



“Protecting Public Health and the Environment”

CONTRACT NO. B514

PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105

CONTRACT AND SPECIFICATIONS

FOR

**INSULATION SERVICES ON AN AS NEEDED BASIS
FOR A TWO (2) YEAR PERIOD**

August 2026

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00000 BID DOCUMENT SUBMISSION CHECKLIST

Contract No. B514 – Insulation Services on an As Needed Basis for a Two (2) Year Period

NOTE: Failure to submit items 3, 4, 5, 6, 8, 9, 12 and 13 below is a mandatory clause for the bid to be rejected and/or deemed non-responsive.

	Item	Contract Section	Initial Each Item Submitted with Bid
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The following are the documents statutorily required with the submission of the bid proposal: Bid Bond or Certified Check (N.J.S.A. 40A:11-21); Consent of Surety (N.J.S.A. 40A:11-22); Statement of Corporate Ownership (N.J.S.A. 52:25-24.2); Acknowledgement of Receipt of Changes to Bid Documents (N.J.S.A. 40A:11-23.1(a); and Subcontractor's Listing (N.J.S.A. 40A:11-16). All items not specifically referenced above are highly encouraged to be submitted with the bid, but must be submitted prior to contract award.

Name of Bidder:

(Company Name) _____

By Authorized Representative:

Signature: _____

Print Name and Title: _____

Date: _____

DIVISION 0 - BIDDING REQUIREMENTS

00100 INVITATION TO BID AND INSTRUCTIONS TO BIDDERS

Notice is hereby given that Passaic Valley Sewerage Commission will receive sealed bids until 10:00 o'clock on the morning of September 17, 2026 in the PVSC Purchasing Department, Administration Building. At that time and place the sealed proposals will be publicly opened, announced and recorded via the Zoom Conferencing Application at <https://pvsc.zoom.us/j/2496333971>. **Bidders can also dial into the bid opening by phone at (1+646 876 9923), access code (249 633 3971).**
[into the bid opening by phone at \(1+646 876 9923\), access code \(249 633 3971\).](https://pvsc.zoom.us/j/2496333971)

Work to be performed under Contract B514 includes, but is not limited to, the furnishing of all safety, supervision, labor, materials, supplies, equipment and all other facilities required to perform insulation services, mold remediation and asbestos removal on an as needed basis.

The work required under this contract is indeterminate. There shall be no fixed contract amount. Individual Task Orders will be issued to the contractors based on an agree upon detailed Scope of Work. Each Task order shall be established a not- to exceed cost based on the labor rates provided in Section 00400

Security Notice: All contractors, subcontractors, contractor employees and/or representatives entering the plant must have and must present to PVSC Security, government issued identification such as a valid Picture Driver's License or Passport. This applies to bid openings, pre-bid conferences and all on-premises contract work.

All bids must be made upon the blank form of proposal annexed hereto. All blank spaces must be filled in, in ink, in both words and figures, with the amounts for which the proposal is made. The proposal must be signed by the bidder who shall include his business address.

Proposals shall be enclosed in opaque sealed envelopes, addressed to the Passaic Valley Sewerage Commission, 600 Wilson Avenue, Newark, New Jersey 07105, with the name and address of the bidder plainly marked upon the outside thereof. (If forwarded by mail, the sealed envelope containing the proposal, marked as directed above must be enclosed in another envelope addressed as specified in the Proposal, preferably by registered mail.) If forwarded by express carrier or other delivery service, please be advised that access to the PVSC is restricted to the following address: 699 Avenue P – Newark NJ – 07105 (GPS location of Gate #3) this is for directional purposes is only. The outside envelope containing bids must clearly identify the bid number, contract name, and bid opening date. Failure to follow this procedure is grounds for rejection.

It is the purpose of Passaic Valley Sewerage Commission not to award the contract to any bidder who does not furnish evidence satisfactory to them that he is responsible and that he has sufficient financial resources, ability, experience and equipment to enable him to prosecute the work successfully, and to fulfill all requirements of the contract.

Each bid must be accompanied by a certified check, or by a bid bond in an amount not less than **\$1,000 or 10% of the total bid, not to exceed \$20,000.00** enclosed in a sealed envelope, with the bid. Certified checks shall be drawn upon a National Bank or a Trust Company doing business in the State of New Jersey, and shall be payable to the order of the Passaic Valley Sewerage Commission. Bid bonds shall be prepared on the form of Bid Bond attached hereto in Section 00301, and shall be duly executed by the bidder as principal and having as surety thereon, sureties or a surety company shall be licensed to do business in the State Of New Jersey, and listed in the current Federal Register, Department of the Treasury Circular 570, "Surety Companies Acceptable on Federal Bonds", and shall be satisfactory to the Passaic Valley Sewerage Commission.

Bid securities will be returned to all except the three (3) apparent lowest responsible bidders within ten (10) days after the formal opening of bids, (Sundays and Holidays excepted) and the remaining bid securities will be returned to the unsuccessful bidders within three (3) days (Sundays and Holidays excepted) after the awarding and signing of the contract and the approval of the Contractor's performance bond, or if no Contract has been so executed, within 60 days after the date of the opening of bids, upon demand of the bidder at any time thereafter, as long as he has not been notified of the acceptance of his bid.

All bidders on this Contract are required to complete a "Statement of Ownership" found in Section 00303.

No contractor shall bid on any contract for public work as defined in section 2 of P.L.1963, c. 150 (C.34:11-56.26) unless the contractor is registered pursuant to this act N.J.S.A. 34:11-56.48 et seq. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L.1999, c.238 (CN.J.S.A. 34:11-56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor or subcontractor is registered pursuant to that act.

Pursuant to N.J.S.A. 52:32-44, Passaic Valley Sewerage Commission ("Contracting Agency") is prohibited from entering into a contract with an entity unless the bidder/proposer/contractor, and each subcontractor that is required by law to be named in a bid/proposal/contract has a valid Business Registration Certificate on file with the Division of Revenue and Enterprise Services within the Department of the Treasury.

Prior to contract award or authorization, the contractor shall provide the Contracting Agency with its proof of business registration and that of any named subcontractor(s).

Subcontractors named in a bid or other proposal shall provide proof of business registration to the bidder, who in turn, shall provide it to the Contracting Agency prior to the time a contract, purchase order, or other contracting document is awarded or authorized.

During the course of contract performance:

- (1) the contractor shall not enter into a contract with a subcontractor unless the subcontractor first provides the contractor with a valid proof of business registration.
- (2) the contractor shall maintain and submit to the Contracting Agency a list of subcontractors and their addresses that may be updated from time to time.
- (3) the contractor and any subcontractor providing goods or performing services under the contract, and each of their affiliates, shall collect and remit to the Director of the Division of Taxation in the Department of the Treasury, the use tax due pursuant to the Sales and Use Tax Act, (N.J.S.A. 54:32B-1 et seq.) on all sales of tangible personal property delivered into the State. Any questions in this regard can be directed to the Division of Taxation at (609)292-6400. Form NJ-REG can be filed online at <http://www.state.nj.us/treasury/revenue/busregcert.shtml>.

Before final payment is made under the contract, the contractor shall submit to the Contracting Agency a complete and accurate list of all subcontractors used and their addresses.

Pursuant to N.J.S.A. 54:49-4.1, a business organization that fails to provide a copy of a business registration as required, or that provides false business registration information, shall be liable for a penalty of \$25 for each day of violation, not to exceed \$50,000, for each proof of business registration not properly provided under a contract with a contracting agency.

Emergency Purchases or Contracts

For purchases of an emergent nature, the contractor shall provide its Business Registration Certificate within two weeks from the date of purchase or execution of the contract or prior to payment for goods or services, whichever is earlier.

All bidders on this Contract are required to be eligible for Contract award under the terms and conditions of N.J.S.A 19:44A-20.13 et seq.

The bidder to whom a Contract is awarded will be required to provide the necessary documents as required by the statutory and regulatory cites at N.J.S.A. 10:5-31 et seq. and N.J.A.C. 17:27-1.1 et seq.

The bidder to whom a contract is awarded will be required to execute the contract within ten (10) business days(not including Saturday, Sunday or holidays) from the date of the mailing of a notice from Passaic Valley Sewerage Commission to the bidder, according to the address given him, that the contract is ready for signature; and in case of his failure or neglect so to do, Passaic Valley Sewerage Commission may, at its option, determine that the bidder has abandoned the contract; and thereupon the proposal and acceptance shall be null and void, the bid security accompanying the proposal shall be forfeited to the Passaic Valley Sewerage Commission, and the bidder shall additionally be liable for all damages to the Commission occasioned by such default.

Bid Security will be held in lieu of a Performance Bond for the duration of the contract, at which time it will be returned to the Contractor.

The successful bidder shall be solely responsible for the safety of its employees, subcontractors, suppliers and representatives, including but not limited to the development and implementation of effective safety practices and programs in accordance with Federal, State and Local requirements, including the requirements of PVSC's Construction Safety & Health Manual for Contractors:

<http://www.nj.gov/pvsc/home/forms/pdf/ConstructionSafetyHealthManualforContractors08272012.pdf>

Prior to commencing any work at the site the Successful Bidder shall designate in writing to PVSC the name of the person who is their on-site safety officer. The successful bidder shall provide a competent safety officer that must be on the project site at all times. The competent safety officer must hold (or furnish suitable proof of course completion and application for), at a minimum, a valid 10 Hour OSHA Construction card prior to the performance of any work under the contract. The successful bidder shall also furnish personnel meeting the requirements of "competent person" as defined by OSHA for all applicable aspects of the work. Submission of a bid on this project shall constitute a representation by the bidder that it has obtained, reviewed and will comply with the requirements of the Construction Safety & Health Manual, referenced above, as well as all other Federal, State and Local safety requirements,

The Passaic Valley Sewerage Commission reserves the right to reject all bids pursuant to N.J.S.A. 40A:11-13.2, to waive minor informalities and to award the contract to the lowest responsible bidder in accordance with applicable law.

Investment Activities in Iran, Russia or Belarus

In accordance with N.J.S.A. 52:32-58 et seq., Bidder shall certify and submit with their bid forms of Certification promulgated by State of New Jersey Division of Purchase and Property entitled "**Certification of Non-Involvement in Prohibited Activities in Iran Form**" and "**Certification of Non-Involvement In Prohibited Activities In Russia Or Belarus**". The forms of Certification and appropriate list dated January 28, 2013 can be found in **Appendix 1** of this contract document and at:

<https://www.nj.gov/treasury/purchase/forms/DisclosureofInvestmentActivitiesinIran.pdf> and <http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>, respectively.

Requirements for Ineligible Telecommunication Equipment and Services Providers

The United States Government passed Public Law 115-232 in August of 2020. Among other things, this law prohibits the use of SRF funds for goods and services supplied by specific companies and corporations.

As described in section 889 of Public Law 115-232, covered telecommunications equipment or services includes:

- Telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).
- For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).
- Telecommunications or video surveillance services provided by such entities or using such equipment.
- Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

There is no exhaustive list of components and services that fall under the prohibition. Project Sponsors should exercise due diligence and be particularly mindful of project components with internet or cellular connections. For example, Sponsors should be mindful of automatic meter reading (AMR) technology and advanced metering infrastructure (AMI), instrumentation control systems (e.g. process control systems, distributed control systems and programmable logic controls), and security cameras and other electronic security measures to ensure that those items are procured from a non-excluded entity. Items included in the prohibition are not eligible SRF costs, and the SRF programs cannot reimburse borrowers for these costs.

Certification of Non-Involvement in Prohibited Activities in Iran

In accordance with P.L.2022, c.3, Bidder shall certify and submit with their bid as set forth therein on a form of Certification promulgated by the Senate and General Assembly of the State of New Jersey entitled "Certification of Non-Involvement in Prohibited Activities in Iran". The form of Certification dated March 25, 2022 can be found in **Appendix 1** of this contract document

If the contract is to be awarded, it will be awarded to the lowest responsive and responsible bidder(s).

All questions must be submitted to Ryan McCann electronically at rmccann@pvsc.com The final day to submit questions shall be no later than 10:00 am EST seven (7) days prior to bid date, Saturdays, Sundays and Holidays excepted.

Notice of revisions or addenda to the bid documents will be provided [in accordance with N.J.S.A 40A:11-23(c)(2).] no later than seven days, Saturdays, Sundays, or holidays excepted, prior to the date for acceptance of bids, to any person who has submitted a bid or who has received a bid package in any of the following ways: i) in writing by certified mail or ii) by certified facsimile transmission, meaning that the sender's facsimile machine produces a receipt showing date and

time of transmission and that the transmission was successful or iii) by a delivery service that provides certification of delivery to the sender.

**Passaic Valley Sewerage Commission
Office of the Passaic Valley Sewerage Commission
600 Wilson Avenue, Newark, N. J. 07105**

Thomas Fuscaldo; Clerk

Contract No. B514

Date:_____

**PASSAIC VALLEY SEWERAGE COMMISSION
PROPOSAL TO**

INSULATION SERVICES ON AN AS NEEDED BASIS
FOR A TWO (2) YEAR PERIOD

To: PASSAIC VALLEY SEWERAGE COMMISSION

The undersigned, as bidder, declares that the only persons or parties interested in this proposal as principles are named under the bid signatures, that the proposal is made without collusion with any other person, firm or corporation; that he has carefully examined the annexed proposed form of contract and bond and the drawings therein referred to; and that he proposes and agrees, if this proposal is accepted, to contract with the Passaic Valley Sewerage Commission, in the form of the copy of the Contract deposited in the office of the Passaic Valley Sewerage Commission, to perform all the work described in the contract specifications in the manner and time therein prescribed, and according to the requirements of the Engineer as therein set forth, and that he will take in full payment therefore the following sums, exclusive of all taxes, to wit:

If this proposal shall be accepted by the Passaic Valley Sewerage Commission, and the undersigned shall fail to contract as aforesaid, within ten (10) working days (not including Saturday, Sunday or Holidays) from the date of the mailing of a notice from the Passaic Valley Sewerage Commission to the bidder, according to the address herewith given, that the contract is ready for signature, then the Passaic Valley Sewerage Commission may at their option determine that the bidder has abandoned the contract and thereupon the proposal and acceptance shall be null and void, and the Bid Bond or certified check and the proceeds thereof for **\$1,000.00 or 10% of the total bid, not to exceed \$20,000.00** dollars accompanying this proposal shall become the property of the Passaic Valley Sewerage Commission and additionally the bidder shall be liable to said Commission for any and all damages accruing to said Commission by reason of said default; otherwise the accompanying Bid Bond or certified check shall be returned to the undersigned.

Signature of bidder with residence and business address.

RESIDENTIAL: _____

BUSINESS: _____

Signed: _____ Dated: _____

The names and residences of all persons and parties interested in the foregoing bid, as principals, are as follows:

In case of a corporation, give names of President, Treasurer and Manager.

Bidder's New Jersey Business Registration Certificate Number:

(Also Provided Copy of Certificate)

The bidder is requested to state below what work of a character similar to that included in the proposed contract he has done, and give references that will enable the Passaic Valley Sewerage Commissioner's to judge his experience, skill and business standing.

This requirement will be fulfilled by completion of the "**Reference Questionnaire**" included in Section 00401 – Reference Questionnaire.

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned, _____ as Principal; and _____ Surety, are hereby held and firmly bound unto the Passaic Valley Sewerage Commission in the penal sum of **\$1,000.00 or 10% of the total bid, not to exceed \$20,000.00** for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns.

Signed this _____ day of _____, 20____.

The condition of the above obligation is such that whereas the Principal has submitted to the Passaic Valley Sewerage Commission a certain Bid, attached hereto, and hereby made a part hereof, to enter into a contract in writing, to:

**INSULATION SERVICES ON AN AS NEEDED BASIS
FOR A TWO (2) YEAR PERIOD**

NOW THEREFORE,

- A. If said Bid shall be rejected, or, in the alternate,
- B. If said Bid shall be accepted and the Principal shall execute and deliver a contract in the form of Contract attached hereto (properly completed in accordance with said Bid) and shall furnish a bond for his faithful performance of said Contract, and shall in all other respects perform the agreement created by the acceptance of said Bid.

Then, this obligation shall be void, otherwise the same shall remain in force, and effect; it being expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event, exceed the penal amount of this obligation as herein stated.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by any extension of time within which the Principal may accept such Bid; and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have set their hands and seals, and such of them as are corporations having caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, the day and year first set forth above.

