This is not an order.

INVITATION TO BID NUMBER (ITB)	*Return this bid to the issuing office below*
17023 **Kake & Kipnuk Fire Suppression**	Attention – Rich Wooten, Contracting Officer Alaska Energy Authority (AEA) or (Authority) 813 West Northern Lights Blvd. Anchorage, AK 99503-2495 rwooten@aidea.org, Ph. 907-771-3019 Fax 907-771-3044

This procurement is issued according to 3AAC 109 Procurement for Alaska Energy Authority (AEA) managed grants on behalf of the Native Village of Kake and Kipnuk.

Table of Contents

Invitation to Bid Schedule

Bid Issued	**January 5, 2017**
Pre-bid Conference	**None**
Bid Opening	Note the Bid opening date has been shortened due to AEA's installation schedule. ITB shall be publically opened at, **2:00 p.m. January 26, 2017,** in the Willow Conference Room.

Important

Interested firms shall register online to receive addenda and other information at http://www.aideaaeaprocurement.org/. Addenda and other notices will be posted and available at http://www.aidea.org/ "Quick Links" Procurement Opportunities.

AEA may provide periodic e-mail notices regarding addenda or clarifications regarding this bid to those companies who reply.

Important - Bid Submittals

- Appendix C – Bid Schedule
- Appendix F – Bid Bond
- Appendix D – Debarment Certification
- The successful Bidder will be required to provide proof of insurance, naming AEA and the Native Village of Kipnuk and Kake as additional insured, including a waiver of subrogation.

Instructions to Bidders

1. Invitation to Bid (ITB) Review

Bidders shall carefully review this ITB for defects and questionable or objectionable material. Bidders' comments concerning defects and questionable or objectionable material in the ITB must be made in writing and received by the purchasing authority at least five (5) days before the bid opening date. This will allow time for an addendum if one is required. It will also help prevent the opening of a defective bid that will be rejected, and risk exposure of Bidders' prices. All correspondence will be addressed to the purchasing authority listed on the front of this ITB.

2. Bid Forms/Submittals

Bidders shall use and return the forms supplied with this invitation in submitting their bid. A photocopied bid can submitted. **Bidders must return a signed copy of the Bid Schedule, and any/all required support documentation requested in this ITB.** The apparent low bidder may be required to provide additional documentation after bid opening and prior to award to assure compliance with all terms and conditions of the solicitation.

3. Minimum Qualifications –

- The Contractor shall be authorized by the manufacturers to furnish and install the specified system.
- Design shall be prepared by a registered mechanical engineer or technician with minimum NICET Level 3 certification. Designer shall have an appropriate State of Alaska design permit.
- Field installation shall be performed by technicians certified by the manufacturers to install the specified system.

4. Submitting Bids

Envelopes containing bids must be sealed, marked, and addressed as shown below. **DO NOT FAX OR EMAIL YOUR BID.** Envelopes with ITB numbers annotated on the outside will not be opened until the scheduled date and time. Hand carried bids should be delivered to the receptionist at the front desk or to the Procurement Manager for processing. Failure to correctly submit a bid may result in it being unopened or rejected and returned to the bidder.

Bidder's return Address

Alaska Energy Authority
813 West Northern Lights Blvd
Anchorage, Alaska 99503
ATTN: Rich Wooten, Contracting Officer
ITB 17023 Kake & Kipnuk Fire Suppression
Opening Date: 2:00 January 26, 2017

5. Modification and Withdrawal of Bids

A bidder may, without prejudice, modify or withdraw its bid by written request provided that such request is received by the Authority prior to the bid opening date and time.

6. Late Bids

Late bids are bids received after the time and date set for receipt of the bids; and late bids will not be accepted.

7. Offer Period

Bids must remain valid for a period of 90-days unless otherwise specified in the Bid Schedule.

8. Firm, Unqualified and Unconditional Offer

Bidders must provide enough information with their offer to constitute a definite, firm, unqualified and unconditional offer. To be responsive an offer must constitute a definite, firm, unqualified and unconditional offer to meet all of the material terms of the ITB. Material terms are those which could affect price, quantity, quality, or delivery. Also included as material terms are those which are clearly identified in the ITB and which, for reasons of policy, must be complied with at risk of bid rejection for non-responsiveness.

9. Prices

The bidder shall state prices in the units of issue on this ITB. Prices quoted for commodities must be in U.S. funds and include applicable federal duty, brokerage fees, packaging, and transportation cost to the F.O.B. point so that upon transfer of title the commodity can be utilized without further cost. Prices quoted for services will be quoted in U.S. funds and include applicable federal duty, brokerage fee, packaging, and transportation cost so that the services can be provided without further cost. Prices quoted in bids must be exclusive of federal, state, and local taxes. If the bidder believes that certain taxes are payable by the Authority, the bidder may list such taxes separately, directly below the bid price for the affected item.

The Authority is exempt from Federal Excise Tax except the following:

- Coal - Internal Revenue Code of 1986 (IRC), Section 4121 - on the purchase of coal;
- "Gas Guzzler" - IRC, Section 4064 - on the purchase of low m.p.g. automobiles, except that police and other emergency type vehicles are not subject to the tax,
- Air Cargo - IRC, Section 4271 - on the purchase of property transportation services by air;
- Air Passenger - IRC, Section 4261 - on the purchase of passenger transportation services by air carriers.

10. Extension of Prices

In case of error in the extension of prices in the bid, the unit prices will govern; in a lot bid, the lot prices will govern.

11. Federal Excise Tax

Federal Excise Tax should not be included in the bid price(s). The Alaska Energy Authority is exempt from Federal Excise Tax.

12. Suitable Materials, Etc.

Unless otherwise specified, all materials, supplies or equipment offered by a bidder must be new per the attached specifications.

13. Supporting Information

The Authority strongly desires that bidders submit all required technical, specification, and other supporting information with their bid, so that a detailed analysis and determination can be made, by the Procurement Manager, that the product offered meets the ITB specifications and that other requirements of the ITB have been met. However, provided a bid meets the requirements for a definite, firm, and unqualified or unconditional offer, the Authority reserves the right to request supplemental information from the bidder, after the bids have been opened, to ensure that the products offered completely meet the ITB requirements. The requirement for such supplemental information will be at the reasonable discretion of the Authority and may include the requirement that a bidder will provide a sample product(s) or certification of compatibility of accessories or component parts with the specifications so that the Authority can make a first-hand examination and determination.

A bidder's failure to provide this supplemental information or the product sample(s), within the time set by the Authority, will cause the Authority to consider the offer non-responsive and reject the bid.

14. Brand and Model Offered

Bidders must clearly indicate the brand names and model numbers they intend to provide where required on the bid schedule. The bidder's failure to identify the brand and model offered - if different than what may be required by the specifications - may cause the Authority to consider the offer non-responsive and reject the bid.

15. Annotated Literature

If product literature is requested bidders must annotate their product literature to identify for the Authority the location of the supporting information for each product specification set out in this ITB. A bidder's failure to comply with this clause, within the time set by the Authority, will cause the Authority to consider the offer non-responsive and reject the bid.

16. Subcontractor(S)

Within five (5) working days of notice, the apparent low bidder must submit a list of the subcontractors that will be used in the performance of the contract. The list must include the name of each subcontractor and the location of the place of business for each subcontractor.

17. Tax-Exempt Financing

No public offering or private placement of securities relating to the contracts issued as a result of this ITB may be made. If a bid contemplates the securitization of the Authority's payments, the Authority will reject the offer as non-responsive.

18. Notice of Intent to Award

After the responses to this ITB have been opened, a tabulation of the bids will be prepared. This tabulation, called a Notice of Intent, serves two purposes. It lists the name of each company or person that offered a bid and the price bid. It also serves as notice of the Authority's intent to award a contract(s) to the bidder(s) indicated. A copy of the Notice of Intent will be sent to each company or person who responded to the ITB. Bidders, identified as the apparent low responsive bidders, are instructed not to proceed until a Purchase Order, Contract Award, Lease, or other form of notice is given by the Procurement Manager. A company or person who proceeds prior to receiving a Purchase Order, Contract Award, Lease, or other form of notice from the Procurement Manager does so without a contract and at his or her own risk.

19. Filing a Protest

A bidder may protest the award of a contract or the proposed award of a contract for supplies, services, or professional services. The protest must be filed in writing and include the following information: (1) the name, address, and telephone number of the protester; (2) the signature of the protester or the protester's representative; (3) identification of the contracting agency and the solicitation or contract at issue; (4) a detailed statement of the legal and factual grounds of the protest, including copies of relevant documents; and (5) the form of relief requested. Protests will be treated in accordance with AEA Regulations 3 AAC 109.570. A Protest based on alleged improprieties or ambiguities in a solicitation must be filed at least 10 days before the bid date of the bid or proposal, unless a later bid protest due date is specifically allowed in the solicitation. A Protest based upon alleged improprieties in an award of a contract or a proposed award of a contract must be filed within 10 days after a notice.

20. Order Documents

Except as specifically allowed under this ITB, an ordering agency will not sign any vendor contract. The Authority is not bound by a vendor contract signed by a person who is not specifically authorized to sign for the Authority under this ITB. The Authority's Contract Award is the only order document that may be used to place orders against the contract(s) resulting from this ITB.

