK PRODUCTION AND DRILLING FACILITIES

TITLE
OFFSHORE SOURCE WATER FACILITY
PIPING & INSTRUMENT DIAGRAM (P&ID)

DWN. BY	DATE	EDAM NO.	REV.
ELT	22 JUN 2005	00513701DPFQ00011	04
SCALE	CADD FILE	CLIENT DWG. NO.	
NTS	00101-0CUB	04802-1-DG-BC-00001.01	

Alaska Department of Environmental Conservation
Division of Environmental Health

Drinking Water Program - Engineering Plan Review
Distribution - Piped Checklist

Project Name: ODS Water Source Well #6 **Date:** 8/27/2024

Engineer Name: Douglas Kitchen **AK P.E. License No.:** AELM12156

This checklist is required for the construction of new, the modification of existing, and/or the extension of existing water distribution mains and raw water transmission mains.

Note: When completing this checklist, please answer the question and also include where in the submittal detailed information is found for each submittal requirement. Please be as specific as possible (specify document name, page number, section number, paragraph, etc.). This will accelerate the review process.

Submittal Requirements	Regulatory Reference

1. **Drawings and Specifications:** Do drawings and specifications for construction of the distribution system and raw water transmission mains include piping materials, joints, thrust blocking, bedding, and the plan and profile for the water mains? *18 AAC 80.205(a)(2)*

Piping materials will match existing

2. **Flow:** Are the engineer's calculations used as basis of design for the water main sizing, peak demand flow rates, and velocities included in the submittal? *18 AAC 80.205(a)(4)* *18 AAC 80.205(b)(2)*

Flow line will be identical construction to existing. Two existing wells are to be abandoned with the new well as a replacement.

3. **Service Pressure:** Do the engineering calculations demonstrate that as designed, the proposed distribution main will be capable of maintaining at least 20 psi of service pressure at the highest elevation or pressure zone under peak demand flow conditions? *18 AAC 80.205(a)(5)*

Piping does not provide service pressure to users but feeds into tankage for treatment.. Pump Discharge is rated at 60PSIG. There is no change from the existing pressure profile.

4. **Thrust Blocking:** What thrust blocking design information is provided? *18 AAC 80.205(a)(4)*

None required

5. **Freeze Protection:** What freeze-protection design information is provided? *18 AAC 80.205(a)(4)*

Freeze Protection will be same as exiting. Line will be insulated with 3" of fiberglass insulation and heat traced.

Submittal Requirements	Regulatory Reference

6. HDPE Pipe: If the project proposes HDPE water mains, has the submitting engineer: *18 AAC 80.205(b)(9)*

a) Consulted with the manufacturer to ensure the appropriate resin was selected for the climate
b) Specified the manufacturer's weldability testing recommendations
c) Specified joint construction
d) Specified the welder qualifications, fusion QA/QC, and equipment certification, maintenance, and calibration for fused joints

HDPE pipe will be used for new sections and will be installed following existing Specifications used for previous lines.

7. Dead End Water mains: If the proposed distribution configuration creates dead end water mains, how has the engineer addressed operation and maintenance to avoid adverse water quality affects? *18 AAC 80.205(b)(9)*

No dead ends to be created.

8. Flushing: Which areas does the engineer identify which can be isolated during flushing for construction and on-going maintenance? *18 AAC 80.205(b)(9)*

No new flushing connections required.

9. Fire Hydrants: Are any proposed water lines to a single fire hydrant or do any proposed water service lines have a fire hydrant? If so, is the line designed for use as a regulated water main? *18 AAC 80.200*

No Fire Hydrants are proposed.

10. Temporary Distribution: If the project proposes to replace a water distribution main, how will water distribution be provided during construction? Does the project specify that if the contractor decides to install a temporary distribution system, it must be pre-approved by the DEC Drinking Water Program? The contractor must submit information to address backflow prevention, materials of construction, separation distances, disinfection, flushing, sampling, pressure and flow requirements, and personnel responsible for periodic inspection and upkeep. DEC may request additional information not listed here. *18 AAC 80.205(b)(9)*

Temporary piping matching existing specification may be constructed for the 2024 winter months but permanent piping will be installed summer of 2025. Temporary piping to match permanent piping but will be above grade.

Distribution – Piped Checklist (continued)

Submittal Requirements	Regulatory Reference

11. Water Main Disinfection: Which specifications address disinfection of the water mains and transmission mains before use? If AWWA Standard C651 is not specified, does the proposed method include adequate detail for the contractor to implement? How will cross-connection control be accomplished to prevent backflow into the PWS during flushing and disinfecting the new mains?

18 AAC 80.205(b)(9)
18 AAC 80.010(d)(2)

New piping to be disinfected in accordance with AWWA Standard C651.

12. Seasonal System Startup: If this is a seasonal system, are written startup procedures included for approval during this review?

18 AAC 80.205(b)(9)

This is not a seasonal system.

13. Seasonal System Shutdown: If this is a seasonal system, do the shutdown procedures specified for approval during this review include information on how the distribution is drained or prepared for the time it is not in operation? Please detail the use of antifreeze, draining to sumps, and potential cross-connection or contamination, etc.

18 AAC 80.205(b)(9)

This is not a seasonal system.

14. Contaminated Sites: Is documentation provided showing the Contaminated Sites Program's webmap has been consulted to determine the proximity of the project to contaminated sites? The Contaminated Sites Program's webmap can be accessed at http://www.arcgis.com/home/item.html?id=315240bfbaf84aa0b8272ad1cef3cad3. If the project is going to be near or go through an active contaminated site, is documentation provided that the DEC Contaminated Sites Program staff was contacted regarding proper site controls for dealing with contaminated soils and/or contaminated groundwater? Are design considerations included for protecting drinking water from contamination?

18 AAC 80.205(b)(9)

There are no known contaminated sites.

15. Horizontal Separation Distances: If the project proposes any existing or new water and sewer mains within 10 horizontal feet of each other, discuss how the design and construction will meet the regulatory requirements. If any of the regulatory requirements cannot be met for any length of water main within 10 feet of a sewer main, has a separation distance waiver been requested (Checklist No. 7.1)?

18 AAC 80.020(f)(3)

Note: Storm sewer mains, catch basins, manholes, and lift stations need to maintain the same separation distance from water mains as sanitary sewer mains, manholes, and lift stations.