Principal: _____ Print Name	Surety: _____ Print Name
By: _____ Authorized Signature	By: _____ Authorized Signature
_____ Print Name	_____ Print Name
Title: _____	Title: _____
Seal: _____	Seal: _____

00302 SURETY COMPANY CERTIFICATE

(To Accompany Proposal)

KNOW ALL MEN BY THESE PRESENTS, that for and in consideration of the sum of \$1.00, lawful money of the United States, the receipt whereof is hereby acknowledged, paid the undersigned corporation, and for other valuable consideration, the _____

(Name of Surety Company)

corporation organized and existing under the laws of the State of _____ and licensed to do business in the State of New Jersey, certifies and agrees, that if Contract No. *B514* is awarded to _____

(Name of Bidder)

undersigned corporation will execute the Bond or Bonds as required by the Contract Documents and will become surety in the full amount of the Contract price for the faithful performance of the contract and for payment of all persons supplying labor or furnishing materials in connection thence with.

(Surety)

(To be accompanied by the usual proof of authority of officers of surety company to execute the same.)

STATEMENT OF OWNERSHIP
(OWNERSHIP DISCLOSURE CERTIFICATION)

N.J.S.A. 52:25-24.2 (P.L. 1977, c.33, as amended by P.L. 2016, c.43)

**This Statement Shall Be Included with
All Bid and Proposal Submissions**

Name of Business: _____

Address of Business: _____

Name of person completing this form: _____

N.J.S.A. 52:25-24.2:

"No corporation, partnership, or limited liability company shall be awarded any contract nor shall any agreement be entered into for the performance of any work or the furnishing of any materials or supplies, unless prior to the receipt of the bid or proposal, or accompanying the bid or proposal of said corporation, said partnership, or said limited liability company there is submitted a statement setting forth the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

If one or more such stockholder or partner or member is itself a corporation or partnership or limited liability company, the stockholders holding 10 percent or more of that corporation's stock, or the individual partners owning 10 percent or greater interest in that partnership, or the members owning 10 percent or greater interest in that limited liability company, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every noncorporate stockholder, and individual partner, and member, exceeding the 10 percent ownership criteria established in this act, has been listed.

To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest."

The Attorney General has advised that the provisions of N.J.S.A. 52:25-24.2, which refer to corporations and partnerships apply to limited partnerships, limited liability partnerships, and Subchapter S corporations.

This Ownership Disclosure Certification form shall be completed, signed and notarized.

Failure of the bidder/proposer to submit the required information is cause for automatic rejection of the bid or proposal

Part I

Check the box that represents the type of business organization:

- ☐ Sole Proprietorship (skip Parts II and III, sign and notarize at the end)
- ☐ Non-Profit Corporation (skip Parts II and III, sign and notarize at the end)
- ☐ Partnership ☐ Limited Partnership ☐ Limited Liability Partnership
- ☐ Limited Liability Company
- ☐ For-profit Corporation (including Subchapters C and S or Professional Corporation)
- ☐ Other (be specific): _____

Part II

- ☐ I certify that the list below contains the names and addresses of all stockholders in the corporation who own 10 percent or more of its stock, of any class, or of all individual partners in the partnership who own a 10 percent or greater interest therein, or of all members in the limited liability company who own a 10 percent or greater interest therein, as the case may be.

OR

- ☐ I certify that no one stockholder in the corporation owns 10 percent or more of its stock, of any class, or no individual partner in the partnership owns a 10 percent or greater interest therein, or that no member in the limited liability company owns a 10 percent or greater interest therein, as the case may be.

Sign and notarize the form below, and, if necessary, complete the list below.

(Please attach additional sheets if more space is needed):

Name: _____ Name: _____

Address: _____ Address: _____

Name: _____ Name: _____

Address: _____ Address: _____

Part III - Any Direct or Indirect Parent Entity Which is Publicly Traded:

“To comply with this section, a bidder with any direct or indirect parent entity which is publicly traded may submit the name and address of each publicly traded entity and the name and address of each person that holds a 10 percent or greater beneficial interest in the publicly traded entity as of the last annual filing with the federal Securities and Exchange Commission or the foreign equivalent, and, if there is any person that holds a 10 percent or greater beneficial interest, also shall submit links to the websites containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent and the relevant page numbers of the filings that contain the information on each person that holds a 10 percent or greater beneficial interest.”

- ☐ Pages attached with name and address of each publicly traded entity as well as the name and address of each person that holds a 10 percent or greater beneficial interest.

OR

- ☐ Submit here the links to the Websites (URLs) containing the last annual filings with the federal Securities and Exchange Commission or the foreign equivalent.

AND

- ☐ Submit here the relevant page numbers of the filings containing the information on each person holding a 10 percent or greater beneficial interest.

(Affiant)

Subscribed and sworn before me this ____ day of

_____, 2 ____.

(Notary Public)

My Commission expires:

(Print name of affiant and title if applicable)

(Corporate Seal if a Corporation)

00304 AFFIRMATIVE ACTION COMPLIANCE

IF AWARDED A CONTRACT YOUR COMPANY/FIRM WILL BE REQUIRED TO PROVIDE THE FOLLOWING INFORMATION TO THE COMMISSION PRIOR TO THE ACTUAL AWARD OF THE CONTRACT AND/OR EXECUTION THEREOF:

Pursuant to N.J.S.A. 10:5-31, Affirmative Action Compliance is required by Contractors bidding on Contracts let by Public Agencies (see Section 00737). Failure to submit the form may result in the contract being terminated. Upon award and prior to execution of the Contract, the low bidder must furnish the Passaic Valley Sewerage Commission with the following documentation:

The Public Agency requires the construction Contractor that is to be awarded the Contract to submit their **Initial Project Workforce Report** (copy marked Public Agency).

Note: The Initial Project Workforce Report (A.A. 201) must be submitted by the seventh calendar day after issuing notification of award.

If the construction Contractor does not submit the Initial Project Manning Report (A.A. 201) within the required time period, the Public Agency may extend the time period to the fourteenth calendar day.

If by the fourteenth calendar day the Contractor does not submit the Affirmative Action document, the Public Agency must declare the Contractor as being non-responsive and may award the Contract to the second lowest responsible bidder.

The Public Agency requires the construction Contractor that is awarded the Contract to submit their **Monthly Project Workforce Report** (A.A. 202) once a month for the duration of the contract to the Dept. of Labor and to the Public Agency Compliance Officer.

00305 BID SHEET (Including Terms and Conditions Applicable to the Proposal)

Contract No. B514 Insulation Services On An As Needed Basis For A Two (2) Year Period

Name of Contractor: _____

Business Name: _____

Mailing Address: _____
(Mailing Address must include Street Address)

Telephone No. _____ Fax No. _____

Contact Person: _____

- A. Contractor to furnish all labor, materials and equipment necessary to perform installation of insulation, mold remediation, and asbestos removal repair on an As Needed Basis for a Period of two (2) years, in accordance with all the terms of the specification for the unit prices as shown in section 00400 SUPPLEMENTS TO BID FORMS

The Contractor shall specialize in the insulation installation and repair industry. The Contractor shall have a minimum of 10 years of experience as outlined in Section 01710, Qualifications of Contractor and Division 10, Specialties, with worker experience not less than 3 years.

The Contractor shall ensure that all requested work shall be performed by personnel who are trained and certified to provide the type of service specified, as outlined in section 01710 – Qualification of Contractor.

The contractor shall be reimbursed for materials based on invoice price plus a fixed fee in accordance with the fixed fee schedule provided in Section 01025 and shown in section 00400 SUPPLEMENTS TO BID FORMS

Costs for the Contractor to supply contractor owned and or rental equipment that is not included within this contract shall be based on documented invoices plus a fixed fee in accordance with a fee schedule provided in Section 01025 and shown in section 00400 SUPPLEMENTS TO BID FORMS

For purposes of evaluating and comparing bids only, the contractor shall provide Labor Rates for the identified labor categories identified in Section 00400 to maintain a hypothetical work crew at a PVSC facility, for the hours listed. The Contractor hourly rates for labor shall commence from the actual time the Contractor reports at the PVSC Facility requiring service until the time leaving PVSC. PVSC will maintain appropriated records showing the actual time the contractor spent on the job. The contractor will not be compensated for any traveling time between place of business and the PVSC Facility where work is to be performed.

All hourly labor rate(s) listed in **listed in Section 00400** shall be filled out. Failure to do so may be considered a non-responsive bid and may be cause for the bid to be rejected. The hypothetical work crew described is for bid evaluation purposes only. Actual crews, equipment and duration will vary, depending on the specific task to be done.

The work required under this contract is indeterminate. There shall be no fixed contract amount. Individual Task Orders will be issued to the contractor based on an agreed upon detailed scope of work. Each Task Order shall establish a “not to exceed” cost limit, based on the labor rate provided in Section

00400. Contractor's administration expenses and time required to develop a cost proposal for any given task or project and the time spent in pre-construction meeting(s) shall not be compensable. This cost is included within the labor rates.

The hypothetical work crew described is for bid evaluation purposes only. Actual crews, equipment and duration will vary, depending on the specific task as assigned by PVSC.

Costs for all labor categories shall include all cost factors, such as wages, benefits, travel time, fuel, insurance, overhead and profit, office supervision, support and administration, and other additional incidental expenses related to labor costs required to complete the work as specified in the Contract Documents and as ordered by PVSC. Proposer is required to submit hourly rates for Apprentices.

Billing time for all services performed is to begin at the start of work at PVSC and end at the time leaving PVSC. The minimum billable time for a call in will be four (4) hours. Wage Rates shall comply with the New Jersey Prevailing Wage Act (N.J.S.A. 34:11-56.25 et seq.)

The contractor hourly labor rate submitted for straight time will cover PVSC's normal working hours of 7:45AM to 4:15PM Monday through Friday in accordance with Division 1, Section 01046 - Working Hours. The overtime hourly rate will be used during weekdays after 40 hours per week or for services provided on weekends, Holidays or when being requested to work during PVSC non-normal working hours. Overtime and Premium Time will be allowed when approved in advance by PVSC. The overtime hourly rate will be used for more than 8 hours in a day, and all Saturday hours. Premium rate will be used for Sundays and Holidays.

The contractors shall be available 7 days a week for on-call and emergency service work during the life of this contract and will be compensated at the respective hourly rates.

The commission reserves the right to perform the work with own work force or obtain competitive pricing from a third party. The commission is also under no obligation to use the contractor's work force.

The work shall proceed in a manner specified and in conformity with the requirements set forth in the Contract Documents herein contained or hereunto attached and in accordance with the Contract Specifications.

In the event of a conflict between the bid specifications (request for proposal, invitation to bid, etc.) and the contractors bid submission (proposal, response, etc.) the terms of the specification (or otherwise as referenced) shall govern the agreement between PVSC and the Contractor.

The term of this contract is for a two (2) year period, beginning from the Notice to Proceed Date.

All prices shall hold firm and not be subject to increase during the terms of the contract.

- B.** All prices are exclusive of N. J. State and Federal Taxes. The Passaic Valley Sewerage Commission is an agency of the State of New Jersey and is exempt from the New Jersey Sales and Use Taxes, pursuant to Section 9(a)(1) of the New Jersey Sales and Use Tax Act (N.J.S.A. 54:32B-1 et seq.).
- C.** The cost of all Warrantees shall be included.
- D.** Prices shall be all inclusive, including all labor, equipment, consumables, inspection, shipping/handling, and delivery charges.
- E.** Prices shall also include all delivery charges on materials removed from site and charges pertaining to disposal.
- F.** Passaic Valley Sewerage Commission reserves the right to reject all bids pursuant to N.J.S.A. 40A:11-13.2 and to award the contract to the lowest responsible bidder in accordance with the Local Public Contracts Law ("LPCL"). Passaic Valley Sewerage Commission also reserves the right to waive any minor informality or non-material exceptions in the bid in accordance with applicable law

- G. Contract Period and Extension Option:** Passaic Valley Sewerage Commission reserves the right to extend this contract should they deem it to be in their interest to do so, pursuant to the Local Public Contracts Law ("LPCL"). The Contractor will be so notified of the Commission's intent at least thirty (30) days prior to the expiration date of the existing contract. The Contractor shall have fifteen (15) calendar days to respond to the Commission's request to extend the contract. If the Contractor agrees to the extension, all terms and conditions of the original contract, including all prices, will be applicable.
- H.** The successful Bidder shall maintain for the duration of the work to be done under this contract, Liability Insurance in the amounts specified in the General Conditions, Section 00727. Upon execution of the contract, the contractor shall furnish the PVSC with all certificates of insurance as required and set forth herein.
- I.** It is the bidder's responsibility to visit the PVSC facilities to inspect and to verify all locations, dimensions, conditions and access as needed to perform the contract work. Arrangements for the site visits can be arranged, by contacting Mr. Ryan McCann at (973) 817-5832.
- J.** No variations will be permitted to the terms and conditions of the contract. Terms and conditions are in accordance with Local Public Contracts Law and other applicable law and the policies of the Passaic Valley Sewerage Commission. Any bids that include variations to the terms and conditions will be considered non-responsive and will be rejected.
- K.** No exceptions will be permitted to the terms and conditions of the contract. Terms and conditions are in accordance with N. J. Laws for Public Bidding and the policies of the Passaic Valley Sewerage Commission. Any bids that include exceptions to the terms and conditions will be considered non-responsive and will be rejected.
- L.** Only Bidders with experience with a similar type of work will be considered. Certification of this experience, and the names and addresses of at least three (3) customers from whom similar work was performed within the last two (2) years, shall be supplied with the bid. A certification questionnaire form is included for the Contractor's convenience.
- M.** Notice of Executive Order 125 Requirement for Posting of Winning Proposal and Contract Documents

Pursuant to Executive Order No. 125, signed by Governor Christie on February 8, 2013, the Office of the State Comptroller ("OSC") is required to make all approved State contracts for the allocation and expenditure of federal reconstruction resources available to the public by posting such contracts on an appropriate State website. Such contracts are posted on the New Jersey Sandy Transparency website located at:

<http://nj.gov/comptroller/sandytransparency/contracts/sandy/>.

The contract resulting from this bid is subject to the requirements of Executive Order No. 125. Accordingly, the OSC will post a copy of the contract, including the bid document, the winning bidder's proposal and other related contract documents for the above contract on the Sandy Transparency website.

In submitting its proposal, a bidder may designate specific information as not subject to disclosure. However, such bidder must have a good faith legal and/ or factual basis to assert that such designated portions of its proposal (i) are proprietary and confidential financial or commercial information or trade secrets or (ii) must not be disclosed to protect the personal privacy of an identified individual. The location in the proposal of any such designation should be clearly stated in a cover letter, and a redacted copy of the proposal should be provided.

The State reserves the right to make the determination as to what is proprietary or confidential, and will advise the winning bidder accordingly. The State will not honor any attempt by a winning bidder to designate its entire proposal as proprietary, confidential and/or to claim copyright protection for its entire proposal. In the event of any challenge to the winning bidder's assertion of confidentiality with which the State does not concur, the bidder shall be solely responsible for defending its designation.

- N. Unless prevented by strike or strikers which prevent construction or delivery of equipment or supplies from the manufacturer, failure to complete the work within the specified time shall be considered an abandonment of the contract and the Commission may seek redress for damages.
- O. The work must be completed without interrupting the operation of the PVSC Treatment Plant. The contractor must schedule his operations in detail with PVSC as noted in Div. 1, Section 01310 of Contract Specifications.
- P. Payment will be made in accordance with Section 01025.
- Q. **Proposals shall be enclosed in opaque sealed envelopes, addressed to the Passaic Valley Sewerage Commission, 600 Wilson Avenue, Newark, New Jersey 07105, with the name and address of the bidder plainly marked upon the outside thereof. (If forwarded by mail, the sealed envelope containing the proposal, marked as directed above must be enclosed in another envelope addressed as specified in the Proposal, preferably by registered mail.) If forwarded by express carrier or other delivery service, please be advised that access to the PVSC is restricted to the following address: 699 Avenue P – Newark NJ – 07105 (GPS location of Gate #3) this is for directional purposes is only. The outside envelope containing bids must clearly identify the bid number, contract name, and bid opening date. Failure to follow this procedure is grounds for rejection.**

To the extent that N.J.S.A. 2A:30A-2 et seq. applies to the project and its related work and/or any agreement between PVSC and the Contractor, all exceptions contained in N.J.S.A. 2A:30A-2(a) et seq. as defined in Section 01025 Payments, shall apply solely for the benefit of PVSC.

00400 SUPPLEMENTS TO BID FORMS**CONTRACT NO. B514****CONTRACTOR MUST COMPLETE ALL BID ITEMS OR BID MAY BE CONSIDERED NON RESPONSIVE**

*(If your firm does not employ Apprentice Laborer, insert zero dollars (\$0) per hour in Line Items 7, 8, & 9
Column 5 and Column 7*

For purposes of evaluating and comparing bids, the Bidder shall provide the following cost to maintain a hypothetical work crew at PVSC Facility, for the period of time outlined below, including a hypothetical material costs and contractor owned or rented equipment costs. Year one shall commence with the Notice to Proceed date and year two twelve (12) months thereafter.