21. Consolidation of Awards

Due to high administrative costs associated with processing of purchase orders, a single low bid of $50 or less may, at the discretion of the Authority be awarded to the next low bidder receiving other awards

for consolidation purposes. This paragraph is not subject to the protest terms enumerated in *"INSTRUCTIONS TO BIDDERS",* "FILING A PROTEST" above.

22. Bid Preparation Costs
The Authority is not liable for any costs incurred by the bidder in bid preparation.

23. Bid Security
A bid guaranty is required with each bid in the amount of 5% of the amount bid (Appendix E). (Alternate bid items as well as supplemental bid items appearing on the bid schedule shall be included as part of the total amount bid when determining the amount of bid guaranty required for the project.)

24. Payment and Performance Bond
The Contractor proposes to furnish Payment Bond in the amount of 100% (of the contract) and Performance Bond in the amount of 100% (of the contract), as surety conditioned for the full, complete and faithful performance of this contract (Appendix G & H).

25. Contact
The administration of this contract is the responsibility of Rich Wooten, Contracting Officer, at the Authority.

26. Required for Award. In order to be awarded the contract, the successful bidder must completely fill out and submit the following documents within the time specified in the intent to award letter:
1. Payment Bond
2. Performance Bond
3. Certificate of Insurance (from carrier)

Appendix A - Terms and Conditions

1. Compliance

In the performance of a contract, the Vendor must comply with all applicable federal, state, and borough regulations, codes, and laws; and be liable for all required insurance, licenses, permits and bonds; and pay all applicable federal, state, and borough taxes.

2. Suitable Materials, Etc.

Unless otherwise specified, all materials, supplies or equipment offered by a bidder shall be new, unused, and of the latest edition, version, model or crop and of recent manufacture.

3. No Assignment or Delegation

The Vendor may not assign or delegate this contract, or any part of it, or have any right to any money to be paid under it, except with the written consent of the Contracting Officer. Conditioned assignments will be rejected.

4. Force Majeure

(Impossibility to perform) The Vendor is not liable for the consequences of any failure to perform, or default in performing, any of its obligations under this Agreement, if that failure or default is caused by any unforeseeable Force Majeure, beyond the control of, and without the fault or negligence of, the Vendor. For the purposes of this Agreement, Force Majeure will mean war (whether declared or not); revolution; invasion; insurrection; riot; civil commotion; sabotage; military or usurped power; lightning; explosion; fire; storm; drought; flood; earthquake; epidemic; quarantine; strikes; acts or restraints of governmental authorities affecting the project or directly or indirectly prohibiting or restricting the furnishing or use of materials or labor required; inability to secure materials, machinery, equipment or labor because of priority, allocation or other regulations of any governmental authorities.

5. Contract Extension

The Authority and the successful Vendor agree: (1) that any holding over of the contract excluding any exercised renewal options will be considered as a month-to-month extension, and all other terms and conditions shall remain in full force and effect; and (2) to provide written notice to the other party of the intent to cancel such month-to-month extension at least thirty (30) days before the desired date of cancellation.

6. Default

In case of default by the Vendor, for any reason whatsoever, the Authority may procure the goods or services from another source and hold the Vendor responsible for any resulting excess cost and may seek other remedies under law or equity.

7. Disputes

Any dispute arising out of this agreement shall be resolved under the laws of Alaska. Any appeal of an administrative order or any original action to enforce any provision of this agreement or to obtain any relief from or remedy in connection with this agreement may be brought only in the superior court for the State of Alaska.

8. Severability

If any provision of the contract is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and provisions will not be affected; and, the rights and obligations of the parties will be construed and enforced as if the contract did not contain the particular provision held to be invalid.

9. Continuing Obligation of Vendor

Notwithstanding the expiration date of a contract resulting from this ITB, the Vendor is obligated to fulfill its responsibilities until warranty, guarantee, maintenance and parts availability requirements have completely expired.

10. Human Trafficking

By signature on their bid, the bidder certifies that the bidder is not established and headquartered or incorporated and headquartered in a country recognized as Tier 3 in the most recent United States Department of State's Trafficking in Persons Report. The most recent United States Department of State's Trafficking in Persons Report are located at the following website: http://www.state.gov/g/tip/; and failure to comply with this requirement will cause the state to reject the bid as non-responsive, or cancel the contract.

11. Payment for State Purchases

Payment for agreements under $500,000 for the undisputed purchase of goods or services provided to a state agency will be made within 30 days of the receipt of a proper billing or the delivery of the goods or services to the location(s) specified in the agreement, whichever is later. A late payment is subject to 1.5% interest per month on the unpaid balance. Interest will not be paid if there is a dispute or if there is an agreement that establishes a lower interest rate or precludes the charging of interest.

12. Shipping Damage

The Authority will not accept or pay for damaged goods. The Vendor must file all claims against the carrier(s) for damages incurred to items in transit from the point of origin to the F.O.B. point. The Authority will provide the Vendor with written notice when damaged goods are received. The Authority will deduct the cost of the damaged goods from the invoice prior to payment. The Vendor must file all claims against the carrier(s) for reimbursement of the loss.

13. Indemnification

The Vendor shall indemnify, hold harmless, and defend the contracting agency from and against any claim of, or liability for error, omission or negligent act of the Vendor under this agreement. The Vendor shall not be required to indemnify the contracting agency for a claim of, or liability for, the independent negligence of the contracting agency. If there is a claim of, or liability for, the joint negligent error or omission of the Vendor and the independent negligence of the Contracting agency, the indemnification and hold harmless obligation shall be apportioned on a comparative fault basis. "Vendor" and "Contracting agency", as used within this and the following article, include the employees, agents and other Vendors who are directly responsible, respectively, to each. The term "independent negligence" is negligence other than in the Contracting agency's selection, administration, monitoring, or controlling of the Vendor and in approving or accepting the Vendor's work.

14. Insurance

Without limiting Vendor's indemnification, it is agreed that Vendor shall purchase at its own expense and maintain in force at all times during the performance of services under this agreement the following policies of insurance. Where specific limits are shown, it is understood that they shall be the minimum acceptable limits. If the Vendor's policy contains higher limits, the Authority shall be entitled to coverage to the extent of such higher limits. Certificates of Insurance must be furnished to the contracting officer prior to beginning work and must provide for a notice of cancellation, non-renewal, or material change of conditions in accordance with policy provisions. Failure to furnish satisfactory evidence of insurance or lapse of the policy is a material breach of this contract and shall be grounds for termination of the Vendor's services. All insurance policies shall comply with, and be issued by insurers licensed to transact the business of insurance under AS 21.

Proof of insurance is required for the following:
Workers' Compensation Insurance: The Vendor shall provide and maintain, for all employees engaged in work under this contract, coverage as required by AS 23.30.045, and; where applicable, any other statutory obligations including but not limited to Federal U.S.L. & H. and Jones Act requirements. The policy must waive subrogation against the Authority.

Commercial General Liability Insurance: covering all business premises and operations used by the Vendor in the performance of services under this agreement with minimum coverage limits of $300,000 combined single limit per occurrence.

Commercial Automobile Liability Insurance: covering all vehicles used by the Vendor in the performance of services under this agreement with minimum coverage limits of $300,000 combined single limit per occurrence.

Failure to supply satisfactory proof of insurance within the time required will cause the Authority to declare the bidder non-responsible and to reject the bid.

15. Insurance Certificate
Shall name the Authority and the grantee as certificate holders and reference the contract number.

16. Delivery Confirmation
Bidders must obtain confirmation from manufacturers that the items offered are scheduled for production in sufficient time to meet the scheduled delivery dates.

17. Billing Instructions
Invoices will be addressed Alaska Energy Authority (AEA) 813 West Northern Lights Boulevard, Anchorage, AK 99503-2495; or emailed to aeapayables@aidea.org. Vendor will reference the contract number on all invoices and correspondence. It is customary for AEA to make payment within 30-days of receipt of the merchandise or service, and the Vendor's invoice. Direct all billing questions to the Contracting Officer.

18. Alterations
The Contracting Office must approve in writing any Vendor alterations to the specifications prior to the changes. The Authority will not pay for alterations that are not pre-approved in advance and in writing by the Contracting Officer.

19. Liquidated Damages
Liquidated damages shall not apply to this procurement.

20. Packaging
The cost of all packaging must be included in the price bid. All packaging must be new and suitable for shipment and short-term warehouse storage.

21. Workmanship & Materials
All work shall be performed in a thorough and competent manner and in accordance with current industry practices. The Vendor is responsible for the quality of the finished item. The Authority will reject any item that does not meet the specifications and return them to the Vendor. Vendors shall accept all rejected items at the Vendor's risk and expense.

22. Contract Cancellation
The Authority reserves the right to cancel any contract awarded as a result of this solicitation if; 1) the Vendor fails to properly perform the duties set out herein, 2) due to budget/funding issues, or 3) at its convenience upon 60 calendar days written notice to the Vendor. In the event of

cancellation at its convenience, the Authority will pay for any disassembly and shipping charges necessary to remove the machine and return it to the nearest in State dealer.

23. Brand and Model Offered

Unless otherwise specified, when brand names and model numbers identify the type and quality of the goods desired, bidders must clearly indicate the brand names and model numbers they intend to provide. The bidder's failure to identify the brand and model offered will cause the Authority to consider the offer non-responsive and reject the bid.