Well #6 is equal distance from abandoned wells #1, #3 and #2, #4. If a separation distance waiver is required for this location, please advise.

Distribution – Piped Checklist (continued)

Submittal Requirements	Regulatory Reference

16. Water Sewer Main Crossings: If the project proposes any crossing of existing or new water and sewer mains, discuss how the design and construction will meet each of the regulatory requirements. If any of the regulatory requirements cannot be met for a crossing of water and sewer mains, has a separation distance waiver been requested (Checklist No. 7.1)? *18 AAC 80.020(f)(3)*

Note: Storm sewer mains, catch basins, manholes, and lift stations need to maintain the same separation distance from water mains as sanitary sewer mains, manholes, and lift stations.

The new section of line will not cross any other lines

17. Utilidors: If the project proposes any existing or new water and sewer mains in a utilidor together, discuss how the design meets the regulatory requirements. If any of the regulatory requirements cannot be met for a utilidor with water and sewer mains, has a separation distance waiver been requested (Checklist No. 7.1)? *18 AAC 80.020(f) &(g)*

The new section of line will not be in a new or existing utilidor. New section will tie into line that enters existing utilidor.

18. Separation to Septic System: If there will be any septic tanks, soil absorption systems, or any line connecting them directly above or below at any distance or within 10 horizontal feet of a water main, has a separation distance waiver been requested (Checklist No. 7.1)? DEC may request information for parts of the wastewater system farther than 10 feet from the water main to evaluate the risk of it affecting the part of the system being waived in the event of a wastewater system failure. *18 AAC 80.200*

There are no septic systems in vicinity

Alaska Department of Environmental Conservation
Division of Environmental Health

Drinking Water Program - Engineering Plan Review
Source - Other / Seawater Checklist

Project Name: ODS Water Source Well #6 **Date:** 08/27/2024

Engineer Name: Douglas Kitchen **AK P.E. License No.:** AELM12156

This checklist is required for the construction of new or modification of existing public water system seawater sources or change in use of a seawater source to a public water system source. If the project includes a water transmission main from the source, the Distribution - Piped Checklist (Checklist Number 5.0) should be completed for the transmission main.

Note: When completing this checklist, please answer the question and also include where in the submittal detailed information is found for each submittal requirement. Please be as specific as possible (specify document name, page number, section number, paragraph, etc.). This will accelerate the review process.

Submittal Requirements	Regulatory Reference

1. **Drawings and Specifications:** Do the drawings and specifications included in the submittal for construction of the water source include location, casing and piping materials, screen sizing, and anchoring? — *18 AAC 80.205(a)(2)*

Yes, See well section drawing U-C5.3 (same as existing wells except casing may be 6 inch instead of 8 inch

2. **Source Production:** Does the source production information include source intake, icing prevention, and if this is the sole water source or will it be used to augment another water source? — *18 AAC 80.205(b)(9)*

Source is a below grade well but ultimate source is from seawater. There will be two wells at site with one operating as a spare (100% redundancy)

3. **Routine Intake Maintenance:** Have provisions for routine intake maintenance been provided? Does the engineer indicate the system operations and maintenance manual provided with the project will include the recommended intake cleaning procedures and schedule? — *18 AAC 80.205(b)(9)*

There will be two wells at site with one operating as a spare (100% redundancy). One can be worked over if the other is impacted.

4. **Intake Depth:** How has the need for flexibility to use different intake levels been addressed? — *18 AAC 80.205(b)(9)*

Source is a below grade well but ultimate source is from seawater. Water level governed by Sea Level. Height of pump can be adjusted by length of tubing.

Submittal Requirements	Regulatory Reference

5. **Raw Water Analysis:** For a new source which has been constructed, are results of raw water analyses included? For a proposed source, is the proposed raw water quality sampling plan included? — *18 AAC 80.205 (c)(2) Table B*

   Please note: Raw water sample results for nitrate and nitrite must be analyzed separately for new public water system sources. In addition, the analyses of samples (Table B) must be completed by a State approved laboratory and the samples must be labeled with the public water system's PWSID. The engineer should contact the appropriate DEC Drinking Water Program office if the public water system does not have a PWSID.

Example from existing well is included. Once new well #6 is drilled, a new analysis will be completed.

6. **Pump and Pump Motor Information**: Do the specifications for the source pump include the pump and motor make, model, pump curve, and appropriateness for use with seawater as well as potable water? — *18 AAC 80.205(b)(9)*

Yes-pump to be Grundfos Model 96405811 or equivelent.

7. **Backflow Prevention:** For seawater systems also providing water for non-potable uses, is an evaluation of cross-connection prevention for the potable water system provided? — *18 AAC 80.025*

No change to existing system.

8. **Sources of Contamination:** Does the site plan show the location or proposed location of the source intake, its protective radius, and all potential sources of contamination within 500 feet of the source intake including wastewater systems and their point of discharge and petroleum tanks and lines? This may include potential contamination sources originating from land, onboard the public water system's platform or ship, or any other platform or ship stationed within the source's protective radius and stationary for any length of time. Has the submitting engineer identified situations needing a separation distance waiver? — *18 AAC 80.205(b)(3)*

Well #6 is equal distance from abandoned wells #1, #3 and #2, #4. If a separation distance waiver is required for this locaiton, please advise.

9. **Location:** Is a completed Alaska Public Water System Locational Data Collection Form (Longitude/Latitude Form) included for each new source or intake? The form is available on the Drinking Water Program's website at http://dec.alaska.gov/media/10880/pws-locational-data-collection-form.pdf. If the water source or intake has not yet been installed, the form will be required for the submittal to request approval to operate the source. — *18 AAC 80.205(b)(4)*

Form to be completed and submitted when well is completed.

Submittal Requirements	Regulatory Reference
10. Water Rights: Has the engineer or owner contacted Alaska Department of Natural Resources to determine if a water rights application is required? If required, does the submittal include a copy of a letter from Alaska Department of Natural Resources showing the water rights application submitted for each new source or intake is “complete” or “substantially complete?”	*AS 46.15 Inter-agency agreement*

No change to existing system, ADNR water has been notified of the new well to be added to LAS 25850 water right.