Hourly Rate per Person shall include all wages, labor, travel, taxes, insurance (including Liability Insurance), overhead, licenses, qualifications, profit and all other mark-ups and costs.

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8
ITEM	Labor Classification	Units	Number of Hours	Rate Per Hour Year One	Total Cost Year One No. of Hours x Rate per Hour	Rate Per Hour Year Two	Total Cost Year Two No. of Hours x Rate per Hour
1	Insulator Forman Straight Time	Per Hour	80				
2	Insulator Forman Over Time	Per Hour	16				
3.	Insulator Forman Premium Time	Per Hour	8				
4	Insulator Journeyman Straight Time	Per Hour	80				
5	Insulator Journeyman Over Time	Per Hour	16				
6	Insulator Journeyman Premium Time	Per Hour	8				
7	Insulator Apprentice Straight Time*	Per Hour	0		NOT APPLICABLE		NOT APPLICABLE
8	Insulator Apprentice Over Time*	Per Hour	0		NOT APPLICABLE		NOT APPLICABLE
9	Insulator Apprentice Premium Time*	Per Hour	0		NOT APPLICABLE		NOT APPLICABLE
10	Equipment Operator Straight Time	Per Hour	80				
11	Equipment Operator Over Time	Per Hour	16				
12	Equipment Operator Premium Time	Per Hour	8				
				Total Year One Sum Column 6		Total Year Two Sum Column 8	
LABOR TOTAL (SUM YEAR ONE AND YEAR TWO) (Sum of Column 6 + Column 8)				\$ _____			

Overtime and Premium Time will be allowed when approved in advance by PVSC. The overtime hourly rate will be used for more than 8 hours in a day, and all Saturday hours. Premium rate will be used for Sundays and Holidays.

Note:

*Items No. 7,8 and 9, Apprentice Labor Costs for Year 1 and Year 2 shall not be included in the hypothetical total bid price. The hourly rate for ALL Apprentice's shall be provided for future work if necessary. If your firm does not employ Apprentice Labor, insert zero dollars (\$0) per hour in Line Items 7, 8 and 9 columns 5 and column 7 above.

Item 13 Materials

Contractor will be paid for actual cost of materials plus a fixed fee in accordance with a fee schedule provided in Section 01025

Total is actual cost plus fix fee.

ITEM	ITEM	UNIT	EST.	BID UNIT	Total
13.	Materials	Actual Cost	1	\$30,000.00	\$33,750.00

Item 14 Equipment Contractor Owned or Rental

Contractor will be paid for the cost of Contractor owned equipment ONLY as specified in footnotes for Item 14, plus a fixed fee in accordance with the fee schedule provided in Section 01025. Contractor will be paid the cost of rented equipment plus the fixed fee provided in Section 01025. Total is actual cost plus fixed fee.

ITEM	ITEM	UNIT	EST.	BID UNIT	Total
14.	Equipment Rented or Contractor Owned	Actual Cost	1	\$30,000.00	\$33,750.00

Item 15 Specialty Contractor Asbestos Abatement

This Item will be used when the Scope of Work requires a Specialty Subcontractor. A fixed fee of 5% will be allowed for this item. Total is actual cost plus fixed fee of 5%

ITEM	ITEM	UNIT	EST	BID UNIT	TOTAL
15	Asbestos Abatement	Actual Cost	1	\$40,000.00	\$42,000.00

Item 16 Specialty Subcontractor Mold Remediation

This Item will be used when the Scope of Work requires a Specialty Subcontractor. A fixed fee of 5% will be allowed for this item. Total is actual cost plus fixed fee of 5%

ITEM	ITEM	UNIT	EST	BID UNIT	TOTAL
16	Mold Remediation	Actual Cost	1	\$40,000.00	\$42,000.00

NOTE: CONTRACTOR MUST COMPLETE ALL BID ITEMS OR BID MAY BE CONSIDERED NON RESPONSIVE

**NOTE: THE TOTAL AMOUNT BID IS THE CORRECT SUM OF THE UNIT PRICES
BID MULTIPLIES BY THE LISTED QUANTITIES**

TOTAL BID PRICE	
Labor Total of Year One and Year Two (<i>Sum of Column 6 + Column 8</i>) Plus Items #13 Materials; #14 Equipment Contractor Owned or Rental; #15 Specialty Contractor Asbestos Abatement; and Item #16 Specialty Subcontractor Mold Remediation	\$ _____

Amount Written (in words)

_____ Dollars and
_____ Cents

**Begin Footnotes for
Item 14**

Compensation for Contractor Owned Equipment ONLY

Compensation cost for construction equipment shall be based upon the most current costs established in Rental Rates for Construction Equipment (Blue Book) published by:

Equipment Watch
6151 Powers Ferry Rd
Suite 200
Atlanta, GA 30339
<http://www.equipmentwatch.com>

The hourly charge for each piece of equipment will be the applicable monthly cost divided by 176 whether owned by the Contractor or rented from an outside source. Regional adjustments and hourly cost to run equipment may be included. Overhead and Profit are to be excluded. Equipment Operator is to be excluded. This item is covered in Bid Items 10, 11 and 12. Payment will only be allowed actual equipment used on the Project work site. Equipment that is on the job-site but idle or unused will not be included in the cost of the work.

**End Footnotes for
Item 14**

Contract No B514 – Insulation Services on an As Needed Basis for a Two (2) Year Period

00401 Supplement to Bid Forms

REFERENCE QUESTIONNAIRE

A reference list generated by the bidder is acceptable provided all of the information listed below is supplied.

NAME OF OWNER COMPLETE ADDRESS AND TELEPHONE NUMBER	PROJECT LOCATION & SPECIFIC TYPE OF WORK PERFORMED BY YOUR ORGANIZATION AND CONTRACT PRICE	CHECK PRIME OR SUB CONT. PR SUB	LIST NAME & TEL. NO. OF PERSON IN CHARGE	APPROX. DATE COMPLTD MO. / YR.	WAS TIME EXTENSION NECESSARY YES / NO ATTACH EXPLANATION	WERE ANY PENALTIES IMPOSED? ATTACH EXPLANATION	WERE LIENS CLAIMS OR STOP NOTICES FILED? ATTACH

Contract No. B514 – Insulation Services on an As Needed Basis for a Two (2) Year Period

00401 Supplement to Bid Forms

REFERENCE QUESTIONNAIRE
A reference list generated by the bidder is acceptable provided all of the information listed below is supplied.

NAME OF OWNER COMPLETE ADDRESS AND TELEPHONE NUMBER	PROJECT LOCATION & SPECIFIC TYPE OF WORK PERFORMED BY YOUR ORGANIZATION AND CONTRACT PRICE	CHECK PRIME OR SUBCONTRACTOR PR SUB	LIST NAME & TEL. NO. OF PERSON IN CHARGE	APPROX. DATE COMPLETED MO. / YR.

00402

PASSAIC VALLEY SEWERAGE COMMISSION

ACKNOWLEDGMENT OF RECEIPT OF CHANGES TO BID DOCUMENTS FORM

CONTRACT NO. B514

Insulation Services on an As Needed Basis for a Two (2) Year Period

Pursuant to N.J.S.A. 40A:11-23.1a et seq., the undersigned bidder hereby acknowledges receipt of the following notices, revisions, or addenda to the bid advertisement specifications or bid documents. By indicating date of receipt, bidder acknowledges the submitted bid takes into account the provisions of the notice, revision or addendum. Note that the PVSC's record of notice to bidders shall take precedence and that failure to include provisions of changes in a bid proposal may be subject for rejection of the bid. If there were no revisions or addenda write **NONE** on the top line, sign the acknowledgment below and submit with the bid documents.

Local Unit Reference Number or Title of Addendum/Revision	How Received (mail, fax, pick-up, etc.)	Date Received

Acknowledgment by Bidder:

Name of Bidder:
(Company Name)

By Authorized Representative:

Signature:

Print Name and Title:

Date:

00403 (To be used if the contract value is expected to exceed \$100,000.00)

PASSAIC VALLEY SEWERAGE COMMISSION

CONTRACT NO. B514 - SUBCONTRACTOR LISTING

The undersigned proposes to use the following subcontractors to perform the work indicated (use additional sheets as required).

<u>Work to be Performed</u>	<u>Name(s) and Address of Subcontractor(s)**</u>	<u>License Number(s)</u>
1. Plumbing & Gas Fitting and all Kindred Work		
2. Heating and Ventilation and all Kindred Work		
3. Electrical Work		
4. Structural Steel and Ornamental Iron Work		

Name and Title of Authorized Representative

Signature of Authorized Representative

****IMPORTANT NOTE:** Whenever a Bid sets forth more than one subcontractor for any of the specialty trade categories (1) through (4) specified hereinabove in this section, the Bidder shall submit to PVSC a certificate signed by the bidder listing each subcontractor named in the Bid for that category. The certificate shall set forth the scope of work for which the subcontractor has submitted a price quote and which the Bidder has agreed to award to each subcontractor should the Bidder be awarded the contract. The certificate shall be submitted to PVSC simultaneously with the list of subcontractors. The certificate may take the form of a single certificate listing all subcontractors or, alternatively, a separate certificate may be submitted for each subcontractor.

**PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105**

PUBLIC WORKS CONTRACTOR REGISTRATION

CONTRACT NO. B514

INSULATION SERVICES ON AN AS NEEDED BASIS FOR A TWO (2) YEAR PERIOD

1. In accordance with "The Public Works Contractor Registration Act," P.L., 1999, c238 (N.J.S.A. 34:11 – 56.48 et seq.) amended by P.L. 2003, C91.

"No contractor shall bid on any contract for public work as defined in section 2 of P.L 1963, c150 (C34:11 – 56.26 et seq.) unless the contractor is registered pursuant to this act. No contractor shall list a subcontractor in a bid proposal for the contract unless the subcontractor is registered pursuant to P.L 1999, c238 (C34:11 – 56.48 et seq.) at the time the bid is made. No contractor or subcontractor, including a subcontractor not listed in the bid proposal, shall engage in the performance of any public work subject to the contract, unless the contractor is registered pursuant to that act." (N.J.S.A. 34:11 – 56.51 et seq.)

"Contractor means a person, partnership, association, joint stock company, trust, corporation, or other legal business entity or successor thereof who enters into a contract which is subject to the provisions of the "New Jersey Prevailing Wage Act," P.L 1963, c150 (C34:11 – 56.25 et seq.) and includes any subcontractor or lower tier subcontractor of a contractor defined herein" (N.J.S.A. 34:11 – 56.50 et seq.).

2. Proof of registration is required before an award can be made:

"Each contractor shall, after the bid is made and prior to the awarding of this contract, submit to the public entity the certificates of registration for all subcontractors listed in the bid proposal. Applications for registration shall not be accepted as a substitute for a certificate of registration for the purposes of this section." (N.J.S.A. 34:11 – 56.55 et seq.).

3. On and after August 16, 2003, Contractors and their listed subcontractors bidding on covered work shall provide proof of the required registration prior to the contract award. [As a practical matter, proof of required registration should be submitted with the Bid].
4. By signing this form, the Contractor certifies that they shall provide proof of the required registration prior to the contract award.

(Signature)

(Date)

(Name and Title of Signer - Please type)

END OF SECTION

**CONTRACT NO. B514
PASSAIC VALLEY SEWERAGE COMMISSION
600 WILSON AVENUE
NEWARK, NEW JERSEY 07105**

**CONTRACT AND SPECIFICATIONS
FOR**

INSULATION SERVICES ON AN AS NEEDED BASIS FOR A TWO (2) YEAR PERIOD

THIS AGREEMENT, made and executed this _____ day of _____, 20____ by and between the Passaic Valley Sewerage Commission, a public body of the County of Essex, State of New Jersey, hereinafter called the "Commission," acting through its Chairman, and

a corporation chartered under the laws of the State of _____ partnership,
individual with principals offices at _____

hereinafter called the "Contractor."

WITNESSETH: That the said Contractor has agreed and by these presents does agree with the Commission, for the Prices bid and stipulated in the Proposal herein contained or hereunto annexed and under the terms and conditions expressed in Bonds bearing even date with these presents, and herein contained or hereunto annexed, to furnish at his own cost and expense all the necessary materials, labor, superintendence, tools, and appliances and shall execute, construct, and finish and test in an expeditious and workmanlike manner all the work as described in the contract specifications commencing the work within ten (10) days from the date of Notice to Proceed and executing the same within the time and proceed in the manner specified and in conformity with the requirements set forth in the Contract Documents herein contained or hereunto attached and in accordance with the Contract Specifications of said Work.

In the event that the contract documents, exclusive of the Contractor's Bid Form, are in conflict with the Contractor's Bid or Bid Form, the provisions, terms and conditions of the Commission Contract Documents and specifications shall bind the parties.

The Contractor shall proceed with the said Work in a prompt and diligent manner and shall do all parts thereof at such times in such order as the Commission may approve. Further, he shall complete the whole of said Work in accordance with the Contract Documents to the satisfaction of the Commission.

The Commission shall not be liable to the Contractor for any neglect, default, delay or interference of or by another other contractor, nor shall any such neglect, default, delay or interference of any other contractor, or alteration which may be required in said Work, release the Contractor from the obligation to finish the said Work within the time aforesaid or from the damages to be paid in default thereof.

00500 CONTRACT AGREEMENT (Page 2 of 2)

Name and addresses of each person or company interested in the Contract:

It is hereby mutually agreed that the Commission are to pay and the Contractor is to receive the amount bid (less retainage, if any) as stipulated in the proposal herein contained or hereto annexed, as full compensation for furnishing all material and labor and in all respects completing the herein described work in the manner and under the conditions herein specified, and for fully complying with the terms and conditions of this Contract.

Subject to the applicable provisions of law, the Contract shall be in full force and effect from and after the date when a fully executed and approved counterpart hereof is delivered to the Contractor at the address set forth above and shall remain and continue in full force and effect until after the expiration of the warranty period and the Contractor and the sureties are finally released by the Commission.

IN WITNESS WHEREOF: The parties hereto have executed this agreement the day and year first above mentioned.

(SEAL)

BY: _____
**PASSAIC VALLEY SEWERAGE COMMISSION
CHAIRMAN**

ATTEST BY: _____
**PASSAIC VALLEY SEWERAGE COMMISSION
CLERK**

CONTRACTOR NAME

BY: _____
CONTRACTOR SIGNATURE

(SEAL)

ATTEST BY: _____
CONTRACTOR

00700 GENERAL CONDITIONS – INDEX

00701	Knowledge of Contract Conditions & Requirements
00702	Surety Bond
00703	Obligation of Contractor
00704	Engineering Decision Final
00705	Bankruptcy of Contractor
00706	Responsibility of Contractor (ADDED OPTIONAL COVID-19 LANGUAGE)
00707	Claims by Contractor
00708	Completion of Work
00709	Subcontracts
00710	Changes to Contract
00711	No Waiver of Contract
00712	Claims for Extra Work
00713	N. J. Contract Laws
00714	Starting Date
00715	Contractor Inspection of Site
00716	Prior Site Visit
00717	Existing Physical Conditions
00718	Joint Venture
00719	Omissions by Sub-Contractors
00720	N. J. Statutes
00721	Access to Work
00722	Temporary Utilities
00723	Permits
00724	Save Owner Harmless
00725	NOT USED IN THIS CONTRACT
00726	NOT USED IN THIS CONTRACT
00727	Insurance Requirements
00728	Removal of Temporary Work
00729	Release from All Claims
00730	Claims Against Contractor
00731	Lien Against Contractor
00732	Consent of Surety to Final Payment
00733	NOT APPLICABLE TO THIS CONTRACT
00734	Certification of Engineer
00735	Extra Work
00736	Default of Contractor
00737	Affirmative Action and Americans With Disabilities Act

00738 Substantial Completion and Inspections

00700 GENERAL CONDITIONS

00701 The Contractor enters into this agreement with the full knowledge of the conditions and requirements of the specifications, including the physical characteristics above, on and below the surface of the ground where applicable.

00702 The Contractor will, simultaneously with the execution of this contract, deliver to PVSC a surety bond of a surety company qualified to do business in New Jersey, and shall be listed in the current Federal Register, Department of the Treasury Circular 570. "Surety Companies acceptable on Federal Bonds." The said surety bond will provide that the surety company will become surety for the faithful performance of the work and shall be in an amount equal to the contract price, and shall be so conditioned as to indemnify PVSC against any losses due to the failure of the Contractor to conform to the requirements.

The form of the surety bond shall be subject to the approval of the Chief Counsel of PVSC and shall be in accordance with the requirements of N.J.S.A. 2A:44-143 to 147.

00703 The Contractor agrees that during the entire term of the contract it will pursue the work faithfully and diligently and will, at all times, have the necessary sources of supply, labor, material and machinery necessary to complete the contract in accordance with the terms of the specifications.