24. Order Documents

Except as specifically allowed under this ITB, an ordering agency will not sign any vendor contract. The Authority is not bound by a vendor contract signed by a person who is not specifically authorized to sign for the Authority under this ITB. The Authority Contract Award is the only order document that may be used to place orders against the contract(s) resulting from this ITB.

25. Compliance with ADA

Services or activities furnished to the general-public on behalf of the Authority must be fully accessible. This is intended to ensure that agencies are in accordance with 28 CFR Part 35 Section 35.130 and that services, programs or activities furnished to the public through a contract do not subject qualified individuals with a disability to discrimination based on the disability.

The Authority complies with Title II of the Americans with Disabilities Act of 1990. Individuals with disabilities who may need auxiliary aids, services, and/or special modifications to participate in this procurement should contact Enterprise Technology Services at one of the following numbers to make any necessary arrangements.

Telephone: 907-465-5758
Fax: 907-465-3450
TDD:907465-5745

APPENDIX B. Scope and Drawings/Specifications

Project Description

This Invitation to Bid is for providing high pressure water mist fire suppression systems for two diesel power plants as described below. Note that this solicitation is for two separate systems for two different projects – Kake and Kipnuk. The attached Drawings (FS1) and Specifications (FS2) for each project include similar materials but each system is unique. Provide separate pricing for each project.

Work Included

- Provide design, submittals, permitting, and operation and maintenance manuals in accordance with attached drawings FS1 and FS2.
- Furnish materials and equipment in accordance with attached drawings FS1 and FS2. Package all materials for each project in two separate consolidations: one for all electrical components (panel, detectors, annunciators, etc.) one for all mechanical components (agent rack, tubing, nozzles, hangers, etc.).
- Clearly label all bundles and packages "**KAKE**" or "**KIPNUK**" corresponding to the project the equipment is associated with.
- Deliver materials F.O.B. AEA Warehouse, 2601 Commercial Drive, Anchorage, Alaska 99501, (907)771-3092.
- Install system components, test completed system and certify, and provide operator training in accordance with attached drawings FS1 and FS2. Note that all installation, testing, and training will be performed in Anchorage, Alaska.

Exclusions

Conduit and wire will be furnished and installed by the Owner as indicated in the attached drawings FS1 and FS2 and are not included in this scope of work.

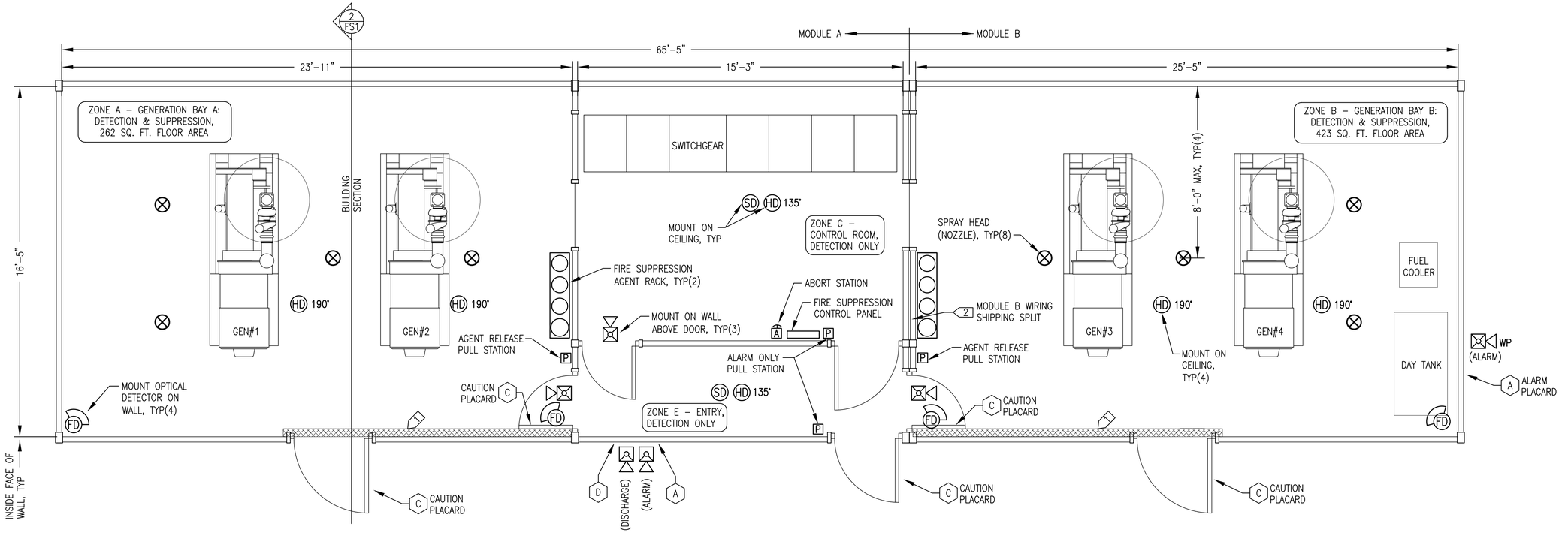
Project Schedule

The following project schedule is in calendar weeks from the date of contract award. If you anticipate factory delays that may affect the ability to meet the firm delivery dates for materials you must notify the AEA prior to submitting your quote.

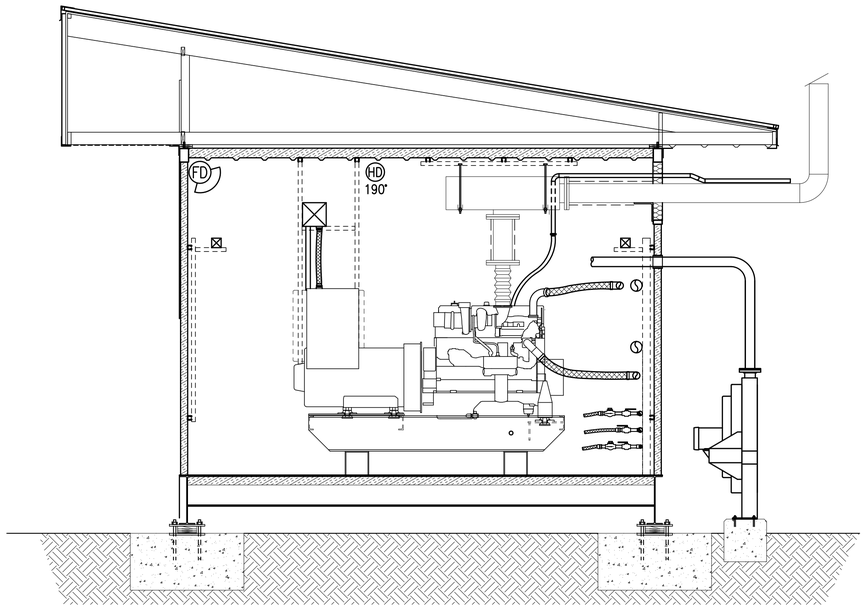
5 weeks - Delivery of electrical materials to AEA.

8 weeks - Delivery of mechanical materials to AEA.

10 weeks – Installation AND testing on site at AEA Anchorage.



1 FS1 FIRE SUPPRESSION SYSTEM PLAN
3/8"=1'-0"



2 FS1 TYPICAL SECTION THROUGH MODULE
3/8"=1'-0"

FIRE SUPPRESSION SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
P	MANUAL PULL STATION	HD 135°	NORMAL TEMP. (135°F) DETECTOR
A	ABORT STATION	HD 190°	HIGH TEMP. (190°F) DETECTOR
	INTERIOR ALARM HORN/STROBE	FD	FLAME (OPTICAL) DETECTOR
WP	EXTERIOR ALARM HORN/STROBE	SD	SMOKE (IONIZATION) DETECTOR

FIRE SUPPRESSION PLACARD SCHEDULE

SYMBOL	DESCRIPTION
A	"FIRE ALARM"
C	"CAUTION, ROOM PROTECTED BY WATER MIST FIRE PROTECTION SYSTEM, IN CASE OF FIRE KEEP DOOR CLOSED AND DO NOT ENTER"
D	"FLASHING LIGHT MEANS FIRE SUPPRESSION AGENT HAS DISCHARGED"

FIRE SUPPRESSION WIRE SCHEDULE

SYMBOL	CIRCUIT DESCRIPTION	WIRE TYPE	WIRE COLOR
A	24V DC POWER	#14 AWG SOLID	RED & BLACK
B	DETECTION CIRCUITS	#14 AWG SOLID	BLUE & YELLOW
C	ANNUNCIATION ALARM	#14 AWG SOLID	BROWN & ORANGE
D	ANNUNCIATION DISCHARGE	#14 AWG SOLID	WHITE, & GRAY
E	24V DC AUX POWER	#14 AWG SOLID	RED & BLACK WITH GRAY STRIPE

GENERAL NOTES:

1) INTERIOR FINISH OF ALL WALLS, FLOOR, AND CEILING WELDED STEEL PLATE. CEILING HEIGHT IN ALL ROOMS 11'–2" ABOVE FINISHED FLOOR.

2) ALL DOORS SELF–CLOSING WITH GASKETS. ALL BUILDING PIPING AND CONDUIT PENETRATIONS SEALED LIQUID TIGHT. ALL BUILDING DUCT PENETRATIONS EQUIPPED WITH MOTORIZED DAMPERS THAT CLOSE ON GENERATOR SHUT DOWN.