Alaska Department of Environmental Conservation
Division of Environmental Health

Drinking Water Program - Engineering Plan Review
General Checklist

Project Name: ODS Water Source Well #6 **Date:** 8/27/2024

Engineer Name: Douglas Kitchen **AK P.E. License No.:** AELM12156

Use of this guide is required for construction of new and modifications to existing public water systems. Plans must be sealed, signed, and dated by an Alaska registered P.E. and submitted in hardcopy on 11-inch by 17-inch or 8.5-inch by 11-inch paper, if legible. If additional electronic copies are allowed by the reviewing engineer, they should be in Adobe PDF format; large submittals may be sent to our file transfer website at https://drop.state.ak.us/drop/. Incomplete submittals will not be forwarded to engineering staff for review.

Note: When completing this checklist, please answer the question and also include where in the submittal detailed information is found for each submittal requirement. Please be as specific as possible (specify document name, page number, section number, paragraph, etc.). This will accelerate the review process.

Submittal Requirements	Regulatory Reference

1. Cover Letter and Project Report: Does the cover letter state what approval is requested from DEC? Is the engineer's report sealed, signed, and dated by an Alaska registered P.E.? Does the engineer's report include a narrative summarizing the project (where, what, why, when, and how) and a description of the basis for design?

18 AAC 80.200(b)
18 AAC 80.205(a)(4)

Included

2. Plan Review Fee and Contact Information: A plan review fee is required and shall be included with all plan review requests. A plan review submittal will not be reviewed until payment is received. A blank invoice may be obtained at http://dec.alaska.gov/media/10877/plan-review-invoice.pdf or by contacting DEC. If payment is received and the fee calculation is incorrect, the check will be returned or shredded per the payer's preference. If the applicant has requested the Department invoice for the fee, the submittal must include contact information for the person, agency, or company responsible for payment including the following:

18 AAC 80.1910

Name: *Douglas Kitchen*

Mailing address: *3700 Centerpoint Dr, St 500,AnchAK99503*

Telephone number: *907-670-6515*

Email address: *Douglas.Kitchen@eni.com*

3. Project Drawings: Are the construction drawings, specifications, and site plan included in the submittal? The construction drawings must be sealed, signed, and dated by an Alaska registered P.E. and in hardcopy format unless previous arrangements have been made.

18 AAC 80.205(a)(2)
12 AAC 36.185

Attached

Submittal Requirements	Regulatory Reference

4. Engineer Submitting Record Drawings: What is the name of and contact information for the Alaska registered P.E. that will be responsible for construction and will sign, date, and seal the *record drawings* for operational approval? Is the plan for construction inspections sufficient for the engineer to seal the record drawings? What is the contact information for the group or person that will be responsible for commissioning the system? *18 AAC 80.210(f)*

Please note: *DEC will not be able to accept disclaimers absolving the engineer sealing the record drawings of responsibility for the water system information in the record drawings. Record drawings must confirm that the project, as constructed, meets the requirements of 18 AAC 80, provides public health protection, and meets all written terms and conditions set by the Department for the construction and interim approval to operate (as applicable).*

See Above #2

5. Design Criteria and Calculations: Does the submittal include design criteria, calculations, flow analysis, and other computations (e.g. treatment sizing, disinfection, etc.) as appropriate? *18 AAC 80.205(a)(4)*

This is a replacement in kind. No Change to Existing

6. Operational Narrative: Does the operational narrative for the proposed project include both a description of all unit processes and the operational logic to be followed by the operator or the automated control and alarm systems? *18 AAC 80.205(b)(9)*

No Change to Existing

7. Monitoring Operation: How will the operator monitor the system? What data will the operator collect? How will the data be viewed by the operator (i.e. software)?

No Change to Existing

8. Operator Training and Certification: Is documentation included demonstrating the DEC Operator Training and Certification Program has been provided a project schematic and list of proposed additives in order to determine the anticipated system class? Is the system owner or operator working with the Program to ensure compliance with 18 AAC 74 after construction of the proposed design? *18 AAC 80.007*
18 AAC 74

No Change to Existing

9. Service Pressure: How do the engineer's calculations demonstrate that as designed, the proposed distribution will be capable of maintaining at least 20 psi of service pressure at the highest elevation or pressure zone under peak demand flow conditions? *18 AAC 80.205(a)(5)*

No Change to Existing

General Checklist (continued)

Submittal Requirements	Regulatory Reference

10. Manufacturers' Specifications: Does the submittal include the manufacturer's specifications for major components of the project and performance curves for the proposed pumps and pump motors?

18 AAC 80.205(a)(2)

No Change to Existing

11. Asbestos Pipe: Is any asbestos pipe specified for the project?

18 AAC 80.030(b)

If the system is a new community or new non-transient non-community public water system, is the name and contact information provided for the person that will submit an application for a one time asbestos sampling waiver once the system is in operation? Contact the DEC office for a copy of the application form.

18 AAC 80.315(b)(2)
18 AAC 80.010(a)(8)(C)
18 AAC 80.1035(b)

If an existing system finds asbestos-cement pipe anywhere in the distribution or treatment system, DEC must be notified within 48 hours.

No Asbestos pipe specified

12. Lead Free: Do the plans specify the design meets the new lead requirements including: (A) not containing more than 0.2 percent lead when used with respect to solder and flux; and (B) not having more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures?

Reduction of Lead in Drinking Water Act (amendment of the Safe Drinking Water Act, Section 1417)
18 AAC 80.205(b)(7)
18 AAC 80.500

No Change to Existing, pipe to be HDPE

13. Master Meter: If the PWS is or may be classified as community or non-transient non-community, how does the project comply with the need for a master meter?

18 AAC 80.235

N/A

14. Equipment Replacement: Has the engineer provided the PWS an estimate of how often the proposed equipment will need to be maintained and replaced and the costs associated with that?

18 AAC 80.205(a)(4)

No Change to Existing

15. Backflow and Cross-Connection: Has the engineer submitted the backflow and cross-connection evaluations? Do they identify high risk service connections such as fire supply systems and medical facilities and describe how backflow prevention will be addressed (e.g. a utility cross-connection program, UPC standards, etc.)? Which project specification requires backflow prevention assemblies to be tested after installation? Will annual testing of the assemblies be in the O&M schedule?