00704 All work done under this contract shall be done to the satisfaction of the Engineer of PVSC, who shall in all cases determine the amount, quality, acceptability and fitness of the material and work which are to be paid for hereunder and shall decide any questions which may arise as to the fulfillment of this decision thereon shall be final and conclusive. The word "Engineer" shall mean the person holding the position of Manager of Plant Engineering of the Passaic Valley Sewerage Commission, or his duly authorized representative.

00705 If the Contractor should be adjudged a bankrupt, or if it should make a general assignment for the benefit of its creditors, or if a receiver should be appointed on account of its insolvency, or if it should persistently or repeatedly refuse or should fail to supply enough skilled workmen or proper materials, or if it should fail to make prompt payment to subcontractors for material, labor, or equipment rental, or persistently disregard laws, ordinances, or other instructions of the Engineer, or this contract, then PVSC, upon the certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy and after giving the Contractor thirty (30) days written notice, terminate the employment of the Contractor. The termination of the employment of the Contractor under the provisions of this paragraph shall not relieve the surety of its responsibility.

00706 The Contractor shall be responsible for all parts of its work, either temporary or permanent, until the contract is accepted by PVSC and it shall thoroughly protect all work, finished or unfinished, against damage from any cause. Risk of loss shall remain with the Contractor until the work has been accepted by a resolution duly adopted by PVSC. The use of part or all of the work by PVSC shall not relieve the Contractor of its responsibility until such time as the work has been formally accepted by resolution. The Contractor shall conduct its operations in such a manner as to provide maximum safety for all employees on the work and the public as well, and shall comply with the requirements of all New Jersey and Federal Statutes governing safety requirements for employees.

In order to safely and responsibly allow contractors access to PVSC facilities it is critical that all contractor working at PVSC adhere to the guidance and recommendations issued by the Centers for Disease Control ("CDC") and the New Jersey Department of Health ("NJDOH"). PVSC also retains the right to require protocols not specifically addressed by the CDC or NJDOH to maintain a safe and healthy work environment for its employees, vendors, agents and guests.

- **In addition at a minimum, the Contractor will be required to adhere to the following PVSC Protocols:**

- All personnel shall view and sign acknowledgement form for PVSC's Contractor Training Course;
- All personnel shall submit completed training and safety documents required **TWO (2) Business Days** before entering site.
- All personnel shall report to Security for credentialing prior to any work
- All personnel shall have PVSC's Contractor Training 'Sticker' affixed and visible on their hard hats;
- All personnel to which it applies will be issued a PVSC Contractor Identification Card;
- All personnel shall minimize interaction with PVSC personnel to the greatest extent possible.

PVSC's Contractor Safety Training has been uploaded in video form to our Website, <https://www.nj.gov/pvsc/>, along with the corresponding documents required by the contractors. These can be located on the home page under "Current News Click Here." Once completed, the documents should be emailed to PVSCTraining@pvsc.com.

Once received and validated by the Safety Department, contractors will verify with their PVSC project point of contact, their ability to comply with the additional PVSC Contractor Site Access Protocols as they may apply. Only after this verification will the contractor receive approval to enter PVSC facilities. The PVSC point of contact shall notify Security & Safety of the anticipated start date of the contractor to allow Gate Access.

All personnel shall submit completed training and safety documents required TWO (2) Business Days before entering site.

On their first entry into PVSC all new contractors shall report to the Security Building to receive their Safety Orientation Hard Hat sticker and if applicable (by project) their contractor Identifications.

- 00707** All notices, demands, requests, instructions, approvals and claims shall be in writing. Any notice to or demand upon the Contractor shall be sufficiently given if delivered at the office of the Contractor specified in the bid (or at such other offices as the Contractor may from time to time designate to the Engineer in writing) or if deposited in the United States mail in a sealed, postage prepaid envelope, or delivered by telephone electronic/facsimile (FAX) transmission system. All papers required to be delivered to PVSC shall, unless otherwise specified to the Contractor in writing, be delivered to the office of PVSC AT 600 Wilson Avenue, Newark, New Jersey and any notice to or demand upon PVSC shall be sufficiently given if delivered to the said office, or if deposited in the United States mail in a sealed, postage-prepaid envelope, certified mail, return receipt requested.
- 00708** No final payment shall be made until the Engineer has certified to PVSC that the work has been completed by the Contractor in accordance with the requirements of the plans, specifications and contract.
- 00709** The Contractor shall not assign the contract or sublet it in whole or in part without the prior written consent of PVSC, nor shall the Contractor assign any monies due or becoming due to it without the prior written consent of PVSC.
- 00710** This contract, and all incorporations by reference together with the plans, specifications and bid documents, constitutes the entire agreement and understanding between the parties. This contract may not be modified, altered, abridged, amended or supplemented, except by written agreement executed by the parties.
- 00711** Neither the inspection by the Engineer or any agent or employee of PVSC, nor any order by PVSC for the payment of money, nor any payment for, or acceptance of, the whole or any part of

the work, by PVSC or the Engineer, nor any possession taken by PVSC or their employees, shall operate as a waiver of any provisions of this contract, or of any right to damage herein provided, nor shall any waiver of any breach of the contract be held to be a waiver of any or subsequent breach. Any remedy provided in this Contract shall be taken and construed as cumulative, that is, in addition to each and every other remedy herein provided, and PVSC shall also be entitled as of right to a writ of injunction against any breach of any of the provisions of this contract.

- 00712** The Contractor covenants and agrees that anything in this contract or in the contract documents to the contrary notwithstanding, or regardless of any matter, thing, contingency or condition unforeseen or otherwise, present or future, the Contractor shall not be entitled to receive any additional or further sums of money than the amounts in said contract documents provided, except pursuant to a written change order duly authorized by a resolution of PVSC; and the failure of PVSC to insist upon strict performance of any of the terms, covenants, agreements, provisions or conditions in this contract or in the contract documents or any one or more instances, shall not be construed as a waiver of relinquishment for the future of any such terms, covenants, agreements, provisions and conditions, but the same shall be and remain in full force and effect with power and authority on the part of PVSC to enforce the same or cause the same to be enforced at any time, without prejudice to any other rights which PVSC may have against the Contractor under this contract or the contract documents.
- 00713** Plans, specifications and the within contract shall be construed in accordance with the laws of the State of New Jersey.
- 00714** The Contractor shall commence with the work on the project within ten (10) days after notice to proceed unless stated otherwise herein.
- 00715** The Contractor has agreed that is has carefully examined the site of the work, the form of the contract and specifications and the drawings referred to therein, and will provide all necessary machinery, tools, apparatus, and other means for construction and do all the work and furnish all the materials called for by the within contract and the specifications and the requirements under them of the Engineer and in accordance with the bidders notice, information for bidders, plans, general requirements, specifications, etc., all of which are incorporated herein as though fully set forth and form a part of this contract.
- 00716** The Contractor is held to have visited the site prior to the time of submitting bids and to have apprised and informed itself of all conditions at the site. Any information furnished by a representative of PVSC upon such matters shall in no way relieve the Contractor from risk or responsibility in fulfilling all of the terms of the contract; nor shall PVSC assume any responsibility or incur any liability as the result of furnishing of information by any representative.
- 00717** Any information as to the location of existing substructures and utilities shown on the contract drawings is not guaranteed as to accuracy by PVSC and PVSC incurs no responsibility or obligation to the Contractor or others in connection therewith.
- 00718** The Contractor shall not employ any subcontractor that PVSC may object to as incompetent or unfit; nor shall the Contractor subcontract to any person that has submitted a bid proposal for the award of the contract. Additionally, the Contractor shall not enter into any joint venture of any kind whatsoever relating to the within construction. PVSC may waive the provisions of this paragraph in its sole and absolute discretion, upon submission of a written request by the Contractor for a waiver supported by a disclosure of all of the facts and circumstances accompanied by a copy of the joint venture contract agreement or understanding.

The Contractor shall provide proof of its business registration with the New Jersey Department of Treasury required at, or before, time of award.

The Contractor shall list all subcontractors that it intends to employ in its bid proposal. PVSC encourages Contractors to supply sufficient information for PVSC to identify the contractor and named subcontractors through a computerized system maintained by the State of New Jersey pursuant to N.J.S.A. 52:32-44(b). The subcontractor's State license number and business registration certificate from the NJ Department of Treasury are not required prior to bid, but are required to be submitted prior to Contract Award.

- 00719** The Contractor agrees that it is as fully responsible to PVSC for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.
- 00720** All statutes not referred to herein but required by law to be applicable are incorporated herein as though fully set forth though fully set forth.
- 00721** Representatives of PVSC shall have access to the work when it is in progress. Any inspection costs incurred by PVSC by reason of any breach or derelictions by the Contractor shall be chargeable to the Contractor.
- 00722** The Contractor must arrange for its own utilities, paying for all permits, connections, consumption, as required of whatsoever kind.

The Contractor must provide the OWNER written notification at least 14 days prior to bringing power generating equipment or stationary equipment containing Reciprocating Internal Combustion Engines (RICE) onsite, such as back-up generators and emergency generators. The Contractor is advised that the OWNER maintains both a Title V Air Permit and a Discharge Prevention Containment and Countermeasure Plan (DPCC), and in order to maintain these permits and Plans, notification is required.

1. The Contractor is advised that emergency generators and back-up or continuous power generators are two distinct categories. An emergency generator* is only used to provide power during power outages.
* In order for an event to be classified as an actual emergency (see definition of "emergency generator" at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.
2. A 14-Day Notification form, entitled "14 Day Notification Letter for temporary Fuel or Chemical Storage tanks, equipment, & Reciprocating Internal Combustion Engines (RICE)", including completion instruction is included in Appendix 4. Each piece of equipment requires a separate form. Electronic copies are available from, and shall be submitted through use of electronically.
3. Provision of a written notification to the OWNER does not constitute approval of the equipment. No equipment shall be brought on site without prior written approval by the OWNER.
4. All power generating equipment, emergency generators, and stationary RICE containing equipment must be installed in secondary containment if they are capable of storing 5 or more gallons of hazardous material (i.e. fuel) and are subject to the requirements of Contractor Hazardous Material Storage Tanks discussed below.

The Contractor shall be responsible for any/all cost of clean-up, fees, fines, etc., that may result from a violation of the OWNER'S assorted permits, including, but not limited to it NJPDES operating permit, Title V Permit, Regulatory Inspection violation, or hazardous material spill.

- 00723** The Contractor shall procure at its own expense all necessary permits to prosecute and complete the work. It shall keep itself fully informed of all existing and future state and Federal Laws and Regulations and Municipal Ordinances and Regulations, in any manner affecting the work and the persons engaged or employed in the work, or the materials used in the work, or in any affecting the performance of the work, either with respect to hours of labor or otherwise, and of all such laws, ordinances, regulations, orders and decrees, and shall protest and indemnify PVSC and their officers and agents against any claims or liability arising from or based on the violation of any such law, ordinance, regulation, order or decree, whether by itself, or by its agents or employees.
- 00724** To the fullest extent permitted by law, the Contractor shall indemnify, defend, and hold harmless PVSC and its Commission, officers, directors, employees, and agents (collectively, the "Indemnified Parties" and individually, an "Indemnified Party") from and against any and all claims, damages, losses, fines, civil penalties, liabilities, judgments, costs and expenses of any kind or

nature whatsoever, including, but not limited to, interest, court costs and attorneys' fees, which in any way arise out of or result from any act(s) or omission(s) by Contractor (or anyone directly or indirectly employed by Contractor, including sub-contractors, or anyone for whose acts Contractor may be liable) in the performance or non-performance of services or other obligations under this agreement or in the use or occupancy of any facilities or equipment provided by the Indemnified Parties, including, but not limited to, injury to or death of any person, damage to or destruction of any property, real or personal (including, but not limited to, property owned, leased or under the control of the Indemnified Parties), and liability or obligations under or with respect to any violation of federal, state and local laws, regulations, rules, codes and ordinances (including, but not limited to, those concerning environmental protection).

This section shall apply regardless of whether or not the damage, loss, or injury complained of arises out of or relates to the negligence (whether active, passive or otherwise) of, or was caused in part by, an Indemnified Party. However, nothing contained in this section shall be construed as a release or indemnity by Contractor of an Indemnified Party from or against any loss, liability, or claim to the extent arising from the gross negligence or willful misconduct of that Indemnified Party.

This section shall not be construed to negate, abridge or otherwise reduce any other right to indemnity which would otherwise exist in favor of any Indemnified Party, or any obligation of Contractor, or its officers, directors, employees, agents, contractors, or sub-contractors to indemnify an Indemnified Party. Contractor's obligations under this section shall not be limited by any limitation on the amount or type of damages, compensation, or benefits paid or payable by Contractor under workers' compensation laws, disability benefits laws, or other employee benefit laws or regulations.

The indemnification obligations of this section shall survive termination or expiration of the Contract.

00725 NOT USED IN THIS CONTRACT

00726 NOT USED IN THIS CONTRACT

00727 The Contractor must procure and maintain during the term of this contract the following types of insurance coverage, which shall be consistent with the terms of the specifications and general and supplemental conditions:

1. Commercial General Liability ("GCL") insurance, for personal injury and property damage liability of not less than five million dollars (\$5,000,000.00) combined single limit for each occurrence/five million dollars (\$5,000,000.00) aggregate;
2. Comprehensive automobile liability insurance coverage of not less than one million dollars (\$1,000,000.00) combined single limit;
3. Workers' compensation with limits in accordance with New Jersey law; and
4. Employer liability insurance with limits of at least five hundred thousand dollars (\$500,000.00).

PVSC and its Commission, officers, directors, employees, and agents shall be named as additional insureds on the CGL and comprehensive automobile liability policies, and, within 20 days of the Notice of Intent to Award Contract, the Contractor shall provide evidence of same in the form of certified endorsements specifically naming PVSC and its commissioners, officers, directors, employees, and agents as additional insureds. The submission of a Certification of Insurance will not serve as adequate proof that PVSC and its commissioners, officers, directors, employees, and agents have been named as additional insureds.

Each insurance policy shall contain a provision stating that neither the insured, nor the insurer may cancel, materially change, or refuse renewal without a minimum 30 days prior written notice to PVSC. In the event of cancellation due to non-payment of premiums, said notice shall be at

least 10 days prior to cancellation. All insurance required pursuant to this section shall remain in full force and effect until the final contract payment, or until the end of the warranty period which ever is later.

Each insurance policy shall provide that neither the Contractor, nor its insurer, shall have any right to subrogation against PVSC. Any and all policies of insurance maintained by the Contractor shall be primary without contribution from any insurance procured, carried, and/or maintained by PVSC.

In the event the Contractor is permitted to utilize any subcontractor, the Contractor shall require the subcontractor's insurance coverage to be at least equal to the requirements set forth above, including, without limitation, the provisions regarding the naming of additional insureds and the Contractor's insurance being primary. In the alternative, the Contractor may insure the activities of its subcontractors under its own policies. The Contractor is responsible for and will assume all liabilities for any insurance deficiency or delinquency of a subcontractor or any claim that may result because of the deficiency or delinquency.

The Contractor's insurance carrier(s) shall also provide an endorsement insuring, accepting and including the requirement of indemnification and defense as set forth in General Conditions Section 00724.

- 00728** Before the final acceptance of the work, the Contractor shall remove all equipment, temporary work, unused materials and rubbish, and temporary buildings; shall repair or replace in an acceptable manner all private or public property which may have been damaged, destroyed, moved or removed on account of the prosecution of the work; and shall leave the site and all adjacent properties in a neat and presentable condition wherever its operations have disturbed conditions existing at the time of the starting of the work.
- 00729** No final or semifinal payment shall be made until the Contractor has executed and delivered a release to PVSC and every member, agent or employee thereof, from all claims and liability to the Contractor for everything and anything done or furnished, or of any person relating to or affecting the work. (Semifinal payment shall mean payment for all work performed under the contract, except retainage held as a guarantee against warrantee claims.)
- 00730** Before final or semifinal payment, the Contractor shall deliver to PVSC an affidavit of payment of all claims of suppliers and subcontractors. In the event that any supplier or subcontractor has not been paid and the claim is disputed by the Contractor, the Contractor shall submit all of the facts in its affidavit and PVSC shall be authorized, in the exercise of its discretion, to withhold from the payment the sum of money sufficient to guarantee payment of the claim. Nothing contained herein, however, shall incur any responsibility by PVSC to any material man or subcontractor, nor shall anything contained herein give rise to a cause of action by any subcontractor or supplier against PVSC.
- 00731** Before final acceptance and final or semifinal payment by PVSC, the Contractor shall deliver to PVSC a complete release of all liens arising out of the contract. Contractor agrees that at no time shall any municipal liens, mechanical liens, notices of intention, or secured instruments be filed against the work and should PVSC be compelled to remove or discharge a municipal lien, mechanics lien, notice of intention or secured instrument, the Contractor shall reimburse PVSC for all costs.
- 00732** Before final or semifinal payment the Contractor shall deliver to PVSC a consent or the Surety to the final payment. Release of final payment shall act to release PVSC of all claims by the Contractor's performance of the contract.
- 00733** **NOT APPLICABLE TO THIS CONTRACT**
- 00734** All payments under the within contract shall be upon the written certification of the Engineer.