SPECIFIC NOTES:

1 THE HATCHED AREA INDICATES THE PORTION OF THE ZONE WHERE THE SPRAY HEAD TO WALL DISTANCE EXCEEDS 8'–0". THIS AREA DOES NOT CONTAIN ANY COMBUSTIBLE MATERIAL OR SOURCES OF IGNITION. THE HEAD LAYOUT IS DESIGNED TO PROVIDE THE REQUIRED SUPPRESSION FOR THIS ZONE. NOTE THAT THE ROOM VOLUME IS WITHIN THE MAXIMUM VOLUME LIMITATION OF THE SYSTEM.

2 PROVIDE CONDUIT SHIPPING SPLIT IN ACCORDANCE WITH DETAIL 1/E3.5 AND ROUTE ALL MODULE B WIRING THROUGH THIS POINT. UPON COMPLETION OF TESTING DISCONNECT ALL MODULE B WIRING FROM THE PANEL, LABEL, PULL INTO MODULE B, COIL, AND SECURE FOR SHIPPING. IN FIELD RECONNECT ALL CONDUCTORS TO PANEL.

ISSUED FOR CONSTRUCTION DECEMBER 2016

REVISIONS		
MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

STATE OF ALASKA – REGISTERED PROFESSIONAL ENGINEER – BRIAN C. GRAY – WE 8210 – 49TH STATE TERRITORY – NEWMONT MINING

HDL ENGINEERING Consultants
(907) 564-2120
www.hdlalaska.com
P.O. 111405
ANC, AK 99511
(907)349-0100

Gray Stassel Engineering, Inc.

ALASKA ENERGY AUTHORITY

KAKE RPSU PROJECT

KAKE, ALASKA

SHEET TITLE
FIRE SUPPRESSION SYSTEM PLAN, SECTION & LEGEND

SHEET
FS1

DRAWN BY:	CHECKED BY:
WJP	BCG
DATE:	SCALE:
12/21/16	AS SHOWN

JOB NUMBER:

PART 1 – GENERAL

1.01 SCOPE

A. The work involves design, installation, testing, and certification of an automatic fire suppression system for a power generation module. The module is built in two sections (shipping splits) to facilitate shipping and installation at the final destination. Module A consists of a generation bay with two diesel engine generators, a control room, and an entry. Module B consists of a generation bay with two diesel engine generators and a fuel oil day tank.

B. All generation equipment and supporting mechanical and electrical systems will be installed prior to installation of the fire suppression system. All fire suppression system installation, testing, certification, and training will occur in Anchorage.

C. The module will be completely fabricated and assembled in Anchorage with the two sections bolted together into a single structure. Upon final acceptance by the AEA in Anchorage, the module will be separated and the Module B wiring will be disconnected as noted. The module will then be shipped to Kake for installation, final assembly, and commissioning.

1.02 WORK INCLUDED

A. Submittals including CAD drawings.

B. Obtain a State of Alaska, Fire Marshal Plan Review Permit.

C. Furnish equipment and deliver to designated location. Materials not specifically detailed in this specification but required for system completion shall be provided by Contractor at no additional cost to AEA.

D. Field installation of agent racks, agent discharge piping, termination of wiring to devices, programming fire control panel, and acceptance testing and certification of completed system.

E. Minimum four hours operation training with the owner and/or designees.

F. Operation and Maintenance Manuals including as–built drawings.

G. The Contractor shall make a technician available via telephone as required for consultation during the field installation of the system and for troubleshooting and programming revisions after system certification.

H. Excluded from scope are wire, conduit, conduit hangers, fasteners, piping, and field installation of equipment and devices (except for agent racks, agent discharge piping, and final electrical connections as indicated).

1.03 QUALITY ASSURANCE

A. Design shall be prepared by a registered mechanical engineer or technician with minimum NICET Level 3 certification. Designer shall have an appropriate State of Alaska design permit.

B. All equipment shall be new and shall be listed for the intended application. The entire system shall be designed and fabricated in accordance with recognized and acceptable engineering and industry practices.

1.04 REFERENCED STANDARDS:

A. National Fire Protection Association (NFPA) 750 Standard on Water Mist Fire Protection Systems.

B. National Fire Protection Association (NFPA) 72 National Fire Alarm Code.

C. Underwriters Laboratories (UL) UL 864 Control Units for Fire Protective Signaling Systems

D. National Electrical Manufacturer's Association (NEMA).

1.05 SUBMITTALS

A. Within 2 weeks of award of contract provide a complete engineering submittal in Adobe PDF format for review and approval by AEA. Submittal to include:
1. Manufacturer, model numbers and quantity of each device.
2. Manufacturer and model of control panel, including installed options.
3. Agent piping layout including size and quantity of nozzles.
4. Calculations.
5. Pre–construction shop drawings. The shop drawings shall indicate compliance with all requirements of the specifications and shall contain at a minimum floor plans, wiring diagrams, panel configuration, device installation details, piping isometrics, material lists, specifications, installation notes, and system sequence of operation.

B. Based upon review comments by Owner/Engineer issue final revised submittal including final construction drawings.

C. Submit a copy of State of Alaska, Fire Marshal Plan Review Permit to AEA.

D. Upon completion of testing and training, provide Operation and Maintenance Manuals. Manuals to include system description, manufacturer's catalog information, programming, instructions, operations and maintenance literature, Material Safety Data Sheets (MSDS) for extinguishing agent, and as–built drawings of completed system. Deliverables to include one bound copy plus 4 CD's with PDF format electronic files of the entire manual.

1.06 SUBSTITUTIONS

A. All substitutions shall be noted on equipment submittals.

1.07 WARRANTY

A. Provide a one–year manufacturer's warranty covering all materials and workmanship of all products supplied. Warranty shall commence from the date of system certification.

PART 2 – MATERIALS

2.01 Fire Suppression Agent

A. The Basis of Design is a high pressure water mist fire suppression system. The system shall be designed and engineered to utilize high pressure nitrogen as the driving medium and shall not utilize electric pumps. Marioff Hi–Fog no substitutes.

2.02 Agent Rack

A. Wall or floor mounted racks shall be provided that contain the agent cylinders, nitrogen cylinder, and piping. Marioff Hi–Fog MAU 150 FS, no substitutes.

2.03 Fire Control Panel

A. The Fire Control Panel shall be a Fike Cheetah XI–50 10–071–R1 or approved equal, and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with, supervise and control the following types of equipment used to make up the system: intelligent self–calibrating smoke and flame detectors, addressable modules, annunciators, and other system controlled devices.

B. Basic equipment to be included with Fire Control Panel shall be main board with display and keypad, door, hardware, and backbox for panel surface mount installation.

C. System Capacity and General Operation
1. The control panel shall be capable of 50 intelligent/addressable devices.
2. The system shall include two Class B (NFPA Style Y) programmable Notification Appliance Circuits. It shall also include three additional programmable Form–C alarm and trouble relays rated at a minimum of 2.0 amps @ 30 VDC.
3. The system shall support up to 99 programmable EIA–485 driven relays for an overall system capacity of 301 circuits.
4. The Fire Control Panel shall include a full featured operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display, individual, color coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire system.
5. All programming or editing of the existing program in the system shall be achieved without special equipment, and without interrupting the alarm monitoring functions of the Fire Control Panel.
6. The Fire Control Panel shall provide the following features:
7. Automatic detect test and drift compensation to extend detector accuracy over life (smoke and flame detectors monitored and automatically calibrated)
8. Sensitivity Test, meeting requirements of NFPA 72, Chapter 5.
9. Maintenance Alert to warn of excessive smoke detector dirt or dust accumulation.
10. System Status Reports to display.
11. Positive Alarm Sequence pre–signal, meeting NFPA 72 3–8.3 requirements.
12. Periodic Detector Test, conducted automatically by software.
13. Pre–alarm for advanced fire warning.
14. Cross Zoning with the capability of: counting two detectors in alarm, two software zones in alarm, or one smoke detector and one thermal detector.
15. Walk Test, with check for two detectors set to same address.
16. Adjustable delay and discharge timers.
17. The detector software shall meet NFPA 72, Chapter 7 requirements and be certified by UL as a calibrated sensitivity test instrument.
18. The detector software shall allow manual or automatic sensitivity adjustment.
19. Event history file in nonvolatile memory.
20. Panel to have abort option to manually prevent release of extinguishing agent.
21. Battery back–up in the event of normal AC power failure.
22. Unit to be able to release extinguishing agent in at least two independent hazard zones.

2.04 SECONDARY POWER SOURCE BATTERIES

A. Secondary power shall be provided by 12 volt, gelled electrolyte batteries. The batteries shall be completely maintenance free. Fluid level checks and refilling shall not be required.

B. Batteries shall have sufficient capacity to power the fire system for not less than twenty–four hours plus 30 minutes of alarm upon a normal AC power failure. Note that this is in excess of minimum NFPA requirements.

2.05 HEAT DETECTOR

A. UL Listed, adjustable temperature heat detector. Fike 60–1039 or approved equal. Set to activate at 135°F for normal temperature and 190°F for high temperature.

2.06 FLAME (OPTICAL) DETECTOR

A. UL Listed, flame detectors shall be multi–spectrum, electro–optical, automatic calibrating, digital fire detectors. Fire Sentry Corporation Model SS4–A or approved equal.