18 AAC 80.025

No Change to Existing

Submittal Requirements	Regulatory Reference

16. Materials in Contact NSF: Is documentation attached verifying all components proposed for direct contact with water are certified by an ANSI accredited organization (e.g. NSF International, UL, CSA, WQA, etc.) to ANSI/NSF Standard 61 or an ANSI/NSF standard with equivalent materials health effects evaluation? If there are any components which are not certified in this manner, what is the engineer's justification for their use? Has the engineer conducted an exhaustive search for certified alternative components that would be appropriate for the application? If none exists, how did the engineer show the proposed non-certified component(s) would be protective of public health? This may include a discussion of materials used in wetted surfaces/parts (i.e. Are they ANSI/NSF Standard 61 certified or made of stainless steel as listed in NSF 61 Annex C?), time in contact with the water, other certifications, etc.

18 AAC 80.010(b)
18 AAC 80.030(b)

No Change to Existing

17. Operational Control Points: Where are pressure gages, flow meters, rate of flow controllers, sample points, valves, etc. which assist the operator with operating and monitoring the system in compliance with the requirements of 18 AAC 80? Which drawings show where each is located?

18 AAC 80.205(a)(2)

No Change to Existing

18. Instrument Air Gaps: Has the engineering design assured air gaps for the instruments are within view of the instrument panel?

18 AAC 80.025

No Change to Existing

19. Raw Water Sample Tap: Which drawing sheet shows the required raw water sample tap?

18 AAC 80.655
18 AAC 80.205(c)(6)

No Change to Existing

20. Corrosivity: If the project proposes to make any change to the source or long-term water treatment, how did the engineer address the potential for each change to affect the corrosiveness of the distributed water and any mitigation that may be necessary? How does the treatment system design accommodate the future needs of adding corrosion control (i.e. space for equipment and chemical injection points)?

18 AAC 80.205(c)(5)

No Change to Existing

Submittal Requirements	Regulatory Reference

21. Additives NSF 60: Is documentation attached confirming chemical additives and products proposed for use in the public water system (e.g. disinfectants, coagulants, oxidizing agents, anti-scalants, membrane or UV cleaning chemicals, lubricants, drilling fluids, etc.) are certified by an ANSI accredited organization (e.g. NSF International, UL, CSA, WQA, etc.) to ANSI/NSF Standard 60 for use in potable water systems? If there are any which are not certified in this manner, what is the engineer's justification for their use?

18 AAC 80.010(b)(9)
18 AAC 80.30(a)

No Change to Existing

22. Polymers, Polymer Aids, and Ion Exchange Resins: Has the engineer verified the sum of acrylamide and epichlorohydrin in products proposed for use and products proposed for continued use in the public water system does not exceed the regulated percentages at the dose and monomer level? Are lists of ingredients from the manufacturers included? Will the operator be trained and have the means to measure, record, and annually certify to the Department, in writing, that the amount of acrylamide and epichlorohydrin is maintained within the regulated percentages?

18 AAC 80.045(a)
40 CFR 141.111

No Change to Existing

23. Chemical Mixing Water Source: What is the water source for mixing chemicals? Which drawing includes the water supply lines/taps used for chemical mixing solutions and the backflow prevention for the water supply?

18 AAC 80.205(b)(9)

No Change to Existing

24. Disinfectant Discharge: Has the project been authorized by DEC to discharge the highly chlorinated water used for disinfecting the project or determined that the water, independent of volume, will meet State water quality standards in 18 AAC 70 and the required effluent limits? Information can be obtained by visiting DEC Division of Water webpage at http://dec.alaska.gov/water/wastewater/stormwater/dewater-hydrostatic.

APDES
18 AAC 70

No Change to Existing

25. Wastewater Discharges from Drinking Water Treatment Facilities: Is disposal of backwash and reject waters from the treatment facility addressed? Information on permitting the discharge of non-domestic wastewater can be found at http://dec.alaska.gov/water/wastewater/engineering/engineered-systems.

18 AAC 72
18 AAC 60
APDES

No Change to Existing

26. Project Schedules: Does the cover letter or engineer's report include a description of the proposed construction and operation schedules including the sequence of construction and commission/transition to operation?

18 AAC 80.205(b)(9)

Included in Cover Letter. Well to be drilled in winter of 2024.

Submittal Requirements	Regulatory Reference

27. Disinfection before Operation: Which specifications address disinfection of parts of the system that are not discussed in other checklists submitted? If an AWWA standard is not specified, does the proposed method include adequate detail for the contractor to implement? If an AWWA standard is specified, will the contractor have a copy of the standard? How will cross-connection control be accomplished to prevent backflow into the PWS during flushing and disinfecting activities?

18 AAC 80.205(b)(9)
18 AAC 80.010(d)(2)

No Change to Existing. New piping to be disinfected in accordance with AWWA Standard C651.

28. Emergency Preparedness: If the submittal involves a new community PWS, is the name and contact information provided for the person that will submit the documentation to satisfy the regulatory emergency preparedness requirements once the system is in operation? Documentation may be required for final approval to operate the system.

18 AAC 80.055

No Change to Existing

29. New Public Water System: Has documentation been included showing the existence or formation of a local government organization, a homeowner's association, a private utility, a commercial entity, or other entity, to operate and maintain the system?

18 AAC 80.205(b)(10)

This is an existing system.

Alaska Department of Environmental Conservation
Division of Environmental Health

Drinking Water Program - Engineering Plan Review
Facility Information Form

I. Public Water System Owner

First Name: Stephanie **Last Name:** Rupert **Phone:** 907-865-3313
Company Name: Eni US Operating Company **Fax:** 907-865-3384
Mailing Address: 3700 Centerpoint Dr. Suite 500
City: Anchorage **State:** AK **Zip Code:** 99503
Email Address: stephanie.rupert@eni.com

II. Public Water System Primary Operator

First Name: Bruce **Last Name:** Timmons **Phone:** 907-670-6667
Certification: 24358 Water Treatment 2 **Fax:**
Mailing Address: 3700 Centerpoint Dr. Suite 500
City: Anchorage **State:** AK **Zip Code:** 99503
Email Address: Bruce.Timmons@external.eni.com

III. Public Water System Facility

Facility Name: Eni Petroleum Oooguruk Drill Site (ODS) **Phone:** 907-670-6667
AKA: Oooguruk (ODS) **Fax:**
Physical Address: ODS; Harrison Bay-Coville Delta, Beaufort Sea
Legal Description: Lot: _____ Block: _____ Subdivision: _____ Addition: _____
or
Location: Meridian: _____ Section: _____ Township: _____ Range: _____ Tax Lot: _____

IV. Owner's Statement

Project Name: ODS Water source Well #6

☐ **DEC State Revolving Fund (SRF) Loan Funded Project**

I have authorized submittal of the enclosed items for the above referenced project. I acknowledge the public water system's responsibility at all times for the quality of the water served by it. By my signature, I certify the information above is correct and my authority to sign this statement (18 AAC 15.030) as the owner of the public water system and applicant for approval of the above listed project is based on one of the following:

☒ **Corporation:** I am a principal executive officer of at least the level of vice president or his/her duly authorized representative, if the representative is responsible for the overall management of the project or operation.