To the extent applicable, pursuant to N.J.S.A. 2A:30A-2(f) et seq., disputes regarding whether a party has failed to make payments required pursuant to N.J.S.A. 2A:30A-2 et

seq. may be submitted to a process of alternative dispute resolution. Alternative dispute resolution permitted by this section shall not apply to disputes concerning the bid solicitation or award process, or to the formation of contracts or subcontracts. In any civil action brought to collect payments pursuant to this section, the action shall be conducted inside of this State and the prevailing party shall be awarded reasonable costs and attorney fees.

00735 The Commission may order, and the Contractor shall perform, extra work under this contract that is limited to the subject matter of this contract.

On any work done by the contractor, as ordered by the Commission in writing, which is not covered in the contract, the contractor shall be paid as extra work. Extra Work costs shall be arrived at as follows:

- (a) By such applicable unit prices, if any, as are set forth in the contract; or
- (b) If no such unit prices are set forth, and if the parties cannot agree upon prices or lump sum, then for work performed the Contractor shall receive as compensation the actual cost to him, which cost shall include only:
 - 1. Labor, including foreman, but not supervisors.
 - 2. Materials entering permanently into the work.
 - 3. The ownership or rental cost of construction plant and equipment during the time of use on the extra or changed order.
 - 4. Power and consumable supplies for the operation of power equipment during the above time.
 - 5. Insurance.
 - 6. Social Security and old age and unemployment contributions.
 - 7. Plus a fixed fee equal to 15% of the summation of items #1 through #6 above, which fee shall be compensation to cover the cost of supervision, overhead, bond, profit, and any other general expenses. The prime contractor will not be permitted to include both his 15% and any subcontractor's 15% for the items enumerated herein.

00736 In the event that the vendor, unless prevented by strike or strikers, which prevents delivery of parts or services, and shall fail to furnish the materials, or services listed in this contract as per the specifications, and according to all the terms of this contract, the Commissioner reserves the right to rescind the contract and purchase the materials, or services through the open market, and the vendor agrees to pay the excess costs, if any, between the amount paid for same and the amount calculated at the contract price.

00737 During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be

provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor will send to each labor union, with which it has a collective bargaining agreement, a notice, to be provided by the agency contracting officer, advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer, pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.S.A. 17:27-7.2 et seq.; provided, however, that the Dept. of Labor and Workforce Development (LWD), Construction EEO Monitoring Program may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions prescribed by the following provisions, A, B and C, as long as the Dept. of LWD, Construction EEO Monitoring Program is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Dept. of LWD, Construction EEO Monitoring Program, that is percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2 et seq.. The contractor or subcontractor agrees that a good faith effort shall include compliance with the following procedures:

- A. If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three (3) business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union as least five (5) business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the hiring or scheduling procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.
- B. If good faith efforts to meet targeted employment goals have not or cannot be met for each construction trade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:
 - 1) To notify the public agency compliance officer, the Dept. of LWD, Construction EEO Monitoring Program, and minority and women referral organizations listed by the Division

pursuant to N.J.A.C. 17:27-5.3 et seq., of its workforce needs, and request referral of minority and women workers;

- 2) To notify any minority and women workers who have been listed with it as awaiting available vacancies;
- 3) Prior to commencement of work, to request that the local construction trade union refer minority and women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
- 4) To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
- 5) If necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;
- 6) To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:
 - i) The contractor or subcontractor shall interview the referred minority or women worker.
 - ii) If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that the individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency provided the referral agency is acceptable to the Dept. of LWD, Construction EEO Monitoring Program. If necessary, the contractor or subcontractor shall hire or schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below.
 - iii) The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in (i) above, whenever vacancies occur. At the request of the Dept. of LWD, Construction EEO Monitoring Program, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
 - iv) If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its files, and send a copy to the public agency compliance officer and to the Dept. of LWD, Construction EEO Monitoring Program.
- 7) To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Dept. of LWD, Construction EEO Monitoring Program and submitted promptly to the Dept. of LWD, Construction EEO Monitoring Program upon request.

- C. The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hall arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction trade, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that, in implementing the procedures of (B) above, it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Dept. of LWD, Construction EEO Monitoring Program an initial project workforce report (Form AA 201) electronically provided to the public agency by the Dept. of LWD, Construction EEO Monitoring Program, through its website, for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7 et seq. The contractor also agrees to submit a copy of the Monthly Project Workforce Report once a month thereafter for the duration of this contract to the Division and to the public agency compliance officer.

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

- D. The contractor and its subcontractors shall furnish such reports or other documents to the Dept. of LWD, Construction EEO Monitoring Program as may be requested by the Dept. of LWD, Construction EEO Monitoring Program from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Dept. of LWD, Construction EEO Monitoring Program for conducting a compliance investigation pursuant to **Subchapter 10 of the Administrative Code (N.J.A.C. 17:27).**
- E. The CONTRACTOR and the OWNER do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "Act") (42 U.S.C. §12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the OWNER pursuant to this contract, the CONTRACTOR agrees that the performance shall be in strict compliance with the Act. In the event that the CONTRACTOR, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this Contract, the CONTRACTOR shall defend the OWNER in any action or administrative proceeding commenced pursuant to this Act. The CONTRACTOR shall indemnify, protect, and save harmless the OWNER, its agents, servants, and employees from and against any and all suits, claims, losses demands, or damages, or whatever kind or nature arising out of or claimed to arise out of the alleged violation. The CONTRACTOR shall at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the OWNER grievance procedure, the CONTRACTOR agrees to abide by any decision of the OWNER which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the OWNER

or if the OWNER incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the CONTRACTOR shall satisfy and discharge the same at its own expense.

- F. The OWNER shall, as soon as practicable after a claim has been made against it, give written notice thereof to the CONTRACTOR along with full and complete particulars of the claim. If any action or administrative proceedings is brought against the OWNER or any of its agents, servants, and employees, the OWNER shall expeditiously forward or have forwarded to the CONTRACTOR every demand, complaint, notice, summons, pleading, or other process received by the OWNER or its representatives. It is expressly agreed and understood that any approval by the OWNER of the services provided by the CONTRACTOR pursuant to this contract will not relieve the CONTRACTOR of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the OWNER pursuant to this paragraph. It is further agreed and understood that the OWNER assumes no obligation to indemnify or save harmless the CONTRACTOR, its agents, servants, employees and subcontractors for any claim which may arise out to their performance of this Agreement. Furthermore, the CONTRACTOR expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the CONTRACTOR'S obligations assumed in this agreement, nor shall they be construed to relieve the CONTRACTOR from any liability, nor preclude the OWNER from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

00738 Substantial Completion and Inspections

Substantial Completion

When work (or specified part thereof) has progressed (including and specified operational periods) to a point that the Owner determines that the work is ready for its intended use with contract documents.

Substantial Completion Inspection

At the point that the Contractor feels that substantial completion is satisfied, request in writing to the Owner a substantial completion inspection. At or prior to the time the Contractor requests substantial completion the Contractor shall have previously submitted O&M manuals, spare parts, guarantees, warranties, as-built and record drawings, certifications and other documents necessary for close-out of the work. At the substantial completion inspection, the Owner shall: inspect the work, add to the Contractor's list any other items to be completed or corrected; and, determine whether the work is substantially complete. If the work is not substantially complete, the Contractor shall forthwith complete all the items the owner has determined to be needed for substantial completion. Upon completion of such work the Contractor shall request an inspection of such work. When the Owner determines that the work is substantially complete including all claims and compensation therefore have been satisfied, the (Owner and Contractor) shall each sign the Certificate of Substantial Completion and semi-final payment will be released, which excludes retainage and punch list items (with dollar amounts associated) listed in the Certificate of Substantial Completion.

Final Inspection

Inspection shall be conducted between the Owner and Contractor to determine if deficiencies have been completed and work is acceptable, so that final payment can be released to the Contractor.

END OF SECTION

00800 SUPPLEMENTAL CONDITIONS – INDEX

- 00821 Anti-Discrimination**
- 00822 Foreign Corporations**
- 00823 Prevailing Wage**
- 00825 Use Of Domestic Materials**
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- 00834 CHANGE CONDIDTIONS CLAUSES FOR CERTAIN LOCAL PUBLIC CONTRACTS**
- 00835 DIANE B. ALLEN EQUAL PAY ACT**

00800 SUPPLEMENTAL CONDITIONS

00821 N.J.S.A. 10:2-1 – Anti-Discrimination

Every contract for or on behalf of the State or any county or municipality or other political subdivision of the State, or any agency of or authority created by any of the foregoing, for the construction, alteration or repair of any public building or public work or for the acquisition of materials, equipment, supplies or services shall contain provisions by which the contractor agrees that:

- a. In the hiring of persons for the performance of work under this contract or any subcontract hereunder, or for the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under this contract, no contractor, nor any person acting on behalf of such contractor or subcontractor, shall by reason of race, creed, color, national origin, ancestry, marital status, gender identity or expression, sex, affectional or sexual orientation, discriminate against any person who is qualified and available to perform the work to which the employment relates;
- b. No contractor, subcontractor, nor any person on his behalf shall in any manner, discriminate against or intimidate any employee engaged in the performance of work under this contract or any subcontract hereunder, or engaged in the procurement, manufacture, assembling or furnishing of any such materials, equipment, supplies or services to be acquired under such contract, on account of race, creed, color, national origin, ancestry, marital status, gender identity or expression, sex, affectional or sexual orientation;
- c. There may be deducted from the amount payable to the contractor by the contracting public agency, under this contract, a penalty of \$50.00 for each person for each calendar day during which such person is discriminated against or intimidated in violation of the provisions of the contract; and
- d. This contract may be canceled or terminated by the contracting public agency, and all money due or to become due hereunder may be forfeited, for any violation of this section of the contract occurring after notice to the contractor from the contracting public agency of any prior violation of this section of the contract.

00822 N.J.S.A. 14A:13-3 – Foreign Corporations

1. No foreign corporation shall have the right to transact business in this State until it shall have procured a certificate of authority to do so from the Secretary of State. A foreign corporation may be authorized to do in this State any business which may be done lawfully in this State by a domestic corporation, to the extent that it is authorized to do such business in the jurisdiction of its incorporation, but no other business.
2. Without excluding other activities which may not constitute transacting business in this State, a foreign corporation shall not be considered to be transacting business in this State, for the purposes of this act, by reason of carrying on in this State any one or more of the following activities:
 - a. Maintaining, defining or otherwise participating in any action or proceeding, whether judicial, administrative, arbitative or otherwise, or effecting the settlement thereof or the settlement of claims or disputes;
 - b. Holding meetings of its directors or shareholders;
 - c. Maintaining bank accounts or borrowing money, with or without security, even if such borrowings are repeated and continuous transactions and even if such security has a situs in this State;

- d. Maintaining offices or agencies for the transfer, exchange and registration of its securities, or appointing and maintaining trustees or depositaries with relation to its securities.
3. The specification in subsection 14A:13-3(2) does not establish a standard for activities which may subject a foreign corporation to service of process or taxation in this State.

00823 N.J.S.A. 34:11-56.25 – Prevailing Wages

Every contract in excess of \$2,000 for any public work to which any public body is a party or for public work to be done on property or premises leased or to be leased by a public body, shall contain a provision stating the prevailing wage rate which can be paid (as shall be designated by the commissioner) to the workers employed in the performance of the contract and the contract shall contain a stipulation that such workers shall be paid not less than such prevailing wage rate. Such contract shall also contain a provision that in the event it is found that any workers, employed by the contractor or any subcontractor covered by said contract, has been paid a rate of wages less than the prevailing wage required to be paid by such contract the public body or lessor may terminate the contractor's or subcontractor's right to proceed with the work, or such part of the work as to which there has been a failure to pay required wages and to prosecute the work to completion or otherwise. The contractor and his sureties shall be liable to the public body or lessor for any excess costs occasioned thereby.

N.J.S.A. 34:11-56.26(5) et seq. has added to the existing prevailing wage requirements off-site workers who custom fabricate plumbing, heating, cooling, ventilation, or exhaust duct systems and mechanical insulation as part of a public works project.

N.J.S.A. 34:11-56.25 et seq., requires that all public works employers shall submit a certified payroll record to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records. A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, New Jersey 08625-0389.

NOTE: Prevailing wage rates will not apply or be applicable to any contract unless an appendix from the New Jersey Department of Labor which includes the "Prevailing Wage Rate Determination," listing the prevailing wage levels is attached to the contract.

00825 N.J.S.A. 52:33-2 and -3 – Use of Domestic Materials

52:33-2 Notwithstanding any inconsistent provision of any law, and unless the head of the department, or other public officer charged with the duty by law, shall determine it to be inconsistent with the public interest, or the cost to be unreasonable, only domestic products and materials shall be acquired or used for any public work. This requirement is specifically set forth in N.J.S.A. 40A:11-18 et seq. and is incorporated herein by reference and made a part hereof.

This section shall not apply with respect to domestic materials to be used for any public work, if domestic materials of the class or kind to be used are not mined, produced or manufactured, as the case may be, in the United States in commercial quantities and of a satisfactory quality.

52:33-3 Every contract for the construction, alteration, or repair of any public work in this state shall contain a provision that in the performance of the work the contractor and all subcontractors shall use only domestic materials in the performance of the work; but if the head of the department or other public officer authorized by law to make the contract shall find that in respect to some particular domestic materials it is impracticable to make such requirement or that it would unreasonably increase the cost, an exception shall be noted in the specifications as to that particular material, and a public record made of the findings which justified the exception.

00826 Hazardous Materials

All hazardous material whether sold, delivered, and/or used to perform a service on the PVSC site, shall be properly labeled in accordance with the New Jersey Worker and Community Right to Know Act (P.L. 1983, c315, N.J.S.A. 34:5A-1 et seq.). The bidder shall include with his bid proposal the Material Safety Data Sheets, for all the hazardous products that he intends to deliver to the PVSC under this bid. The bidder shall comply with these terms otherwise his bid will be disqualified.

Hazardous material not complying with this act will cause the PVSC to reject shipments or deny the use of such materials on its site. The bidder shall be responsible for any cost incurred for materials found not to be in compliance with the act. The PVSC will make the sole determination if this act is being violated, and the bidder shall abide by this decision. Violation of this act may be considered an abandonment of the contract, and the Commission may seek redress under the Default Article of the contract.

Any equipment that meets the criteria of a hazardous material storage tank (i.e. capable of storing five (5) gallons of more of a hazardous material, including petroleum products) shall be inspected weekly in the same manner and using the same requirements as a Contractor Hazardous Material Storage Tank (CHMST) described in Section 01750 of these specifications. Any equipment capable of storing five (5) gallons of more of a hazardous material, including petroleum products shall be stored in secondary containment.

Comply with all Federal, State, and Local regulations, rules, guidance, and requirements concerning the handling, transportation and disposal of wastes, including, but not limited to:

- Resource Conservation and Recovery Act (RCRA)- Non-Hazardous Wastes: 40 CFR 239-259
- RCRA-Hazardous Wastes: RCRA: 40 CFR 260-273,
- RCRA Universal Wastes: 40 CFR 273
- RCRA- Used Oil and Underground Storage Tanks: 40 CFR 273- 282
- United States Department of Transportation (USDOT) Hazardous Material Regulations: 49 CFR 100-185
- New Jersey Administrative Code (NJAC) 7:26 Solids Waste Rule
- NJAC 7:26A Recycling
- NJAC 7:26G Hazardous Waste;
- NJAC 7:26H Solid Waste Utility Regulations

00827 Certified Payroll

Effective February 18, 1992 Regulation N.J.A.C. 12:60 and 6.1 of the New Jersey Prevailing Wage Act, N.J.S.A. 34:11-56.25 et seq., requires that all public works employers shall submit a certified payroll record to the public body or lessor which contracted for the public work project each payroll period within ten (10) days of the payment of wages. The public body shall receive, file and make available for inspection during normal business hours the certified payroll records.

A copy of the certified payroll form may be obtained by contacting the New Jersey Department of Labor, Division of Workplace Standards, Public Contracts Section, CN 389, Trenton, New Jersey 08625-0389, telephone (609) 292-2259.

00828 Set-Aside Contract Compliance

Contractor shall comply with the New Jersey Statute governing minority and female contractor and subcontractor participation on construction contracts as required by N.J.S.A. 52:32-17 et seq. The regulations, which are more specifically set forth in N.J.A.C. 17:14-1.1 et seq., are incorporated herein by reference and made a part hereof.