2.07 SMOKE (PHOTOELECTRIC) DETECTOR

A. UL Listed, automatic calibrating type, photoelectric smoke detector. Detector to be addressable and provide analog signal to the control panel which may be used for maintenance of detector. Fike 63–1052 or approved equal.

2.08 ANNUNCIATORS

A. Interior Annunciator (Alarm and Discharge) – UL Listed, Horn/strobe combination, minimum 75 candela. Fike 20–123–75WR or approved equal.

B. Exterior Annunciator (Alarm) – Weatherproof, UL Listed horn/strobe combination, minimum 75 candela. Fike 20–123–75WR or approved equal.

C. Exterior Strobe (Discharge) – Weatherproof, UL Listed strobe, minimum 75 candela. Fike 20–124–75WR or approved equal.

2.09 MANUAL PULL STATION

A. Manual "Agent Release" pull station shall be UL Listed, addressable, double action, and provide visible indication that station has been operated. Honeywell FCI MS–2H or approved equal.

B. Manual "Alarm" pull station shall be UL Listed, addressable, double action, and provide visible indication that station has been operated. Honeywell FCI MS–2 or approved equal.

2.10 ABORT STATION

A. UL Listed, mushroom button abort station. Station coloring to be highly visible. Label or provide placard. Fike 10–1639 or approved equal.

2.11 DEVICE MONITORING MODULES

A. UL Listed modules designed for use with intelligent and addressable equipment as required. Fike Series 55 or approved equal.

2.12 RACEWAYS AND CONDUCTORS

A. AEA will furnish and install separate dedicated raceways for all fire suppression system wiring at no cost to Contractor. All raceways shall be surface mounted electrical metallic tubing (EMT). All conduit, boxes, and box cover plates shall be painted red.

B. AEA will furnish and install conductors for all fire suppression system wiring at no cost to Contractor. The 120V AC power shall be copper, #12 AWG, stranded, type THHN insulation, 600V and 75C rated, color per station service scheme. All other conductors shall be copper, #14 AWG, solid, type THHN insulation, 600V and 75C rated, color as indicated by service in accordance with the Fire Suppression Wire Schedule. Note that the shop drawings shall indicate wiring runs according to the letter designations (A B C D E) in the schedule.

2.13 PIPING

A. Contractor shall furnish, install, and pressure test agent discharge tubing/piping in accordance with manufacturer's recommendations.

2.14 SUPPORT

A. Contractor shall furnish and install industry standard hangers for agent discharge piping.

B. AEA will furnish and install all hangers and supports for panel and raceways at no cost to Contractor.

2.15 PLACARDS

A. Provide placards in compliance with NFPA as required. Provide additional warning placards as indicated on the plan in accordance with the placard schedule.

PART 3 – EXECUTION

3.01 DESIGN

A. Design fire suppression system with four zones of coverage as shown on the plan.

1. Generation Bay A shall contain agent rack, discharge piping and nozzles. Two flame detectors shall be cross–zoned so that any one detector will set off alarm and shut–down generators. Any second detector will begin a 30 second countdown to agent release. Two high temperature heat detectors shall be cross–zoned in the same sequence as the flame detectors. Exit shall have a manual "Agent Release" pull station which will begin a 30 second countdown to agent release when activated.
2. Generation Bay B shall contain the same equipment and shall operate with the same sequence as Generation Bay A
3. The Control Room shall contain the control panel, one smoke detector and one normal temperature heat detector. Either detector will set off alarm and will shut–down generators. An abort station shall be located near the control panel. In the event of a false alarm, pressing and holding the abort button will stop the 30 second countdown to release, and silence audible alarms. Once released, audible alarms will resume and 30 second countdown will restart. The abort will not function in the event of a manual release.
4. The Entry shall contain one smoke detector and one normal temperature heat detector. Either detector will set off alarm and will shut–down generators. Exit shall have an "Alarm" manual pull station which will set off alarm and shut down generators when activated but will not cause system discharge.

B. Provide quantity and distribution of nozzles as indicated to flood protected zones with exception as specifically noted.

C. Provide one interior annunciator in each generation bay and one interior annunciator in control room. Provide two exterior annunciators on the outside of the building to indicate alarm. Provide one additional exterior annunciator (strobe only) on the outside of the building to indicate agent discharge.

3.02 EXECUTION

A. The system shall be designed and installed in accordance with the latest adopted editions of all applicable codes and standards and manufacturer's requirements. Perform all work with skilled craftsmen specializing in said work with all required certifications. Install all materials in a neat, orderly, and secure fashion, as required by these specifications and commonly recognized standards of good workmanship.

B. Contractor shall deliver materials to the Alaska Energy Authority Warehouse, 2601 Commercial Drive, Anchorage AK, 99501. All required materials shall be consolidated and delivered in a single shipment complete with an itemized packing list.

C. Initial field installation of panel, junction boxes, conduit, and wiring will be by AEA upon receipt of required materials from Contractor.

D. Contractor shall install agent racks and piping; install devices; terminate wiring; program panel; test and certify system; and provide training within three weeks of notification by AEA.

E. Upon completion of testing and certification, all water shall be drained and/or blown out of the system to prevent freeze damage. The system shall be left with one fully charged nitrogen cylinder installed in each rack plus one fully charged spare nitrogen cylinder for each rack.

ISSUED FOR CONSTRUCTION DECEMBER 2016

REVISIONS		
MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

HDL ENGINEERING Consultants
(907) 564-2120
www.hdlalaska.com
P.O. 111405
ANC, AK 99511
(907)349-0100
Gray Stassel Engineering, Inc.