☐ **Partnership:** I am a general partner.

☐ **Sole proprietorship:** I am the proprietor.

☐ **Municipal, State, Federal, or other public facility:** I am either a principal executive officer, ranking elected official, or other duly authorized employee.

Owner's Signature	Date	Printed Name	Title
Stephanie Rupert	8/30/24	Stephanie Rupert	SEQ Manager

Alaska Department of Environmental Conservation
Division of Environmental Health

Drinking Water Program - Engineering Plan Review
Project Information Form

This form must be attached to a completed and signed Facility Information Form. See the Checklist Instructions.

I. Project Engineer

First Name:	Craig	**Last Name:**	Keppers	**Phone:**	907-865-3348
Company Name:	Eni US Operating Company			**Fax:**	907-865-3384
Mailing Address:	3700 Centerpoint Dr. Suite 500				
City:	Anchorage	**State:**	AK	**Zip Code:**	99503
Email Address:	craig.keppers@eni.com			**AK P.E. License No.:**	10566

II. Public Water System Information

PWSID: 2330024 (for existing water systems)

System Classification: (18 AAC 80.1990)

- ☐ **Community Water System** (CWS)
- ☒ **Non-Transient Non-Community** (NTNC)
- ☐ **Transient Non-Community** (TNC)

Systems Using Hauled Water

PWSID(s) water is obtained from: _____

PWSID(s) of water hauler(s) used: _____

Does or will the facility treat the water it receives?

Number of Service Connections in PWS:	1	(including proposed)
Days per Year of Operation:	365	(number of days)
Dates of Operation:		(if seasonal)
Resident Population Served (daily average*):	120	(PWS serves primary place of abode via pipes, delivery, or self-haul)
Non-Transient Population Served (daily average*):		(> 6 months/year of PWS use such as students and workers)
Transient Population Served (daily average*):		(<6 months/year of PWS use such as customers)
Length of Extension or Replacement (ft):		(for projects proposing distribution or transmission main work)

* Daily average refers to an average population that includes only the days water is made available to the public.

III. Plan Review Checklist: Identify the checklists required for submittal.

Checklist No.	Checklist Title	New PWS	Modify Existing PWS	Distribution	Waiver
1.0	General	☐	☒	☐	
2.0	Capacity Development (CWS/NTNC)	☐			
3.0	Source - Groundwater	☐	☐		
3.1a	Source - GWUDISW Determination	☐	☐		
3.1b	Source - Surface Water / GWUDISW	☐	☐		
3.2a	Source - Other / Rain Catchment	☐	☐		
3.2b	Source - Other / Seawater	☐	☒		
4.0	Storage	☐	☐		
4.1	Storage – Tracer Study Application - ***DRAFT***	☐	☐		
5.0	Distribution - Piped	☐	☒	☐	
5.1	Water Haul Vehicle	☐	☐	☐	
6.0	Treatment - Surface Water /GWUDISW	☐	☐		
6.1	Treatment - Corrosion Control	☐	☐		
6.2	Treatment - POU and POE	☐	☐		
6.3	Treatment - Membrane Filtration	☐	☐		
6.4	Treatment - Ozone	☐	☐		
6.5	Treatment - Media Filtration	☐	☐		
6.6a	Treatment – UV Disinfection Validation Report	☐	☐		
6.6b	Treatment – UV Disinfection System	☐	☐		
6.7	Treatment - Other	☐	☐		
7.0	Waiver - Source	☐	☐		☐
7.1	Waiver - Piped Distribution	☐	☐	☐	☐
8.0	Additive - Fluoride	☐	☐		

Lab Analysis

Raw Water

Arctic Fox Environmental, Inc.
Pouch 340043 - Prudhoe Bay, AK 99734
Phone: (907) 659-2145 / Fax: (907) 659-2146 / arcticfox@astacalaska.com

Drinking Water Analysis Chain of Custody for Total Coliforms

✓ Public Water System ID# 330024

___ Private Water System

Caelus Energy AK
Client Name

Mailing Address

City, State, Zip Code

Phone: 670-6667 P.O

Fax:

Email: 03.SPO@caelusenergy.com

TO BE COMPLETED BY LABORATORY

Received: 8/18/14 @ 1010

Run Start: 8/18/14 @ 1900

Analytical Comments:

Satisfactory	S
Unsatisfactory	U
Resample	R
Other Bacteria	UB
Too Numerous to Count	TNTC

Results May Not Be Reliable If:

Heavy Sediment Masking	HSM
Sample Age +30hrs	SA

Sample Date: 8-18-14

Sample Type:

✓ Routine
___ Special Purpose
___ Check Sample
___ Treated Water
✓ Untreated Water

Analysis Method:

Residual Cl2: 0.04 mg/L

✓ Presence/Absence (Chromo/Fluorogenic)
___ Total/E. Coli by MPN (Quanti-Tray)

Sample Results

Total Coliforms: (NEG) POS

E. Coli: (NEG) POS

A.F. ID Number: AF51964

Sample Location:	Collection Time:	Collected By:	Bottle Number:
Raw Water Well #3	0510	S. Roelfs	9547

Relinquished:	Date/Time:	Received:
[signature]	8/18/14 1010	[signature]
[signature]		

Reported By: [signature]

Date/Time: 8/19/14 @ 1900

Additional Comments:

Arctic Fox Enironmental, Inc.
Pouch 340043 - Prudhoe Bay, AK 99734
Phone: (907) 659-2145 / Fax: (907) 659-2146 / arcticfox@astacalaska.com

Caelus Energy
700 G Street, Suite 600
Anchorage, Alaska 99501

Attn: S. Roelfs
Phone: (907) 670-6667
Fax:
Email: O3.env@caelusenergy.com
O3.SPO@caelusenergy.com
O3.aeslead@caelusenergy.com

Report Date: 8/20/2014
Date Arrived: 8/18/2014
Date Sampled: 8/18/2014
Time Sampled: 0510
Collected By: SR

Flag Definitions
MRL = Method Reporting Limit
B = Below Regulatory Minimum
H = Above Regulatory Maximum
M = Matrix Interference
J = Best Available Estimate
U = Less Than Detection Limit
D = Lost to Dilution

Arctic Fox Lab #: AF51964
Client Sample ID: Raw Water Well #3
Location/Project: ODS
COC#: NA
Sample Matrix: Potable Water
PWS# 330024

Comment: Sample run started 8/18/2014 @ 1900. Residual chlorine: 0.04 mg/L.