00829 NOT APPLICABLE TO THIS CONTRACT

00830 N.J.S.A. 40A:11-17 – Number of Working Days Specified

All specifications for the doing of any public work for a contracting unit shall fix the date before which the work shall be completed, or the number of working days to be allowed for its completion; and every such contract shall contain a provision for a deduction, from the contract price, or any wages paid by the contracting unit to any inspector or inspectors necessarily employed by it on the work, for any number of days in excess of the number allowed in the specifications.

00831 N.J.S.A. 40A:11-19 – Liquidated Damages

Any contract made pursuant to P.L.1971, c.198 (C.40A:11-1 et seq.) may include liquidated damages for the violation of any of the terms and conditions thereof or the failure to perform said contract in accordance with its terms and conditions, or the terms and conditions of P.L.1971, c.198 (C.40A:11-1 et seq.). Notwithstanding any other provision of law to the contrary, it shall be void, unenforceable and against public policy for a provision in a contract entered into under P.L.1971, c.198 (C.40A:11-1 et seq.) to limit a contractor's remedy for the contracting unit's negligence, bad faith, active interference, tortious conduct, or other reasons unanticipated by the parties that delay the contractor's performance, to giving the contractor an extension of time for performance under the contract. For the purposes of this section, "contractor" means a person, his assignees or legal representatives with whom a contract with a contracting unit is made.

00832 MAINTENANCE OF RECORDS

Pursuant to N.J.A.C. 17:44-2-2, the contractor shall maintain all documentation related to products, transactions or services under this contract for a period of five (5) years from the date of final payment. Such records shall be made available to the New Jersey Office of the State Comptroller upon request.

00833 NOTICE TO ALL STATE VENDORS: SET-OFF FOR STATE TAX

- a. Whenever any taxpayer under contract to provide goods or services to the State of New Jersey or its agencies or instrumentalities, and including the legislative and judicial branches of State government, or under contract for construction projects of the State of New Jersey or its agencies or instrumentalities, and including the legislative and judicial branches of State government, is entitled to payment for the goods or services or on that construction project and at the same time the taxpayer is indebted for any State tax, the Director of the Division of Taxation shall seek to set off so much of that payment as shall be necessary to satisfy the indebtedness. The director, in consultation with the Director of the Division of Budget and Accounting in the Department of the Treasury, shall establish procedures and methods to effect a set-off. The director shall give notice of the set-off to the taxpayer, the provider of goods or services or the contractor or subcontractor of construction projects and provide an opportunity for a hearing within 30 days of such notice under the procedures for protests established under R.S. 54:49-18, but no request for conference, protest, or subsequent appeal to the Tax Court from any protest under this section shall stay the collection of the indebtedness. No payment shall be made to the taxpayer, the provider of goods or services or the contractor or subcontractor of construction projects pending resolution of the indebtedness. Interest that may be payable by the State pursuant to P.L.1987, c.184 (C.52:32-32 et seq.), to the taxpayer, the provider of goods and services or the contractor or subcontractor of construction projects shall be stayed.

- b. The Department of the Treasury shall notify each provider of goods or services and contractor or subcontractor of a construction project under contract with the State, its agencies or instrumentalities in an amount of \$500,000 or greater on the effective date of P.L.1995, c.159 (C.54:49-19 et seq.) of the provisions of this section in writing within 30 days after its effective date. A contract entered into by the State, its agencies or instrumentalities with a provider of goods or services or a contractor or subcontractor of a construction project after the effective date of P.L.1995, c.159 (C.54:49-19 et seq.) shall contain a notice of the provisions in this section.

**00834 CHANGE CONDITIONS CLAUSES FOR CERTAIN LOCAL PUBLIC CONTRACTS
(N.J.S.A. 40A:11-16.7)**

All construction contracts issued by a contracting unit for bids which were advertised on or after the effective date [Jan. 16, 2018] of [P.L.2017, c.317 \(C.40A:11-16.7 et seq.\)](#) shall include the changed conditions contract provisions set forth in this section, which provisions shall be deemed to be a part of any such contract even if not expressly incorporated therein, and which provisions may not be modified in any manner by the contracting unit.

00835 DIANE B. ALLEN EQUAL PAY ACT (pursuant to P.L.1963, c.150 (C.34:11-56.25 et seq.))

Pursuant to the DIANE B. ALLEN EQUAL PAY ACT, N.J.S.A. 34:11-56.14.b., the Contractor shall provide to the Commissioner of the New Jersey Department of Labor and Workforce Development, through certified payroll records required pursuant to P.L.1963, c.150 (C.34:11-56.25 et seq.), information regarding the gender, race, job title, occupational category, and rate of total compensation of every employee of the employer employed in the State in connection with the contract. The Contractor shall provide the Commissioner, throughout the duration of the contract with an update to the information whenever payroll records are required to be submitted pursuant to P.L.1963, c.150 (C.34:11-56.25 et seq.).

Information regarding the Diane B. Allen Equal Pay Act and its requirements may be obtained from the New Jersey Department of Labor and Workforce Development (LWD) web site at: <https://nj.gov/labor/equalpay/equalpay.html>

LWD forms may be obtained from the online web site at: https://nj.gov/labor/forms_pdfs/equalpayact/MW-562withoutfein.pdf.

DIVISION 1 - GENERAL REQUIREMENTS

01010 SCOPE OF WORK

The Contractor shall provide Supervision, Labor, Equipment, Materials and Supplies necessary to perform insulation services on an as needed basis.

Work shall include but not be limited to the following:

- Piping Systems
- Equipment
- Ducting Systems
- HVAC and Refrigeration Systems
- Plumbing Systems
- Boiler, Steam and Condensate Systems
- Hot and Cold Water Domestic Water Systems
- Chilled water and Cooling Tower Systems
- Cryogenic Systems and Equipment

The Contractor shall specialize in the Insulation industry. The Contractor shall have a minimum of ten (10) years of experience. The Contractor shall ensure that all requested work shall be performed by personnel who are trained and certified to provide the type of service specified.

It is the intent of this contract to require an installation complete in every detail, whether or not indicated in the Specifications. Consequently, the Contractor shall be responsible for all details necessary to furnish, install and properly adjust, test, and place in successful operation, a complete installation of the equipment as specified.

01011 ERRORS OR OMISSIONS OF DETAILS IN SPECIFICATIONS

Errors in the specifications which are purely typographical shall be interpreted as would be the logical conclusion or brought to the attention of the Owner for interpretation.

The Contractor is required to check all dimensions and quantities on any drawings or schedules made available by the Owner, and shall notify the Owner of all errors therein which he may discover by such examination.

01025 PAYMENT

Payments to the contractor shall be based on submission of a detailed invoice identifying the labor, material, rental equipment (to supply equipment that is not included within this contract) and subcontractor costs, if applicable.

Labor costs shall be reimbursed based on documented timesheet reports of the hours worked on site times the specific labor rate identified in Section 00400. Overtime hourly work (if approved) will be billed at a cost of 1.5 times the labor rates identified in Section 00400

Rental Equipment costs to supply equipment not included within this contract shall be reimbursed based on documented invoices from all suppliers and/or vendors. Original invoices shall be submitted for every piece of rental equipment procured for each assigned task order for which payment is being requested.

Costs for the contractor to supply equipment that he owns and is not included within the contract requirements shall be based on documented invoices. The pricing of all contractors owned equipment must be reasonable and competitive with prevailing market pricing and as per **Equipmentwatch.com**. All rates shall include all fuel, lubricants, supplies, small tools, necessary attachment, repairs, overhaul, any maintenance, storage fees and insurance required. Idle time for equipment will not be paid for, except where the equipment has been held on the site on a standby basis at the request of the Engineer.

Material Cost shall be reimbursed based on documented invoices from all suppliers and vendors. Original invoices shall be submitted for every item of material purchased for each assigned task order for which payment is being requested. The hypothetical material cost in Section 00400 Supplement to Bid Forms is strictly hypothetical. The Contractor will be reimbursed only for the actual material costs, supported by suppliers and/or vendors invoices and purchased specifically by authorization of the task order.

The contractor shall be entitled to a fixed fee in addition to the actual material, rental equipment costs and contractor supplied equipment costs for equipment that he owns and is not included in the contract requirements in accordance with the schedule below. The fixed fee amount shall be included in the overall cost of the individual Task Orders and shall be part of the "not to exceed" amount. Payment of the fixed fee amount shall either be proportionately reimbursed based on the progress payments under the Task Order or at the completion of the task order.

Range		Fixed Fee
\$0.00	\$100.00	\$0.00
\$101.00	\$500.00	\$30.00
\$501.00	\$1,000.00	\$75.00
\$1,001.00	\$5,000.00	\$300.00
\$5,001.00	\$10,000.00	\$750.00
\$10,001.00	\$25,000.00	\$1,750.00
\$25,001.00	\$50,000.00	\$3,750.00
\$50,001.00	\$75,000.00	\$6,250.00
\$75,001.00	\$100,000.00	\$8,750.00
\$100,001.00	\$125,000.00	\$11,250.00
\$125,001.00	\$150,000.00	\$13,750.00
\$150,001.00	\$175,000.00	\$16,250.00
\$175,001.00	\$200,000.00	\$18,750.00
\$200,001.00	\$250,000.00	\$22,500.00
\$250,001.00	\$300,000.00	\$27,500.00
\$300,001.00	\$400,000.00	\$35,000.00
\$400,001.00	\$500,000.00	\$45,000.00
\$500,001.00	\$750,000.00	\$62,500.00
\$750,001.00	\$1,000,000.00	\$87,500.00
\$1,000,001.00	\$2,000,000.00	\$150,000.00

The contractor's Payment Application / Invoice will be based upon work completed and certified by the Plant Engineer. After acceptance by the Plant Engineer of the completed work, the Contractor shall submit the payment application/invoice for the amount due.

All payment applications / invoices shall reference the PVSC Contract Number and shall also include a description of the services provided. In addition to the formal contract documents, the

Contractor will receive a copy of a PVSC Purchase Order. To assure proper payment, the PVSC purchase order number must also appear on the Contractor's invoice.

PVSC's payment cutoff date is not less than eighteen (18) days prior to the next Commission's meeting date. To assure timely payment, payment applications/invoices must be submitted to PVSC's Plant Engineer not less than five (5) working days prior to the above payment cutoff date. A schedule of meeting dates will be furnished to the contractor.

After acceptance by the PVSC of a payment application / invoice, the Commission at their next scheduled monthly meeting will authorize payment for the amount due. Payment will be made to the contractor during the week following the Passaic Valley Sewerage Commission meeting.

Where instruction manuals and parts list are specified in the Contract Documents: Payment will not be made until approved instruction manuals and parts lists have been received and approved by PVSC.

01037 REPLACEMENTS

In the event of damage to any PVSC property or equipment, immediate necessary repairs and/or replacements shall be made subject to the approval of the Engineer, and at no additional cost to the Owner.

In the event of damage to any equipment critical to the Sewerage Treatment Plant, repairs will be made by PVSC and the cost will be back charged to the Contractor.

01038 CARE AND PROTECTION OF PROPERTY AND MATERIALS

From the commencement of the work until its completion, the Contractor shall be solely responsible for damages caused to the property of the Owner, for the care, protection and security of the work covered by the contract, and for all materials delivered to the site or incorporated in the work.

01040 CONCURRENT WORK AND OTHER CONTRACTORS

The right is reserved by the Owner to do work using its own forces or other contractors and to permit public utility companies and others to do work during the progress and within the limits of or adjacent to the Project, and the Contractor shall conduct his work and cooperate with such other parties so as to cause as little interference as possible with such other work, as the Owner may direct.

If, in the judgment of the Owner, the joint occupation of the site of the work by the Owner or by two (2) or more contractors working on different contracts at the same time actually impedes progress in the work herein described, the Owner may extend the time for the completion of the work and in an amount which accords with and compensates for the delays so caused.

01046 WORKING HOURS

Contractor will have access to the site and work of this contract during normal PVSC working hours (7:45 a.m. to 4:15 p.m.), five (5) days per week, with the exception of PVSC Holidays. Other hours require PVSC consent and approval. A list of PVSC Holidays will be provided to the Contractor.

01047 MANUFACTURER'S CERTIFICATION AND ACCEPTANCE

The Contractor shall supply to the Owner a certificate from each manufacturer of equipment, certifying that the equipment as installed and tested meets all the requirements of the Contract Documents, that it is fully suitable and will function properly for the use intended and within the system called for by the Contract Documents, and that the guarantee as required by this Contract will be in full force and effect.

When the specifications call for “supervision, installation, adjustment, start-up,” and words of similar intent, by the manufacturer’s “factory employed technicians,” the Contractor shall provide a certificate co-signed by the manufacturer as to compliance with the stipulated requirements.

The Contractor is hereby put on notice that final acceptance of any equipment will be withheld, appropriate amounts of money will be retained by the Owner, and the warranty period will not commence until such certifications are supplied.

01048 SUBCONTRACTORS

The Contractor shall, within ten (10) days after “Notice to Proceed” notify the Engineer in writing of the names, addresses and experience records of subcontractors (if any) he proposes for principal parts of the work. PVSC reserves the right to review the qualifications of all subcontractors and to reject any deemed not qualified to perform the work required. Subcontractors must be covered by insurance as required in the General Conditions, Sections 00725

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his subcontractors and of persons either directly or indirectly employed by them as he is for acts and omissions of persons directly employed by him. He further agrees that he will bind his subcontractors to each and every part of the Contract Documents.

Nothing contained in the Contract Documents shall create any contractual relation between any subcontractor and the Owner.

When requested by the Engineer, work shall include the services of a qualified factory-trained field representative of the manufacturer or specialty subcontractor to properly assist the Contractor for diagnostic services, repair and removal, or installation and startup at cost + 5%. The Contractor must submit clear legible copy of the OEM or Specialty Subcontractors services invoice with his payment request in order to get reimbursed for their services.

The pricing of the OEM and Specialty Subcontractor Services must be reasonable and competitive with prevailing market pricing.

01049 WORK BY PVSC PERSONNEL

The right is reserved by the owner to do work using its own forces and/or other contractors to do work during the progress and within the limits of or adjacent to the work of this contract, and this contractor shall conduct his work and cooperate with such other parties so as to cause as little interference as possible with such other work.

01110 ENVIRONMENTAL PROTECTION PROCEDURES

The Contractor Furnish all labor, materials and equipment and perform all work required for the prevention of environmental pollution in conformance with applicable laws and regulations, during and as the result of construction operations under this Contract. For the purpose of this Specification, environmental pollution is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic and/or recreational purposes; or violate any applicable environmental regulation.

The control of environmental pollution requires consideration of air, water and land, and involves management of noise and solid waste, as well as other pollutants. The Contractor shall comply with all applicable Federal, State and local laws and regulations concerning environmental pollution control and abatement, and material disposal.

The OWNER maintains a Stormwater Pollution Prevention Plan (SPPP) which requires the OWNER to enact Best Management Practices to reduce the quantity and improve the quality of

the stormwater runoff from its site, in order to reduce non-point source pollution of streams and waterbodies.

The OWNER maintains a Title V Air Permit for the treatment plant facility. The Contractor is advised that certain types of equipment require additional pollution controls, written notifications, and inspections in order to maintain the OWNER'S permit. The Contractor is directed to the requirements described in Specification Section 01750 Maintenance of Plant Operations During Construction under the Temporary Power discussion for additional information.

The OWNER maintains a State approved Discharge Prevention Containment and Countermeasure Plan (DPCC) which is inclusive of the Federal Spill Prevention Control and Countermeasure (SPCC) regulations. All preventative measures shall be taken to avoid spillage of hazardous materials including petroleum products and other pollutants. In the event of any spillage, prompt remedial action shall be taken. Also, as a result of the OWNER'S DPCC Plan, additional written notification, visual inspection, training, and secondary containment requirements exist for chemical and fuel storage tanks and/or equipment which could be considered Contractor Hazardous Material Storage Tanks (CHMST). These additional requirements are described in Specification Section 01750 Maintenance of Plant Operations During Construction.

The Contractor shall provide written notification prior to bringing onsite any equipment that meets the requirements described in Specification Section 01750 Maintenance of Plant Operations During Construction, including but not limited to the following. Notification requirements are described in the aforementioned Section 01750: Emergency power generating equipment, Power generating equipment, Stationary equipment containing Reciprocating Internal Combustion Engines (RICE), and/or Chemical or Fuel storage tanks and equipment meeting the definition of Contractor hazardous Material Storage Tank (CHMST) described in Section 01750 Maintenance of Plant Operations During Construction.

01301 SHOP DRAWING SUBMITTALS

The Contractor shall submit for the Owner's review and approval, Shop Drawings showing the details of all materials, equipment and installations which the Contractor proposes to furnish in conformance with the Contract Drawings and Specifications. The Shop Drawings shall be reviewed for conformance with all the Contract Documents.