STATE OF ALASKA 49TH REGISTERED PROFESSIONAL ENGINEER BRIAN C. GRAY ME 8210

ALASKA ENERGY AUTHORITY

KAKE RPSU PROJECT

ALASKA ENERGY AUTHORITY

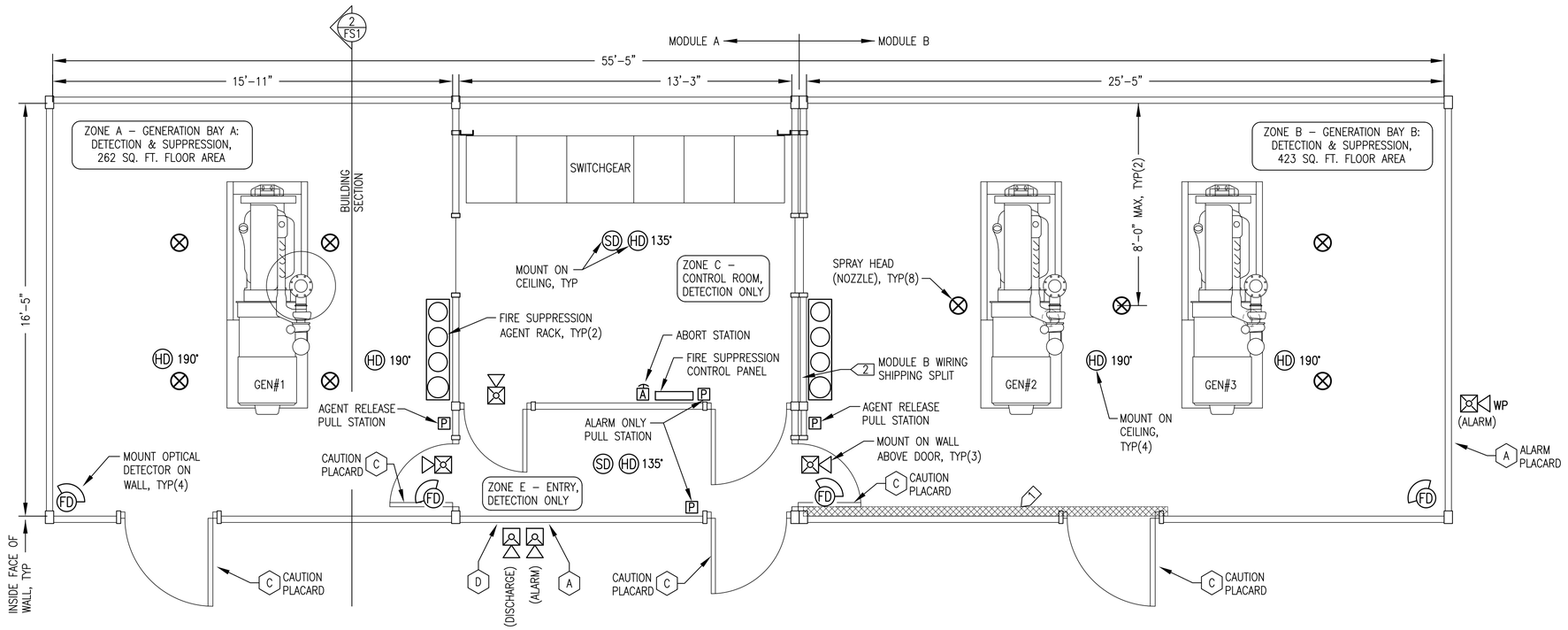
KAKE, ALASKA

SHEET TITLE
FIRE SUPPRESSION SYSTEM SPECIFICATIONS

SHEET
FS2

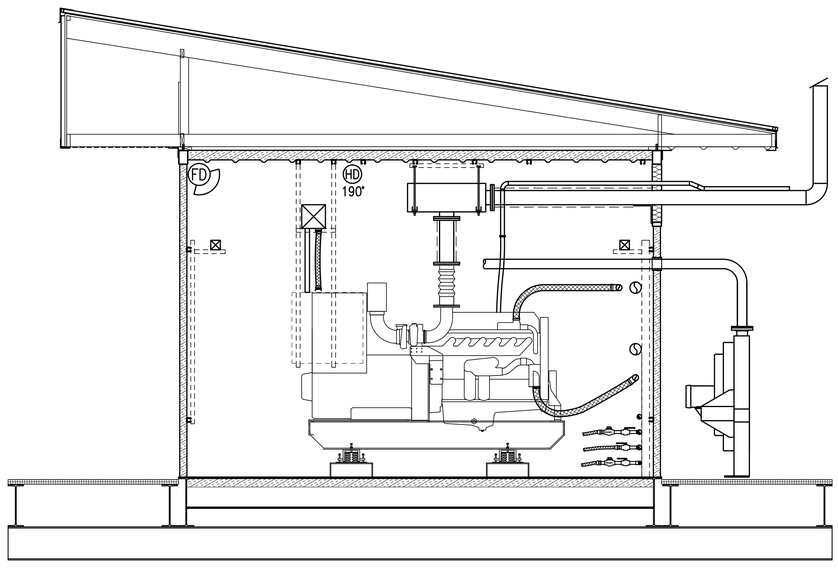
DRAWN BY:	CHECKED BY:
WJP	BCC
DATE:	SCALE:
12/21/16	AS SHOWN

JOB NUMBER:



1 FS1 FIRE SUPPRESSION SYSTEM PLAN

3/8"=1'-0"



2 FS1 TYPICAL SECTION THROUGH MODULE

3/8"=1'-0"

FIRE SUPPRESSION SYMBOL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
P	MANUAL PULL STATION	HD 135°	NORMAL TEMP. (135°F) DETECTOR
A	ABORT STATION	HD 190°	HIGH TEMP. (190°F) DETECTOR
	INTERIOR ALARM HORN/STROBE	FD	FLAME (OPTICAL) DETECTOR
WP	EXTERIOR ALARM HORN/STROBE	SD	SMOKE (IONIZATION) DETECTOR

FIRE SUPPRESSION PLACARD SCHEDULE

SYMBOL	DESCRIPTION
A	"FIRE ALARM"
C	"CAUTION, ROOM PROTECTED BY WATER MIST FIRE PROTECTION SYSTEM, IN CASE OF FIRE KEEP DOOR CLOSED AND DO NOT ENTER"
D	"FLASHING LIGHT MEANS FIRE SUPPRESSION AGENT HAS DISCHARGED"

FIRE SUPPRESSION WIRE SCHEDULE

SYMBOL	CIRCUIT DESCRIPTION	WIRE TYPE	WIRE COLOR
A	24V DC POWER	#14 AWG SOLID	RED & BLACK
B	DETECTION CIRCUITS	#14 AWG SOLID	BLUE & YELLOW
C	ANNUNCIATION ALARM	#14 AWG SOLID	BROWN & ORANGE
D	ANNUNCIATION DISCHARGE	#14 AWG SOLID	WHITE, & GRAY
E	24V DC AUX POWER	#14 AWG SOLID	RED & BLACK WITH GRAY STRIPE

GENERAL NOTES:

1) INTERIOR FINISH OF ALL WALLS, FLOOR, AND CEILING WELDED STEEL PLATE. CEILING HEIGHT IN ALL ROOMS 11'-2" ABOVE FINISHED FLOOR.

2) ALL DOORS SELF-CLOSING WITH GASKETS. ALL BUILDING PIPING AND CONDUIT PENETRATIONS SEALED LIQUID TIGHT. ALL BUILDING DUCT PENETRATIONS EQUIPPED WITH MOTORIZED DAMPERS THAT CLOSE ON GENERATOR SHUT DOWN.

SPECIFIC NOTES:

1) THE HATCHED AREA INDICATES THE PORTION OF THE ZONE WHERE THE SPRAY HEAD TO WALL DISTANCE EXCEEDS 8'-0". THIS AREA DOES NOT CONTAIN ANY COMBUSTIBLE MATERIAL OR SOURCES OF IGNITION. THE HEAD LAYOUT IS DESIGNED TO PROVIDE THE REQUIRED SUPPRESSION FOR THIS ZONE. NOTE THAT THE ROOM VOLUME IS WITHIN THE MAXIMUM VOLUME LIMITATION OF THE SYSTEM.

UMIAQ
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STATE OF ALASKA, AIDEA/AEA
RURAL POWER SYSTEM UPGRADE

KIPNUK POWER PLANT
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49TH
BRIAN C. GRAY
ME 8210
REGISTERED PROFESSIONAL ENGINEER

DATE: 12/20/16
DRAWN BY: WJP
CHECKED BY: BCG
JOB NUMBER:

DRAWING TITLE:
FIRE SUPPRESSION SYSTEM PLAN, SECTION & LEGEND

FS1

SHEET 22 OF 23

PART 1 – GENERAL

1.01 SCOPE

A. The work involves design, installation, testing, and certification of an automatic fire suppression system for a power generation module. The module is built in two sections (shipping splits) to facilitate shipping and installation at the final destination. Module A consists of a generation bay with a single diesel engine generator, a control room, and an entry. Module B consists of a generation bay with two diesel engine generators and a fuel oil day tank.

B. All generation equipment and supporting mechanical and electrical systems will be installed prior to installation of the fire suppression system. All fire suppression system installation, testing, certification, and training will occur in Anchorage.

C. The module will be completely fabricated and assembled in Anchorage with the two sections bolted together into a single structure. Upon final acceptance by the AEA in Anchorage, the module will be separated and the Module B wiring will be disconnected as noted. The module will then be shipped to Kipnuk for installation, final assembly, and commissioning.

1.02 WORK INCLUDED

A. Submittals including CAD drawings.

B. Obtain a State of Alaska, Fire Marshal Plan Review Permit.

C. Furnish equipment and deliver to designated location. Materials not specifically detailed in this specification but required for system completion shall be provided by Contractor at no additional cost to AEA.

D. Field installation of agent racks, agent discharge piping, termination of wiring to devices, programming fire control panel, and acceptance testing and certification of completed system.

E. Minimum four hours operation training with the owner and/or designees.

F. Operation and Maintenance Manuals including as–built drawings.

G. The Contractor shall make a technician available via telephone as required for consultation during the field installation of the system and for troubleshooting and programming revisions after system certification.

H. Excluded from scope are wire, conduit, conduit hangers, fasteners, piping, and field installation of equipment and devices (except for agent racks, agent discharge piping, and final electrical connections as indicated).

1.03 QUALITY ASSURANCE

A. Design shall be prepared by a registered mechanical engineer or technician with minimum NICET Level 3 certification. Designer shall have an appropriate State of Alaska design permit.

B. All equipment shall be new and shall be listed for the intended application. The entire system shall be designed and fabricated in accordance with recognized and acceptable engineering and industry practices.

1.04 REFERENCED STANDARDS:

A. National Fire Protection Association (NFPA) 750 Standard on Water Mist Fire Protection Systems.

B. National Fire Protection Association (NFPA) 72 National Fire Alarm Code.

C. Underwriters Laboratories (UL) UL 864 Control Units for Fire Protective Signaling Systems

D. National Electrical Manufacturer's Association (NEMA).

1.05 SUBMITTALS

A. Within 2 weeks of award of contract provide a complete engineering submittal in Adobe PDF format for review and approval by AEA. Submittal to include:
1. Manufacturer, model numbers and quantity of each device.
2. Manufacturer and model of control panel, including installed options.
3. Agent piping layout including size and quantity of nozzles.
4. Calculations.
5. Pre–construction shop drawings. The shop drawings shall indicate compliance with all requirements of the specifications and shall contain at a minimum floor plans, wiring diagrams, panel configuration, device installation details, piping isometrics, material lists, specifications, installation notes, and system sequence of operation.

B. Based upon review comments by Owner/Engineer issue final revised submittal including final construction drawings.

C. Submit a copy of State of Alaska, Fire Marshal Plan Review Permit to AEA.

D. Upon completion of testing and training, provide Operation and Maintenance Manuals. Manuals to include system description, manufacturer's catalog information, programming, instructions, operations and maintenance literature, Material Safety Data Sheets (MSDS) for extinguishing agent, and as–built drawings of completed system. Deliverables to include one bound copy plus 4 CD's with PDF format electronic files of the entire manual.

1.06 SUBSTITUTIONS

A. All substitutions shall be noted on equipment submittals.

1.07 WARRANTY

A. Provide a one–year manufacturer's warranty covering all materials and workmanship of all products supplied. Warranty shall commence from the date of system certification.

PART 2 – MATERIALS

2.01 Fire Suppression Agent

A. The Basis of Design is a high pressure water mist fire suppression system. The system shall be designed and engineered to utilize high pressure nitrogen as the driving medium and shall not utilize electric pumps. Marioff Hi–Fog no substitutes.

2.02 Agent Rack

A. Wall or floor mounted racks shall be provided that contain the agent cylinders, nitrogen cylinder, and piping. Marioff Hi–Fog MAU 150 FS, no substitutes.