Parameter	Result	Units	Flag	MRL	Method	Date
SM9223B						
Total Coliform	Not Detected				SM9223B	8/18/2014
E. Coli	Not Detected					

Reported By: Ralph E. Allphin / Michael Hawley / John M Fot
Arctic Fox Environmental, Inc.

Arctic Fox Environmental, Inc.
Pouch 340043 - Prudhoe Bay, AK 99734
Phone: (907) 659-2145 / Fax: (907) 659-2146 / arcticfox@astacalaska.com

Drinking Water Analysis Chain of Custody for Total Coliforms

✓ Public Water System ID# 2330024

___ Private Water System

Caelus Energy AK
Client Name

Mailing Address

City, State, Zip Code

P.O

Phone: 670-6666?
Fax: 670-6610

Email: 03.SAO°caelusenergy.com

Sample Date: 8-11-14

Sample Type:

___ Routine
___ Special Purpose
___ Check Sample
___ Treated Water
X Untreated Water

Analysis Method: Residual Cl2: .15

✓ Presence/Absence (Chromo/Fluorogenic)
___ Total/E. Coli by MPN (Quanti-Tray)

Sample Location:	Collection Time:	Collected By:	Bottle Number:
Water Well #4	13:10	MF	9242

Relinquished:	Date/Time: 8-11-14 13:40	Received:
Relinquished:	Date/Time: 8/11/14 @2015	Received: R. Allphin
Relinquished:	Date/Time:	Received:

TO BE COMPLETED BY LABORATORY

Received: 8/11/14 @2015

Run Start: 8/11/14 @ 2120
17.6°C #8178

Analytical Comments:

Satisfactory	(S)
Unsatisfactory	U
Resample	R
Other Bacteria	UB
Too Numerous to Count	TNTC

Results May Not Be Reliable If:

Heavy Sediment Masking	HSM
Sample Age +30hrs	SA

Sample Results

Total Coliforms: (NEG) POS

E. Coli: (NEG) POS

A.F. ID Number: 51898

Reported By: Robert E Allphin

Date/Time: 8/12/14 @ 2130

Additional Comments:

Arctic Fox Enironmental, Inc.
Pouch 340043 - Prudhoe Bay, AK 99734
Phone: (907) 659-2145 / Fax: (907) 659-2146 / arcticfox@astacalaska.com

Caelus Energy
700 G Street, Suite 600
Anchorage, Alaska 99501

Attn: Tony Landon
Phone: (907) 670-6667
Fax:
Email: O3.env@caelusenergy.com
O3.SPO@caelusenergy.com
O3.aeslead@caelusenergy.com

Report Date: 8/12/2014
Date Arrived: 8/11/2014
Date Sampled: 8/11/2014
Time Sampled: 1310
Collected By: MF

Flag Definitions
MRL = Method Reporting Limit
B = Below Regulatory Minimum
H = Above Regulatory Maximum
M = Matrix Interference
J = Best Available Estimate
U = Less Than Detection Limit
D = Lost to Dilution

Arctic Fox Lab #: AF51898
Client Sample ID: Water Well #4
Location/Project: ODS
COC#: NA
Sample Matrix: Potable Water
PWS# 330024

Comment: Sample run started 8/11/2014 @ 2120. Residual chlorine: 0.15 mg/L.

Parameter	Result	Units	Flag	MRL	Method	Date
SM9223B						
Total Coliform	Not Detected				SM9223B	8/11/2014
E. Coli	Not Detected					

Ralph E. Allphin

Reported By: Ralph E. Allphin / Michael Hawley / John M Fot
Arctic Fox Environmental, Inc.

Laboratory Analysis Report

Reports to
VEI Consultants
1345 Rudakof Circle #201
Anchorage, AK 99508

Work Order:	1143999
	Oooguruk
Client:	VEI Consultants
Report Date:	September 08, 2014

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. If you have any questions regarding this report, or if we can be of any other assistance, please contact your SGS Project Manager at 907-562-2343. All work is provided under SGS general terms and conditions (<http://www.sgs.com/terms_and_conditions.htm>), unless other written agreements have been accepted by both parties.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO 17025 (RCRA methods: 1020A, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035B, 6020, 7470A, 7471B, 8015C, 8021B, 8082A, 8260B, 8270D, 8270D-SIM, 9040B, 9045C, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.
The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV	Continuing Calibration Verification
CL	Control Limit
D	The analyte concentration is the result of a dilution.
DF	Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
F	Indicates value that is greater than or equal to the DL
GT	Greater Than
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
JL	The analyte was positively identified, but the quantitation is a low estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
M	A matrix effect was present.
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
Q	QC parameter out of acceptance range.
R	Rejected
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content.
All DRO/RRO analyses are integrated per SOP.

SGS Ref.#	1143999001		
Client Name	VEI Consultants	**Printed Date/Time**	09/08/2014 12:29
Project Name/#	Oooguruk	**Collected Date/Time**	08/19/2014 6:00
Client Sample ID	Well 3	**Received Date/Time**	08/19/2014 8:30
Matrix	Drinking Water	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

5440C - MBAS (Surfactants) was analyzed by Analytica Group of Anchorage, AK.
200.8 - Metals - The LOQ for mercury and beryllium were raised due to matrix interference.
300.0 - Anions - The LOQ for fluoride was raised due to matrix interference.