The Shop Drawings shall consist of catalog cuts, manufacturer's details, text, drafted drawings, layout drawings, assembly drawings, floor plans and any other documents which describe the item being submitted.

Shop Drawings shall give all ratings, configurations, dimensions and ancillary items in sufficient detail to enable the Owner to pass on the suitability of the equipment, materials or layout for the purpose intended. The drawings shall, where needed for clarity, include outline and sectional views, and detailed dimensions and designations of the kind of material. Drawings for submission shall be coordinated by the Contractor with the drawings previously approved and with the existing space, equipment, structure, and all other requirements of the Contract.

The Contractor shall submit four (4) copies of all Shop Drawings for approval. The Owner shall retain two (2) copies for his records, and return two (2) to the Contractor.

01302 O & M MANUALS

Operation and Maintenance Manuals (O & M Manuals) for the equipment supplied shall be furnished as a part of this contract. The O & M Manuals shall consist of neatly bound and indexed instructions for installation, operation, adjustment, lubrication and preventive maintenance.

In addition, the O & M Manuals shall include but not be limited to the following:

1. Name of manufacturer
2. Model number of item

3. Local distributor
4. Manufacturer's recommended spare parts list
5. Special tools required
6. Manufacturer recommended lubricants

The Contractor shall submit four (4) copies of all O & M Manuals for approval. The Owner shall retain three (3) copies and return one (1) to the Contractor.

01303 RECORD DRAWINGS

During construction, the Contractor shall keep an accurate record of the installed work including any deviations, however minor, from the contract drawings. Upon completion of the contract work, the Contractor shall submit a copy of these "as-built" drawings to the Engineer. Submittal and approval of the "as-built" drawings is required before semifinal payment.

01304 SHOP DRAWING AND O & M MANUAL REVIEW

Material or equipment shall not be purchased or fabricated until the Owner has reviewed and approved the shop drawings, which shall represent all materials, equipment and work involved. No materials or equipment shall be delivered to the site until shop drawings have been returned by the Engineer and marked "**APPROVED**" or "**APPROVED AS NOTED – RESUBMISSION NOT REQUIRED.**" If the latter designation is used, the Contractor must make all changes noted or indicated.

Any materials or equipment furnished in spite of the above, without properly noted shop drawings, shall be promptly removed.

If the shop drawings are marked "**CORRECTIONS NECESSARY – RESUBMISSION REQUIRED**" or "**NOT APPROVED**" by the Owner, they shall be promptly corrected and resubmitted to the Owner for review.

The Owner's approval of the Contractor's submittals shall be considered to be a gratuitous service, given as assistance to the Contractor in interpreting the requirements of this Contract, and in no way shall it relieve the Contractor of any of his responsibilities under this Contract. An approval of a shop drawing shall be interpreted to mean that the Owner has found no specific objections in the submitted material, and in no way relieves the Contractor of his obligation to provide full and complete working and satisfactory systems, structures and units in complete conformity with the Contract Documents.

The O & M Manuals and record drawing shall also be reviewed and approved by the Owner as are the Shop Drawings. The O & M Manuals and Record Drawings shall be furnished and approved before the contract is accepted and the warranty begins.

01309 SPARE PARTS, SPECIAL TOOLS & LUBRICANTS

The following spare parts shall be provided:

To be specific to equipment furnished.

The Contractor shall furnish, with each piece of equipment, any **SPECIAL** tools recommended by the manufacturer for the servicing of the equipment.

All spare parts shall be plainly tagged and marked for identification and ordering. They shall be treated with suitable preservatives, wrapped and packaged to provide adequate protection for long term storage, price of each spare part shall be included with the documentation of spare parts.

The Contractor shall furnish and use, for each piece of equipment, the type of lubricant recommended by the manufacturer of the equipment, with no substitutions. He shall furnish a schedule listing the type, frequency of application, and manufacturer of the lubricant

recommended for each piece of equipment. At the time of turning the installation over to the Owner, the Contractor shall furnish one (1) years supply of each type of lubricant in unopened containers.

01310 SCHEDULING

Within ten (10) days after receipt of Notice to Proceed the Contractor shall meet with the PVSC Plant Engineer to provide a schedule of work, acceptable to the Owner. The Contractor will not be permitted to interfere with the operation of the Plant.

01315 LIQUIDATED DAMAGES

If the Contractor shall fail to complete the work within the time specified in the contract, or within such further times as may be properly granted by the Owner in accordance with the provisions of this contract, then the Contractor does hereby agree, as a part consideration for the awarding of this contract, to pay to the Owner the amount specified in the contract, (Section 00500), not as a penalty but as liquidated damages for such breach of contract as hereinafter set forth, for each and every calendar day that the Contractor shall exceed the time stipulated in the contract for completing the work.

In accordance with N.J.S.A. 40A:11-17, the Contractor shall also be responsible for any additional architectural, engineering and/or inspection costs resulting from failure to complete the contract within the stipulated time.

The said amount(s) shall be recovered by the Owner by deducting the same out of any monies due or that may become due to the Contractor, and if said monies are insufficient to cover said damages, then the Contractor or his Surety shall pay the amount of the difference.

It is also understood and agreed that the Contractor will not be charged with the liquidated damages for that period of time during which the Owner determines that the Contractor is without fault and that the Contractor's reasons for requesting a time extension are acceptable to the Owner.

01410 TESTING OF MATERIALS

The Commission may hire a testing laboratory to determine if the materials conform to the specifications. If the specifications are not met, the materials will be rejected and the cost of testing will then be paid by the vendor.

01420 INSPECTION AND ACCEPTANCE

Inspection of materials by the Commissions' personnel shall not relieve the vendor of any obligations to fulfill the terms of this contract, and any defective part found at the time of installation shall be made good. All unsuitable materials shall be rejected notwithstanding that such part and materials have been previously overlooked by the Engineer and accepted.

01421 DEFECTIVE WORK, EQUIPMENT OR MATERIALS

If the Contractor shall fail or neglect to replace any defective work or to discard condemned materials within two (2) days after the service by the Owner of an order to replace such defective work or discard such equipment or materials, or to prove to the satisfaction of the Owner that he is initiating effective efforts to replace defective materials, the Owner may cause such defective work to be replaced or the condemned materials to be discarded, and acceptable materials provided. The expense thereof shall be deducted from the monies as are or may become due under this contract; or if such monies are not sufficient to meet said expense, the additional monies shall be furnished by the contractor or his Surety. If, during the warranty period provided for hereinafter, any work done in accordance with that article shall be found defective before the end of the warranty period, such defective work shall be made good in the same manner as provided herein. The Owner will have the option at all times to allow the defective or improper work to stand and to accept an equitable deduction from the contract price therefore.

01422 OWNER'S RIGHT TO DO WORK AND THREE-DAY CLAUSE

If the Contractor or his subcontractors should neglect to prosecute the work properly or fail to perform any provisions of the contract documents, the Owner, after three (3) days written notice to the Contractor may without prejudice to any other remedy he may have, make good such deficiencies and may deduct the cost thereof from the payment then or thereafter due the Contractor.

01602 TOOLS, EQUIPMENT AND UTILITIES

All tools, and equipment, required to perform the work described in the contract shall be provided by the Contractor.

01603 SAFETY

In order to safely and responsibly allow contractors access to PVSC facilities it is critical that all contractor working at PVSC adhere to the guidance and recommendations issued by the Centers for Disease Control ("CDC") and the New Jersey Department of Health ("NJDOH"). PVSC also retains the right to require protocols not specifically addressed by the CDC or NJDOH to maintain a safe and healthy work environment for its employees, vendors, agents and guests.

- In addition at a minimum, the Contractor will be required to adhere to the following PVSC Protocols:
 - All personnel shall view and sign acknowledgement form for PVSC's Contractor Training Course;
 - All personnel shall submit completed training and safety documents required **TWO (2) Business Days** before entering site.
 - All personnel shall report to Security for credentialing prior to any work
 - All personnel shall have PVSC's Contractor Training 'Sticker' affixed and visible on their hard hats;
 - All personnel to which it applies will be issued a PVSC Contractor Identification Card;

PVSC's Contractor Safety Training has been uploaded in video form to our Website, <https://www.nj.gov/pvsc/>, along with the corresponding documents required by the contractors. These can be located on the home page under "Current News Click Here." Once completed, the documents should be emailed to PVSCTraining@pvsc.com.

Once received and validated by the Safety Department, contractors will verify with their PVSC project point of contact, their ability to comply with the additional PVSC Contractor Site Access Protocols as they may apply. Only after this verification will the contractor receive approval to enter PVSC facilities. The PVSC point of contact shall notify Security & Safety of the anticipated start date of the contractor to allow Gate Access.

All personnel shall submit completed training and safety documents required TWO (2) Business Days before entering site.

On their first entry into PVSC all new contractors shall report to the Security Building to receive their Safety Orientation Hard Hat sticker and if applicable (by project) their contractor Identifications.

The Contractor is solely responsible for the safety of its employees, subcontractors, suppliers and representatives, including but not limited to the development and implementation of effective safety practices and programs in accordance with Federal, State and Local requirements, including the requirements of PVSC's Construction Safety & Health Manual for Contractors:

Prior to commencing any work at the site the Contractor shall designate in writing to PVSC the name of the person who is their on-site safety officer. The Contractor's designated on-site safety officer shall be in charge of all of the safety programs of the Contractor and will be responsible to ensure the proper development, implementation and enforcement of all necessary and appropriate safety practices. The Contractor's designated on-site safety officer shall be on site **at all times** that work is being conducted, and shall be solely responsible for supervision of the Contractor's employees, subcontractors, suppliers and representatives for safety.

All of the contractor's employees and subcontractor's employees performing work on site must first complete PVSC's Safety Orientation Class prior to commencing any work. This includes full time, part time, sick or vacation etc. coverage personnel.

The Contractor throughout the work of this contract shall comply with the PVSC Safety Rules, as well as the Federal Occupational Safety and Health Act and the applicable New Jersey Department of Labor Administrative Codes. The Contractor will be provided with a copy of the PVSC Safety Rules, these rules, including the wearing of protective head gear, shall be strictly enforced by the Contractor in respect to his own employees, subcontractor's employees, and other personnel engaged in business with the Contractor on PVSC's property.

Contractor's (and subcontractor's) personnel when on PVSC property shall wear OSHA approved hard hats and shall prominently display the Company Name or Logo on the hard hat.

The Contractor is advised of the 15 MPH speed limit on all plant roads, and will be held responsible for his employees (and subcontractors) compliance with this and all rules for traffic safety in the plant.

The Contractor's attention is directed toward several OSHA Safety and Health Standards and New Jersey Labor Department Administrative Codes that influence the conduct of his work in specific areas.

1. OSHA Confined Space Standard, 29 CFR 1910.146 – Work in Confined Spaces
2. OSHA Control of Hazardous Energy (Lockout/Tagout) Standard, 29 CFR 1910.147 (Electrical energy lockout and other energy sources such as steam, air, liquids.)
3. NJAC 7:31-1.1 – Toxic Catastrophe Prevention Act

Before any work commences on PVSC property, the Contractor's Superintendent shall contact the PVSC Facility Supervisor at the site. The PVSC Supervisor will inform the Contractor of the PVSC emergency plant evacuation plan and where he is to assemble his personnel.

The Contractor shall instruct and show his personnel where to assemble, at the sound of the PVSC emergency evacuation siren. The Facility Supervision will notify the Contractor's personnel of the emergency evacuation route they are to follow. At the assembly point, the Contractor's person in charge shall account for all his personnel, supply transportation, and see that they utilize the prescribed evacuation route.

Where portions of the work of the contract fall under the authority of these Administrative Codes for Public Employees, the Contractor shall at all times maintain safety standards for his employees at least as comprehensive as that imposed by the Codes. This includes, for example (and not limited to), monitoring of air in confined spaces with appropriate instrumentation for noxious or toxic gases % oxygen, and lockout and tagout of hazardous energy such as electrical, steam, air or liquids under pressure.

The Contractor shall be responsible for providing first aid, and emergency medical assistance for any of his employees injured on the work site. The Contractor shall be responsible for arranging emergency assistance with local hospitals, and/or EMT services. The Contractor's arrangements

shall be submitted in writing, with required telephone numbers to PVSC's Security Department. PVSC Security will summon the Contractor's emergency personnel, if the Contractor calls PVSC Security from any in plant telephone.

Contractor's personnel will not be treated in the PVSC Dispensary for minor injuries, cuts or services.

01604 MATERIALS HANDLING AND STORAGE

Material storage and staging area shall be approved by the Owner. All equipment and materials to be incorporated in the work shall be so placed as not to injure the work or the Owner's property as so that free access may be had at any time to all parts of the work, and to all utility installations in the vicinity of the work.

Materials and equipment shall be kept neatly piled and compactly and conveniently stored so as to inconvenience as little as possible travel in the area. Contractor shall obtain approval of PVSC for storage of his materials and equipment.

All loss, injury, or damage to the work or materials from whatever cause, shall be made good at the Contractor's expense.

Contractor shall be responsible for daily cleanup.

All removed materials, rubbish and other things not required to be incorporated in the work shall be promptly removed from the property.

The Contractor will be responsible for the security of his tools, equipment and all his materials.

Any spillage caused by the Contractor, his subcontractors, suppliers or his equipment, while on PVSC property, shall be the Contractor's responsibility to properly clean up at the Contractor's expenses. The clean-up shall meet all Federal and State requirements, including proper documentation as may be required.

Any equipment that meets the criteria of a hazardous material storage tank (i.e. capable of storing five (5) gallons of more of a hazardous material, including petroleum products) shall be stored and inspected weekly in the same manner and using the same requirements as a Contractor Hazardous Material Storage Tank (CHMST) described in Section 01750 of these specifications.

Any equipment capable of storing five (5) gallons of more of a hazardous material, including petroleum products shall be stored in secondary containment meeting the requirements of N.J.A.C 7:1E.

01630 DOMESTIC PRODUCTS AND MATERIALS

In accordance with N.J.S.A. 40A:11-18 et seq., only products and materials produced, mined or manufactured in the United States which will ultimately become the property of the PVSC may be used in this contract.

This section shall not apply with respect to domestic materials, if domestic materials of the class or kind to be used are not mined, produced or manufactured, as the case may be, in the United States in commercial quantities and of a satisfactory quality or in respect to some particular domestic materials it is impracticable to make such requirement or that it would unreasonably increase the cost, an exception shall be permitted. Any request for exception of this requirement shall be in writing and shall be approved by the Engineer.

01710 QUALIFICATION OF CONTRACTOR

The Contractor and his personnel must be experienced in the type of work specified herein.

The Contractor shall supply certification of this experience by furnishing at least three (3) customers (with names and addresses and telephone numbers) where he had performed work

of a similar nature and the dates the work was performed. (In coordination with Reference List in Sections 00401 and 00305 (L),

01720 TRADE PRACTICE/SUPERVISION

The Contractor shall retain skilled craftsmen for the duration of the job and shall provide continual supervision to insure that good trade practices, including safety, are adhered to.

Further, the Contractor's Superintendent and trade Foreman shall be available for consultation with regard to work performed under this specification, to the PVSC designated representative, throughout each day for the duration of the contract.

Contractor will be held responsible for the conduct of his personnel on site, and shall promptly remove individuals who are drunk, disorderly, or found with controlled substances, when requested by the Owner.

Parking for Contractor trucks and employees vehicles with the plant is at the Commission's convenience. Parking shall be where designated by the Commission and is subject to change.

01730 WARRANTY AND QUALITY ASSURANCE

Contractor shall warrant all work to PVSC for one (1) year against defective materials and workmanship. Warranty to begin from date of substantial completion as defined/determined by PVSC.

Inspection of work and materials by the Owner shall not relieve the Contractor of any obligations to fulfill the terms of this contract, and any defective work found at the time of installation shall be made good. All unsuitable materials shall be rejected notwithstanding that such materials have been previously overlooked by the Owner and accepted.

The work site shall remain open to the Owner for purposes of inspection. The Owner reserves the right to halt progress as he deems the specifications or the intent of the specifications are not being adhered to. The terms Owner, Engineer or Plant Engineer, shall be construed to be interchangeable in this Contract.

01750 MAINTENANCE OF PLANT OPERATION DURING CONSTRUCTION

The existing PVSC Facilities [i.e. wastewater treatment plant (both process and non-process) and pumping stations] will be maintained in continuous operation by the Owner during the entire construction period. Work under the contract shall be so scheduled and conducted by the Contractor such that work will not impede any treatment process, create potential hazards to operation or equipment, reduce the quality of the effluent or cause odor, or other nuisance. In performing the work shown as specified, the Contractor shall plan and schedule the work to meet the operating requirements and additional constraints outlined in this Section.