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A. The Fire Control Panel shall be a Fike Cheetah XI–50 10–071–R1 or approved equal, and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with, supervise and control the following types of equipment used to make up the system: intelligent self–calibrating smoke and flame detectors, addressable modules, annunciators, and other system controlled devices.

B. Basic equipment to be included with Fire Control Panel shall be main board with display and keypad, door, hardware, and backbox for panel surface mount installation.

C. System Capacity and General Operation
1. The control panel shall be capable of 50 intelligent/addressable devices.
2. The system shall include two Class B (NFPA Style Y) programmable Notification Appliance Circuits. It shall also include three additional programmable Form–C alarm and trouble relays rated at a minimum of 2.0 amps @ 30 VDC.
3. The system shall support up to 99 programmable EIA–485 driven relays for an overall system capacity of 301 circuits.
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13. Pre–alarm for advanced fire warning.
14. Cross Zoning with the capability of: counting two detectors in alarm, two software zones in alarm, or one smoke detector and one thermal detector.
15. Walk Test, with check for two detectors set to same address.
16. Adjustable delay and discharge timers.
17. The detector software shall meet NFPA 72, Chapter 7 requirements and be certified by UL as a calibrated sensitivity test instrument.
18. The detector software shall allow manual or automatic sensitivity adjustment.
19. Event history file in nonvolatile memory.
20. Panel to have abort option to manually prevent release of extinguishing agent.
21. Battery back–up in the event of normal AC power failure.
22. Unit to be able to release extinguishing agent in at least two independent hazard zones.

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A. Secondary power shall be provided by 12 volt, gelled electrolyte batteries. The batteries shall be completely maintenance free. Fluid level checks and refilling shall not be required.

B. Batteries shall have sufficient capacity to power the fire system for not less than twenty–four hours plus 30 minutes of alarm upon a normal AC power failure. Note that this is in excess of minimum NFPA requirements.

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A. UL Listed, adjustable temperature heat detector. Fike 60–1039 or approved equal. Set to activate at 135°F for normal temperature and 190°F for high temperature.

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A. UL Listed, flame detectors shall be multi–spectrum, electro–optical, automatic calibrating, digital fire detectors. Fire Sentry Corporation Model SS4–A or approved equal.

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A. UL Listed, automatic calibrating type, photoelectric smoke detector. Detector to be addressable and provide analog signal to the control panel which may be used for maintenance of detector. Fike 63–1052 or approved equal.

2.08 ANNUNCIATORS

A. Interior Annunciator (Alarm and Discharge) – UL Listed, Horn/strobe combination, minimum 75 candela. Fike 20–123–75WR or approved equal.

B. Exterior Annunciator (Alarm) – Weatherproof, UL Listed horn/strobe combination, minimum 75 candela. Fike 20–123–75WR or approved equal.

C. Exterior Strobe (Discharge) – Weatherproof, UL Listed strobe, minimum 75 candela. Fike 20–124–75WR or approved equal.

2.09 MANUAL PULL STATION

A. Manual "Agent Release" pull station shall be UL Listed, addressable, double action, and provide visible indication that station has been operated. Honeywell FCI MS–2H or approved equal.

B. Manual "Alarm" pull station shall be UL Listed, addressable, double action, and provide visible indication that station has been operated. Honeywell FCI MS–2 or approved equal.

2.10 ABORT STATION

A. UL Listed, mushroom button abort station. Station coloring to be highly visible. Label or provide placard. Fike 10–1639 or approved equal.

2.11 DEVICE MONITORING MODULES

A. UL Listed modules designed for use with intelligent and addressable equipment as required. Fike Series 55 or approved equal.

2.12 RACEWAYS AND CONDUCTORS

A. AEA will furnish and install separate dedicated raceways for all fire suppression system wiring at no cost to Contractor. All raceways shall be surface mounted electrical metallic tubing (EMT). All conduit, boxes, and box cover plates shall be painted red.

B. AEA will furnish and install conductors for all fire suppression system wiring at no cost to Contractor. The 120V AC power shall be copper, #12 AWG, stranded, type THHN insulation, 600V and 75C rated, color per station service scheme. All other conductors shall be copper, #14 AWG, solid, type THHN insulation, 600V and 75C rated, color as indicated by service in accordance with the Fire Suppression Wire Schedule. Note that the shop drawings shall indicate wiring runs according to the letter designations (A B C D E) in the schedule.

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A. Contractor shall furnish, install, and pressure test agent discharge tubing/piping in accordance with manufacturer's recommendations.

2.14 SUPPORT

A. Contractor shall furnish and install industry standard hangers for agent discharge piping.

B. AEA will furnish and install all hangers and supports for panel and raceways at no cost to Contractor.

2.15 PLACARDS

A. Provide placards in compliance with NFPA as required. Provide additional warning placards as indicated on the plan in accordance with the placard schedule.

PART 3 – EXECUTION

3.01 DESIGN

A. Design fire suppression system with four zones of coverage as shown on the plan.

1. Generation Bay A shall contain agent rack, discharge piping and nozzles. Two flame detectors shall be cross–zoned so that any one detector will set off alarm and shut–down generators. Any second detector will begin a 30 second countdown to agent release. Two high temperature heat detectors shall be cross–zoned in the same sequence as the flame detectors. Exit shall have a manual "Agent Release" pull station which will begin a 30 second countdown to agent release when activated.
2. Generation Bay B shall contain the same equipment and shall operate with the same sequence as Generation Bay A
3. The Control Room shall contain the control panel, one smoke detector and one normal temperature heat detector. Either detector will set off alarm and will shut–down generators. An abort station shall be located near the control panel. In the event of a false alarm, pressing and holding the abort button will stop the 30 second countdown to release, and silence audible alarms. Once released, audible alarms will resume and 30 second countdown will restart. The abort will not function in the event of a manual release.
4. The Entry shall contain one smoke detector and one normal temperature heat detector. Either detector will set off alarm and will shut–down generators. Exit shall have an "Alarm" manual pull station which will set off alarm and shut down generators when activated but will not cause system discharge.

B. B. Provide quantity and distribution of nozzles as indicated to flood protected zones with exception as specifically noted.

C. Provide one interior annunciator in each generation bay and one interior annunciator in control room. Provide two exterior annunciators on the outside of the building to indicate alarm. Provide one additional exterior annunciator (strobe only) on the outside of the building to indicate agent discharge.

3.02 EXECUTION

A. The system shall be designed and installed in accordance with the latest adopted editions of all applicable codes and standards and manufacturer's requirements. Perform all work with skilled craftsmen specializing in said work with all required certifications. Install all materials in a neat, orderly, and secure fashion, as required by these specifications and commonly recognized standards of good workmanship.

B. Contractor shall deliver materials to the Alaska Energy Authority Warehouse, 2601 Commercial Drive, Anchorage AK, 99501. All required materials shall be consolidated and delivered in a single shipment complete with an itemized packing list.

C. Initial field installation of panel, junction boxes, conduit, and wiring will be by AEA upon receipt of required materials from Contractor.

D. Contractor shall install agent racks and piping; install devices; terminate wiring; program panel; test and certify system; and provide training within three weeks of notification by AEA.

E. Upon completion of testing and certification, all water shall be drained and/or blown out of the system to prevent freeze damage. The system shall be left with one fully charged nitrogen cylinder installed in each rack plus one fully charged spare nitrogen cylinder for each rack.

UMIAQ
6700 Arctic Spur Road
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Anchorage, AK 99511
(907)349-0100

STATE OF ALASKA, AIDEA/AEA
RURAL POWER SYSTEM UPGRADE

KIPNUK POWER PLANT
KIPNUK, ALASKA

CONSTRUCTION DOCUMENTS

REVISIONS REV	DATE	DESCRIPTION

VERIFY SCALES
0 ——— 1"
THIS BAR REPRESENTS ONE INCH ON ORIGINAL DRAWING

STATE OF ALASKA 49TH
BRIAN C. GRAY
ME 8210
REGISTERED PROFESSIONAL ENGINEER

DATE: 12/20/16
DRAWN BY: WJP
CHECKED BY: BCG
JOB NUMBER:

DRAWING TITLE:
FIRE SUPPRESSION SYSTEM SPECIFICATIONS

FS2

SHEET 23 OF 23

APPENDIX C. BID SCHEDULE

1. **Submittals -** Submittals shall be provided to the Engineer for review and approval prior to beginning fabrication. Submittals shall be prepared in accordance with the specifications.
2. **Inspection -** The work may be inspected by the Authority's representative. A final inspection will be performed and approval will be issued prior to final payment.
3. **Point of Delivery -** All materials shall be delivered F.O.B. to the **Alaska Energy Authority shop at 2601 Commercial Drive, Anchorage, AK 99501, (907) 771-3092**.
4. **Pricing -** The Bidder shall provide unit, extended, and total prices as indicated in the bid schedule below. All prices shall be firm fixed prices, which include all costs and profit associated with furnishing the items as specified to the point of delivery by the date indicated. If awarded a contract, bidder's firm prices will be integrated into the contract.
5. **Method of Award** - Contract award shall be made on the basis of the total Base Bid. If Bid Alternates are included in the Bid Documents, the Alaska Energy Authority reserves the right to award some, none, or all of the alternates. Alternates may be awarded in any order in the best interest of the Alaska Energy Authority.
6. **Progress Payments** - There will be progress payments. Payments are NET30 on receipt of an invoice, acceptance of the materials at the point of delivery, and acceptance of completed work.
7. **Bid Schedule –** The following Bid Schedule is for Kake and Kipnuk Fire Suppression Systems.