Parameter	Results	LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Hardness (Ca Only)	1730	25.0	mg/L	SM21 2340B	D		08/20/14	08/21/14	ACF
Metals by ICP/MS									
Mercury	ND	8.00	ug/L	EP200.8	D		08/21/14	08/21/14	ACF
Waters Department									
Cyanide	ND	0.0050	mg/L	SM21 4500-CN C,E	C	(<0.2)	08/19/14	08/19/14	NLL
Salinity from Chloride	129		ppT	EPA 300.0	B		08/22/14	08/22/14	SLC
Total Nitrate/Nitrite-N	ND	0.100	mg/L	SM21 4500NO3-F	F	(<10)		08/27/14	NLL
Turbidity	600	0.200	NTU	SM21 2130B	A			08/19/14	WLF
Ammonia-N	85.5	2.00	mg/L	SM21 4500-NH3 G	F		08/19/14	08/19/14	NLL
Total Kjeldahl Nitrogen	69.2	10.0	mg/L	SM21 4500-N D	F		08/21/14	08/21/14	NLL
Inorganic Contaminants									
Fluoride	ND	10.0	mg/L	EPA 300.0	A	(<2)	08/21/14	08/21/14	SLC
Antimony	ND	1.00	ug/L	EP200.8	D	(<6)	08/20/14	08/21/14	ACF
Arsenic	9.12	5.00	ug/L	EP200.8	D	(<10)	08/20/14	08/21/14	ACF
Barium	135	3.00	ug/L	EP200.8	D	(<2000)	08/20/14	08/21/14	ACF
Beryllium	ND	40.0	ug/L	EP200.8	D	(<4)	08/20/14	08/23/14	ACF
Cadmium	ND	0.500	ug/L	EP200.8	D	(<5)	08/20/14	08/21/14	ACF
Chromium	13.1	2.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Nickel	49.3	2.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Selenium	ND	5.00	ug/L	EP200.8	D	(<50)	08/20/14	08/21/14	ACF
Thallium	ND	1.00	ug/L	EP200.8	D	(<2)	08/20/14	08/21/14	ACF

SGS Ref.#	1143999001		
Client Name	VEI Consultants	**Printed Date/Time**	09/08/2014 12:29
Project Name/#	Oooguruk	**Collected Date/Time**	08/19/2014 6:00
Client Sample ID	Well 3	**Received Date/Time**	08/19/2014 8:30
Matrix	Drinking Water	**Technical Director**	**Stephen C. Ede**

Parameter	Results		LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Secondary Contaminants										
Chloride	78000	*	200	mg/L	EPA 300.0	B	(<250)	08/22/14	08/22/14	SLC
Fluoride	ND		10.0	mg/L	EPA 300.0	A	(<2)	08/21/14	08/21/14	SLC
Odor (TON)	ND		1.00	T.O.N.	SM21 2150B	H	(<3)		08/19/14	WLF
pH	7.40		0.100	pH units	SM21 4500-H B	G	(6.5-8.5)		08/19/14	NLL
Sulfate	1850	*	10.0	mg/L	EPA 300.0	A	(<250)	08/21/14	08/21/14	SLC
Total Dissolved Solids	59200	*	10.0	mg/L	SM21 2540C	G	(<500)		08/20/14	WLF
Alkalinity	1820		100	mg/L	SM21 2320B	G			08/19/14	NLL
Aluminum	ND		20.0	ug/L	EP200.8	D	(<200)	08/20/14	08/21/14	ACF
Calcium	692000		2500	ug/L	EP200.8	D		08/20/14	08/21/14	ACF
CO3 Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Color, True	65.0	*	5.00	PCU	SM21 2120B	G	(<15)		08/19/14	WLF
Copper	16.9		1.00	ug/L	EP200.8	D	(<1000)	08/20/14	08/21/14	ACF
HCO3 Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Iron	44500	*	250	ug/L	EP200.8	D	(<300)	08/20/14	08/21/14	ACF
Magnesium	2350000		1250	ug/L	EP200.8	D		08/20/14	08/21/14	ACF
Manganese	487	*	1.00	ug/L	EP200.8	D	(<50)	08/20/14	08/21/14	ACF
OH Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Silver	ND		1.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Sodium	17200000	*	100000	ug/L	EP200.8	D	(<250000)	08/20/14	08/21/14	ACF
Zinc	22.9		5.00	ug/L	EP200.8	D	(<5000)	08/20/14	08/21/14	ACF

SGS Ref.#	1143999002		
Client Name	VEI Consultants	**Printed Date/Time**	09/08/2014 12:29
Project Name/#	Oooguruk	**Collected Date/Time**	08/19/2014 6:00
Client Sample ID	Well 4	**Received Date/Time**	08/19/2014 8:30
Matrix	Drinking Water	**Technical Director**	**Stephen C. Ede**

Sample Remarks:

5440C - MBAS (Surfactants) was analyzed by Analytica Group of Anchorage, AK.
200.8 - Metals - The LOQ for mercury and beryllium were raised due to matrix interference.
300.0 - Anions - The LOQ for fluoride was raised due to matrix interference.

Parameter	Results		LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Hardness (Ca Only)	1630		25.0	mg/L	SM21 2340B	D		08/20/14	08/21/14	ACF
Metals by ICP/MS										
Mercury	ND		8.00	ug/L	EP200.8	D		08/21/14	08/21/14	ACF
Waters Department										
Cyanide	ND		0.0050	mg/L	SM21 4500-CN C,E	C	(<0.2)	08/19/14	08/19/14	NLL
Salinity from Chloride	60.3			ppT	EPA 300.0	B		08/25/14	08/25/14	SLC
Total Nitrate/Nitrite-N	ND		0.100	mg/L	SM21 4500NO3-F	F	(<10)		08/27/14	NLL
Turbidity	450		0.200	NTU	SM21 2130B	A			08/19/14	WLF
Ammonia-N	87.5		2.00	mg/L	SM21 4500-NH3 G	F		08/19/14	08/19/14	NLL
Total Kjeldahl Nitrogen	61.7		10.0	mg/L	SM21 4500-N D	F		08/21/14	08/21/14	NLL
Inorganic Contaminants										
Fluoride	ND		10.0	mg/L	EPA 300.0	A	(<2)	08/21/14	08/21/14	SLC
Antimony	ND		1.00	ug/L	EP200.8	D	(<6)	08/20/14	08/21/14	ACF
Arsenic	10.2	*	5.00	ug/L	EP200.8	D	(<10)	08/20/14	08/21/14	ACF
Barium	204		3.00	ug/L	EP200.8	D	(<2000)	08/20/14	08/21/14	ACF
Beryllium	ND		40.0	ug/L	EP200.8	D	(<4)	08/20/14	08/23/14	ACF
Cadmium	ND		0.500	ug/L	EP200.8	D	(<5)	08/20/14	08/21/14	ACF
Chromium	14.1		2.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Nickel	49.8		2.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Selenium	ND		5.00	ug/L	EP200.8	D	(<50)	08/20/14	08/21/14	ACF
Thallium	ND		1.00	ug/L	EP200.8	D	(<2)	08/20/14	08/21/14	ACF