8. <u>Kake</u>

The Base Bid is for furnishing Fire Suppression System for Kake, Alaska

Item Description	**Quan.**	**Unit Price ($)**	**Extended Price ($)**
Kake – High Pressure Water Mist Fire Suppression System	1 ea.		

9. <u>Kipnuk</u>

The Base Bid is for furnishing Fire Suppression System for Kipnuk, Alaska

Item Description	**Quan.**	**Unit Price ($)**	**Extended Price ($)**
Kipnuk– High Pressure Water Mist Fire Suppression System	1 ea.		

TOTAL BASE BID (Kake & Kipnuk)……..……$_____

Acknowledge all addenda

Addendum No	Date Issued	Addendum No	Date Issued	Addendum No	Date Issued

BIDDER'S NOTICE: By signature on this form, the Bidder certifies that:

a. The price(s) submitted are independent and without collusion.
b. The Bidder will comply with the laws of the State of Alaska;
c. The Bidder will comply with applicable portions of the Federal Civil Rights Act of 1964;
d. The Bidder will comply with the Equal Employment Opportunity Act and the regulations issued there under by the State and Federal Government; and
e. The Bidder has reviewed all terms and conditions in this Invitation to Bid.

If any Bidder fails to comply with any of these requirements, the Authority may reject its bid, terminate the contract, or consider the Vendor in default.

Company Submitting Bid	**Telephone Number**
Address	**Fax Number**
Authorized Signature	**E-mail Address**
Print Name	**Alaska Business License number** **DATE:_____**

End of Bid Schedule.

APPENDIX D. Debarment Certification

ALASKA INDUSTRIAL DEVELOPMENT AND EXPORT AUTHORITY
AND ALASKA ENERGY AUTHORITY

CERTIFICATION OF CONTRACTOR AND LOWER-TIER PARTICIPANTS REGARDING DEBARMENT, SUSPENSION, AND OTHER INELIGIBILITY AND VOLUNTARY EXCLUSION

Contractor

PLEASE INSERT YOUR COMPANY'S NAME AND ADDRESS IN THIS BOX

I, _____ hereby certify on behalf
(Name and title of official)

Of _____ that:
(Name of contractor)

(1) The prospective contractor and lower tier participant certifies, by submission of this bid or proposal, that neither it nor its "principals" [as defined at 49 C.F.R. § 29.105(p)] is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency. In the event, your company or any principals become ineligible from participating in federally funded transactions, you are required to notify us immediately.

(2) When the prospective contractor and lower tier participant is unable to certify to the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Executed this_____day of_____, 20____

By:

_____
(Signature of authorized official)

_____
(Title of authorized official)

ALASKA ENERGY AUTHORITY

BID BOND

For

Kake & Kipnuk Fire Suppression

DATE BOND EXECUTED: _____

PRINCIPAL (Legal name and business address):	TYPE OF ORGANIZATION:
	[ ] Individual [ ] Partnership [ ] Joint Venture [ ] Corporation
	STATE OF INCORPORATION:

SURETY(IES) (Name and business address):

A.	B.	C.
PENAL SUM OF BOND:		DATE OF BID:

We, the PRINCIPAL and SURETY above named, are held and firmly bound to the State (State of Alaska), in the penal sum of the amount stated above, for the payment of which sum will be made, we bind ourselves and our legal representatives and successors, jointly and severally, by this instrument.

THE CONDITION OF THE FOREGOING OBLIGATION is that the Principal has submitted the accompanying bid in writing, date as shown above, on the above-referenced Project in accordance with contract documents filed in the office of the Contracting Officer, and under the Invitation To Bid therefore, and is required to furnish a bond in the amount stated above.

If the Principal's bid is accepted and he is offered the proposed contract for award, and if the Principal fails to enter into the contract, then the obligation to the State created by this bond shall be in full force and effect.

If the Principal enters into the contract, then the foregoing obligation is null and void.

PRINCIPAL

Signature(s)	**1.**	**2.**	**3.**
Name(s) & Title(s) (Typed)	**1.**	**2.**	**3.**

Corporate Seal

See Instructions on Reverse

CORPORATE SURETY(IES)

Surety A	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety B	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

Surety C	Name of Corporation		State of Incorporation	Liability Limit **$**
Signature(s)	**1.**	**2.**		Corporate Seal
Name(s) & Titles (Typed)	**1.**	**2.**		

INSTRUCTIONS

1. This form shall be used whenever a bid bond is submitted.
2. Insert the full legal name and business address of the Principal in the space designated. If the Principal is a partnership or joint venture, the names of all principal parties must be included (e.g., "Smith Construction, Inc. and Jones Contracting, Inc. DBA Smith/Jones Builders, a joint venture"). If the Principal is a corporation, the name of the state in which incorporated shall be inserted in the space provided.
3. Insert the full legal name and business address of the Surety in the space designated. The Surety on the bond may be any corporation or partnership authorized to do business in Alaska as an insurer under AS 21.09. Individual sureties will not be accepted.
4. The penal amount of the bond may be shown either as an amount (in words and figures) or as a percent of the contract bid price (a not-to-exceed amount may be included).
5. The scheduled bid opening date shall be entered in the space marked Date of Bid.
6. The bond shall be executed by authorized representatives of the Principal and Surety. Corporations executing the bond shall also affix their corporate seal.
7. Any person signing in a representative capacity (e.g., an attorney-in-fact) must furnish evidence of authority if that representative is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved.
8. The states of incorporation and the limits of liability of each surety shall be indicated in the spaces provided.
9. The date that bond is executed must not be later than the bid opening date.

ALASKA ENERGY AUTHORITY

PAYMENT BOND

Bond No. _____

For

Kake & Kipnuk Fire Suppression

_____

NOW ALL WHO SHALL SEE THESE PRESENTS:

That _____

of _____ as Principal,

and _____

of _____ as Surety,

firmly bound and held unto the State of Alaska in the penal sum of

_____ Dollars

($_____) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the _____ of _____ A.D., 20_____, for construction of the above-referenced project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall comply with all requirements of law and pay, as they become due, all just claims for labor performed and materials and supplies furnished upon or for the work under said contract, whether said labor be performed and said materials and supplies be furnished under the original contract, any subcontract, or any and all duly authorized modifications thereto, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at _____, _____ this _____ day of _____ A.D., 20_____.

Principal: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

Surety: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

The offered bond has been checked for adequacy under the applicable statutes and regulations:

_____ _____

Alaska Energy Authority Authorized Representative **Date**

See Instructions on Reverse

INSTRUCTIONS

1. This form, for the protection of persons supplying labor and material, shall be used whenever a payment bond is required. There shall be no deviation from this form without approval from the Contracting Officer.

2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.

3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.

4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.

5. The bond shall be signed by authorized persons. Where such persons are signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.

ALASKA ENERGY AUTHORITY

PERFORMANCE BOND

Bond No. _____

For

Kake & Kipnuk Fire Suppression

KNOW ALL WHO SHALL SEE THESE PRESENTS:

That _____

of _____ as Principal,

and _____

of _____ as Surety,

firmly bound and held unto the State of Alaska in the penal sum of

_____ Dollars

($_____) good and lawful money of the United States of America for the payment whereof, well and truly to be paid to the State of Alaska, we bind ourselves, our heirs, successors, executors, administrators, and assigns, jointly and severally, firmly by these presents.

WHEREAS, the said Principal has entered into a written contract with said State of Alaska, on the _____ of _____ A.D., 20_____, for construction of the above-named project, said work to be done according to the terms of said contract.

Now, THEREFORE, the conditions of the foregoing obligation are such that if the said Principal shall well and truly perform and complete all obligations and work under said contract and if the Principal shall reimburse upon demand of the Alaska Energy Authority any sums paid him which exceed the final payment determined to be due upon completion of the project, then these presents shall become null and void; otherwise they shall remain in full force and effect.

IN WITNESS WHEREOF, we have hereunto set our hands and seals at _____, _____ this _____ day of _____ A.D., 20_____.

Principal: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

Surety: _____

Address: _____

By: _____

Contact Name: _____

Phone: ( ) _____

The offered bond has been checked for adequacy under the applicable statutes and regulations:

_____ _____

Alaska Energy Authority Authorized Representative **Date**

See Instructions on Reverse

INSTRUCTIONS

1. This form shall be used whenever a performance bond is required. There shall be no deviation from this form without approval from the Contracting Officer.

2. The full legal name, business address, phone number, and point of contact of the Principal and Surety shall be typed on the face of the form. Where more than a single surety is involved, a separate form shall be executed for each surety.

3. The penal amount of the bond, or in the case of more than one surety the amount of obligation, shall be typed in words and in figures.

4. Where individual sureties are involved, a completed Affidavit of Individual Surety shall accompany the bond. Such forms are available upon request from the Contracting Officer.

5. The bond shall be signed by authorized persons. Where such person is signing in a representative capacity (e.g., an attorney-in-fact), but is not a member of the firm, partnership, or joint venture, or an officer of the corporation involved, evidence of authority must be furnished.