SGS Ref.#	1143999002		
Client Name	VEI Consultants	**Printed Date/Time**	09/08/2014 12:29
Project Name/#	Oooguruk	**Collected Date/Time**	08/19/2014 6:00
Client Sample ID	Well 4	**Received Date/Time**	08/19/2014 8:30
Matrix	Drinking Water	**Technical Director**	**Stephen C. Ede**

Parameter	Results		LOQ	Units	Method	Container ID	Allowable Limits	Prep Date	Analysis Date	Init
Secondary Contaminants										
Chloride	36600	*	200	mg/L	EPA 300.0	B	(<250)	08/25/14	08/25/14	SLC
Fluoride	ND		10.0	mg/L	EPA 300.0	A	(<2)	08/21/14	08/21/14	SLC
Odor (TON)	1.10		1.00	T.O.N.	SM21 2150B	H	(<3)		08/19/14	WLF
pH	7.30		0.100	pH units	SM21 4500-H B	G	(6.5-8.5)		08/19/14	NLL
Sulfate	1490	*	10.0	mg/L	EPA 300.0	A	(<250)	08/21/14	08/21/14	SLC
Total Dissolved Solids	58500	*	40.0	mg/L	SM21 2540C	G	(<500)		08/20/14	WLF
Alkalinity	1890		100	mg/L	SM21 2320B	G			08/19/14	NLL
Aluminum	62.7		20.0	ug/L	EP200.8	D	(<200)	08/20/14	08/21/14	ACF
Calcium	654000		2500	ug/L	EP200.8	D		08/20/14	08/21/14	ACF
CO3 Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Color, True	100	*	10.0	PCU	SM21 2120B	G	(<15)		08/19/14	WLF
Copper	17.4		1.00	ug/L	EP200.8	D	(<1000)	08/20/14	08/21/14	ACF
HCO3 Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Iron	43500	*	250	ug/L	EP200.8	D	(<300)	08/20/14	08/21/14	ACF
Magnesium	2300000		1250	ug/L	EP200.8	D		08/20/14	08/21/14	ACF
Manganese	470	*	1.00	ug/L	EP200.8	D	(<50)	08/20/14	08/21/14	ACF
OH Alkalinity	ND		100	mg/L	SM21 2320B	G			08/19/14	NLL
Silver	ND		1.00	ug/L	EP200.8	D	(<100)	08/20/14	08/21/14	ACF
Sodium	16300000	*	100000	ug/L	EP200.8	D	(<250000)	08/20/14	08/21/14	ACF
Zinc	22.5		5.00	ug/L	EP200.8	D	(<5000)	08/20/14	08/21/14	ACF

Analytica Group, LLC-Anchorage
4307 Arctic Boulevard
Anchorage, AK 99503
Phone: 907-258-2155
Fax: 907-258-6634

SGS Environmental Services
Attn: Julie Shumway
200 W Potter Drive
Anchorage, AK 99518
907 562-2343
Fax: 907-561-5301

Report Date: 9/2/2014
Receipt Date: 8/19/2014
Sample Date: 8/18/2014
Sample Time: 6:00:00AM
Collected By: Unknown

Client Sample ID: Well 3
Sampling Location:
Client Project: 1143999
Sample Matrix: Water
COC #: 1143999
PWS#:
Residual Chlorine:
Comments:

Flag Definitions:
MRL = Method Reporting Limit
MCL = Maximum Contaminant Limit
B = Present also in Method Blank
H = Exceeds Regulatory Limit
M = Matrix Interference
J = Estimated Value
D = Lost to Dilution
** = RL higher than MCL; target not detected
TNC = Too Numerous to Count - result rejected
CF = Confluent Growth - result rejected
TCNG = Turbid Culture No Growth - rejected

Lab#: A1408336-01A

Sample Comment: 1143999001

Analysis Method / Parameter	Result	Units	Flags	MRL	Dil Factor	Prep Date	Analysis Date	Analyst
5540C/5540C (Aqueous) - Surfactants as MBAS					*Test was conducted by: Analytica - Anchorage*			
MBAS Foaming Agents	0.25	mg/L	Q	0.10	1	8/19/2014	8/19/14 12:00	MC

Analytica Group, LLC-Anchorage
4307 Arctic Boulevard
Anchorage, AK 99503
Phone: 907-258-2155
Fax: 907-258-6634

SGS Environmental Services
Attn: Julie Shumway
200 W Potter Drive
Anchorage, AK 99518
907 562-2343
Fax: 907-561-5301

Report Date: 9/2/2014
Receipt Date: 8/19/2014
Sample Date: 8/18/2014
Sample Time: 6:00:00AM
Collected By: Unknown

Client Sample ID: Well 4
Sampling Location:
Client Project: 1143999
Sample Matrix: Water
COC #: 1143999
PWS#:
Residual Chlorine:
Comments:

Flag Definitions:
MRL = Method Reporting Limit
MCL = Maximum Contaminant Limit
B = Present also in Method Blank
H = Exceeds Regulatory Limit
M = Matrix Interference
J = Estimated Value
D = Lost to Dilution
** = RL higher than MCL; target not detected
TNC = Too Numerous to Count - result rejected
CF = Confluent Growth - result rejected
TCNG = Turbid Culture No Growth - rejected

Lab#: A1408336-02A

Sample Comment: 1143999002

Analysis Method / Parameter	Result	Units	Flags	MRL	Dil Factor	Prep Date	Analysis Date	Analyst
5540C/5540C (Aqueous) - Surfactants as MBAS					*Test was conducted by: Analytica - Anchorage*			
MBAS Foaming Agents	0.23	mg/L	Q	0.10	1	8/19/2014	8/19/14 12:00	MC