Contractor hazardous material storage tanks (CHMST) are defined as any storage vessel capable of storing five (5) or more gallons of hazardous materials (including petroleum productions), as defined by N.J.A.C. 7:1E-Appendices A and B. Storage vessels may include chemical vats, drums, pails, and tanks; including those tanks built into non-self-propelled equipment such as stationary RICE containing equipment, pumps, compressors, generators; oil filled transformers, fuel tanker trucks, etc.

The NJDEP regulations (DPCC) require a minimum of 60 days' notice from the OWNER for the installation of any CHMST holding a hazardous substance, which includes all types of petroleum products and approval of such installation by the NJDEP prior to installation. The Contractor shall not furnish, deliver, and/or use any CHMST to any PVSC Facility until the Contractor prepares and submits (at least 60-days in advance of bringing the CHMST on site) to the OWNER a letter fully describing the CHMST system including identifying the hazardous substance; a description of the installation, including show the tank will be filled; how the requirements of NJAC 7:1E will be satisfied; and specific dates of installation and removal. Upon installation the Owner must

prepare and submit a DPCC Plan Amendment to the NJDEP within 30 days. The Contractor will provide the Owner with any information, details, plans, etc., required for the DPCC Plan Amendment within five (5) day of a request from the Owner.

There are circumstances where a Contractor may find it necessary to use a CHMST on a temporary basis. A common example is the use of a fuel tank for a backup electrical generator during a construction project. When a CHMST will be on site for less than six (6) months, it is acceptable to notify the OWNER in writing of a CHMST without requiring the OWNER to amend its Discharge Prevention, Containment and Countermeasure (DPCC) Plan. This temporary use letter must be received by the OWNER at least 14-days prior to bringing the CHMST on site. The letter must fully describe the installation, including how the CHMST will be filled, and must document how the requirements of N.J.A.C. 7:1E will be satisfied. The letter must also specify dates of installation and removal. This temporary use letter fulfills both the 60-day notification requirement and the plan amendment submission requirement.

A 14-Day Notification Letter "form" is included in Appendix 4 entitled "14 Day Notification Letter for temporary Fuel or Chemical Storage tanks, equipment, & Reciprocating Internal Combustion Engines (RICE)". The form includes the instructions for completing the form as well as a description of the requirements of both the OWNER'S DPCC and Title V Air Permit.

The 14-Day Notification form is available electronically. The Contractor shall submit the 14-Day Notification form as directed by the instructions and ensure all those listed on the form are notified. Provision of a written notification to the OWNER does not constitute approval of the equipment. No equipment shall be brought on site without prior written approval by the OWNER.

If a temporary tank will be kept on site for six (6) months or longer, additional notifications and a full plan amendment (as described above) will be required. After project completion, the plan must be amended a second time when the tank is removed. Also, if the Contractor using a temporary CHMST later determines that it must be kept on site for more than six (6) months, a plan amendment must be submitted. Refer to N.J.A.C. 7:1E-4 for more information. The Contractor shall provide a written notification after 90 days of the initial installation date of a temporary use CHMST to the OWNER to confirm the status and removal date of the CHMST.

Any and all CHMSTs must be installed in secondary containment meeting the requirements of N.J.A.C. 7:1E when not in active use. CHMSTs in active use shall also be installed in secondary containment when stationary or located in an existing contained area to the greatest extent practicable.

The Contractor, using only trained personnel, shall be required to complete and document weekly visual inspections of each CHMST and monitor and document any hazardous material transfers into and out of each CHMST (such as bulk fueling or hazardous material transfer) during the entirety of the transfer process. A Standard Operating Procedure entitled "Contractor Equipment Visual Leak Inspection SOP" and "Weekly Visual Leak Detection Log" inspection checklist for the Weekly Visual Inspection and hazardous material inspections are included in Appendix 4. The Contractor may also access the forms electronically. Signed copies of the inspection forms must be maintained onsite at all times, and copies provided to the OWNER.

The Contractor shall designate specific employees to be trained on the inspection and delivery/hazardous material transfer monitoring procedures, practices, and recordkeeping. The Contractor shall provide the OWNER with written proof of initial training and annual refresher training. Initial training shall be given to designated employees within five (5) business days of the start of the onsite project work or arrival of a new designated employee onsite. Annual refresher training shall be given once per calendar year. No designated employee shall go more than 365 consecutive calendar days without training.

END OF SECTION

DIVISION 7: FIRE

07841 THROUGH PENETRATION FIRESTOP SYSTEMS

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section includes through-penetration firestop systems for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items.
- B. Related Sections include the following:
 - 1. Division 7 Section "Fire-Resistive Joint Systems."
 - 2. Division 13 Sections specifying fire-suppression piping penetrations.
 - 3. Division 15 Sections specifying duct and piping penetrations.
 - 4. Division 16 Sections specifying cable and conduit penetrations.

1.03 Performance Requirements

- A. General: For penetrations through [the following]fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.
 - 1. Fire-resistance-rated walls including fire partitions and fire barriers.
 - 2. Fire-resistance-rated horizontal assemblies including floors.
- B. Rated Systems: Provide through-penetration firestop systems with the following ratings determined per ASTM E 814 or UL 1479:
 - 1. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that, after curing, do not deteriorate when exposed to these conditions both during and after construction.
 - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
 - 2. For floor penetrations with annular spaces exceeding 4 inches (100 mm) in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved, either by installing floor plates or by other means.

3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
- D. For through-penetration firestop systems exposed to view, provide products with flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

1.04 Submittals

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For each through-penetration firestop system, show each type of construction condition penetrated, relationships to adjoining construction, and type of penetrating item. Include firestop design designation of qualified testing and inspecting agency that evidences compliance with requirements for each condition indicated.
 1. Submit documentation, including illustrations, from a qualified testing and inspecting agency that is applicable to each through-penetration firestop system configuration for construction and penetrating items.
- C. Through-Penetration Firestop System Schedule: Indicate locations of each through-penetration firestop system, along with the following information:
 1. Types of penetrating items.
 2. Types of constructions penetrated, including fire-resistance ratings and, where applicable, thicknesses of construction penetrated.
 3. Through-penetration firestop systems for each location identified by firestop design designation of qualified testing and inspecting agency.
- D. Qualification Data: For Installer.
- E. Product Certificates: For through-penetration firestop system products, signed by product manufacturer.

1.05 Quality Assurance

- A. Installer Qualifications: A firm experienced in installing through-penetration firestop systems similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful performance. Qualifications include having the necessary experience, staff, and training to install manufacturer's products per specified requirements. Manufacturer's willingness to sell its through-penetration firestop system products to Contractor or to Installer engaged by Contractor does not in itself confer qualification on buyer.
- B. Installation Responsibility: Assign installation of through-penetration firestop systems and fire-resistive joint systems in Project to a single qualified installer.
- C. Source Limitations: Obtain through-penetration firestop systems, for each kind of penetration and construction condition indicated, through one source from a single manufacturer.
- D. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in Part 1 "Performance Requirements" Article:

1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL, or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
2. Through-penetration firestop systems are identical to those tested per testing standard referenced in "Part 1 Performance Requirements" Article. Provide rated systems complying with the following requirements:
 - a. Through-penetration firestop system products bear classification marking of qualified testing and inspecting agency.
 - b. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:

UL in its "Fire Resistance Directory."

1.06 Delivery, Storage and Handling

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer, date of manufacture, lot number, shelf life if applicable, qualified testing and inspecting agency's classification marking applicable to Project, curing time, and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

1.07 Project Conditions

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by through-penetration firestop system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.
- B. Ventilate through-penetration firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

1.08 Coordination

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.
- C. Notify Owner's inspecting agency at least seven days in advance of through-penetration firestop system installations; confirm dates and times on days preceding each series of installations.
- D. Do not cover up through-penetration firestop system installations that will become concealed behind other construction until each installation has been examined by [Owner's inspecting agency and] building inspector, if required by authorities having jurisdiction.

PART 2 - PRODUCTS

2.01 Manufacturers

A. Available Products: Subject to compliance with requirements, through-penetration firestop systems that may be incorporated into the Work include, but are not limited to, those systems indicated that are produced by one of the following manufacturers:

1. A/D Fire Protection Systems Inc.
2. Grace, W. R. & Co. - Conn.
3. Hilti, Inc.
4. Johns Manville.
5. Nelson Firestop Products.
6. NUCO Inc.
7. RectorSeal Corporation (The).
8. Specified Technologies Inc.
9. 3M; Fire Protection Products Division.
10. Tremco; Sealant/Weatherproofing Division.
11. USG Corporation.

2.02 Firestopping, General

A. Compatibility: Provide through-penetration firestop systems that are compatible with one another; with the substrates forming openings; and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with Part 1 "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:]

1. Permanent forming/damming/backing materials, including the following:
 - a. Slag-/rock-wool-fiber insulation.
 - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
 - c. Fire-rated form board.
 - d. Fillers for sealants.
2. Temporary forming materials.
3. Substrate primers.

- 4. Collars.
- 5. Steel sleeves.

2.03 Fill Materials

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated in the Through-Penetration Firestop System Schedule at the end of Part 3 by referencing the types of materials described in this Article. Fill materials are those referred to in directories of referenced testing and inspecting agencies as "fill," "void," or "cavity" materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Non-hardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a non-shrinking, homogeneous mortar.
- I. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, non-shrinking foam.
- K. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces, and non-sag formulation for openings in vertical and other surfaces requiring a non-slumping, gunnable sealant, unless indicated firestop system limits use to non-sag grade for both opening conditions.
 - 2. Grade for Horizontal Surfaces: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces.
 - 3. Grade for Vertical Surfaces: Non-sag formulation for openings in vertical and other surfaces.

2.04 Mixing

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

EXECUTION

3.01 Examination

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of work.

- 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 Preparation

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with firestop system manufacturer's written instructions and with the following requirements:
 - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
 - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
 - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.
- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

3.03 Through-Penetration Firestop System Installation

- A. General: Install through-penetration firestop systems to comply with Part 1 "Performance Requirements" Article and with firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
 - 1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.04 Identification

- A. Identify through-penetration firestop systems with preprinted metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches (150 mm) of edge of the firestop systems so that labels will be visible to anyone seeking to remove penetrating items or firestop systems. Use mechanical fasteners for metal labels. For plastic labels, use self-adhering type with adhesives capable of permanently bonding labels to surfaces on which labels are placed and, in combination with label material, will result in partial destruction of label if removal is attempted. Include the following information on labels:
 1. The words "Warning - Through-Penetration Firestop System - Do Not Disturb. Notify Building Management of Any Damage."
 2. Contractor's name, address, and phone number.
 3. Through-penetration firestop system designation of applicable testing and inspecting agency.
 4. Date of installation.
 5. Through-penetration firestop system manufacturer's name.
 6. Installer's name.

3.05 Field Quality Control

- A. Inspecting Agency: Owner will engage a qualified, independent inspecting agency to inspect through-penetration firestops. Independent inspecting agency shall comply with ASTM E 2174 requirements including those related to qualifications, conducting inspections, and preparing test reports.
- B. Where deficiencies are found, repair or replace through-penetration firestop systems so they comply with requirements.
- C. Proceed with enclosing through-penetration firestop systems with other construction only after inspection reports are issued and firestop installations comply with requirements.

3.06 Cleaning and Protecting

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure that through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce systems complying with specified requirements.

3.07 Through-Penetration Firestop System Schedule

- A. Where UL-classified systems are indicated, they refer to alpha-alpha-numeric designations listed in UL's "Fire Resistance Directory" under product Category XHEZ.
- B. Firestop Systems with No Penetrating Items[FS-<#>]:
 - 1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [W-J-] [W-L-] <Insert one or more four-digit numbers> [0001-0999].
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - Silicone sealant.
 - Intumescent putty.
 - Mortar.
- C. Firestop Systems for Metallic Pipes, Conduit, or Tubing[FS-<#>]:
 - 1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [C-BK-] [F-A-] [F-B-] [F-C-]
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - Silicone sealant.
 - Intumescent putty.
 - Mortar.
- D. Firestop Systems for Nonmetallic Pipe, Conduit, or Tubing[FS-<#>]:
 - 1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [F-B-] [F-C-] [W-J-] [W-L-] <Insert one or more four-digit numbers> [2001-2999].
 - 2. Type of Fill Materials: One or more of the following:
 - a. Latex sealant.
 - Silicone sealant.
 - Intumescent putty.
 - Intumescent wrap strips.
 - Firestop device.
- E. Firestop Systems for Electrical Cables[FS-<#>]:
 - 1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [F-B-] [F-C-] [W-J-] [W-L-] <Insert one or more four-digit numbers> [3001-3999].
 - 2. Type of Fill Materials: One or more of the following:

a. Latex sealant.

Silicone sealant.

Intumescent putty.

Silicone foam.

Pillows/bags.

F. Firestop Systems for Cable Trays[FS-<#>]:

1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [F-B-] [F-C-] [W-J-] [W-K-] [W-L-]
] <Insert one or more four-digit numbers> [4001-4999].

2. Type of Fill Materials: One or more of the following:

a. Latex sealant.

Intumescent putty.

Silicone foam.

Pillows/bags.

Mortar.

G. Firestop Systems for Insulated Pipes[FS-<#>]:

1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [F-C-] [W-J-] [W-L-] <Insert one
or more four-digit numbers> [5001-5999].

2. Type of Fill Materials: One or more of the following:

a. Latex sealant.

Intumescent putty.

Silicone foam.

Intumescent wrap strips.

H. Firestop Systems for Miscellaneous Electrical Penetrants[FS-<#>]:

1. [Available]UL-Classified Systems: [C-AJ-] [F-A-] [W-L-] <Insert one or more four-digit
numbers> [6001-6999].

2. Type of Fill Materials: One or more of the following:

a. Latex sealant.

b. Intumescent putty.

c. Mortar.

- I. Firestop Systems for Miscellaneous Mechanical Penetrants[FS-<#>]:
1. [Available]UL-Classified Systems: [C-AJ-] [F-C-] [W-J-] [W-L-] <Insert one or more four-digit numbers> [7001-7999].
 2. Type of Fill Materials: One or both of the following:

Latex sealant.

Mortar.
- J. Firestop Systems for Groupings of Penetrants[FS-<#>]:
1. [Available]UL-Classified Systems: [C-AJ-] [C-BJ-] [F-A-] [F-C-] [W-J-] [W-L-] <Insert one or more four-digit numbers> [8001-8999].
 2. Type of Fill Materials: One or more of the following:

Latex sealant.

Mortar.

Intumescent wrap strips.

Firestop device.

Intumescent composite sheet.

07920 – JOINT SEALANTS

PART 1 - GENERAL

1.01 Related Documents

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 Summary

- A. This Section includes joint sealants for the following applications:
1. Perimeter joints between materials listed above and frames of doors windows and louvers.
 2. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Perimeter joints between interior wall surfaces and frames of interior doors and windows.
- B. Related Sections include the following:
1. Division 4 Section "Unit Masonry Assemblies" for masonry control and expansion joint fillers and gaskets.
 2. Division 7 Section "Fire-Resistive Joint Systems" for sealing joints in fire-resistance-rated construction.

3. Division 9 Section "Gypsum Board Assemblies" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.

1.03 Performance Requirements

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.04 Submittals

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- (13-mm-) wide joints formed between two 6-inch- (150-mm-) long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.

1.05 Quality Assurance

- A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
 2. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

1.06 Project Conditions

- A. Do not proceed with installation of joint sealants under the following conditions:
 3. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer[or are below 40 deg F (5 deg C)].
 4. When joint substrates are wet.
 5. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 6. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 PRODUCTS

2.01 Manufacturers

- A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2.02 Materials, General

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.03 Elastomeric Joint Sealants

- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
- B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be non-staining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.04 Latex Joint Sealants

- A. Latex Sealant: Comply with ASTM C 834, Type P, Grade NF.
- B. Available Products:
 - 7. Bostik Findley; Chem-Calk 600.
 - 8. Pecora Corporation; AC-20+.
 - 9. Schnee-Morehead, Inc.; SM 8200.
 - 10. Sonneborn, Division of ChemRex Inc.; Sonolac.
 - 11. Tremco; Tremflex 834.

2.05 Preformed Joint Sealants

- A. Preformed Silicone-Sealant System: Manufacturer's standard system consisting of precured low-modulus silicone extrusion, in sizes to fit joint widths indicated, combined with a neutral-curing silicone sealant for bonding extrusions to substrates.
- 12. Available Products:
 - Dow Corning Corporation; 123 Silicone Seal.
 - GE Silicones; UltraSpan US1100.
 - Pecora Corporation; Sil-Span.
 - Tremco; Spectrem Ez Seal.

- B. Preformed Foam Sealant: Manufacturer's standard preformed, precompressed, open-cell foam sealant that is manufactured from high-density urethane foam impregnated with a nondrying, water-repellent agent; is factory produced in precompressed sizes in roll or stick form to fit joint widths indicated; is coated on one side with a pressure-sensitive adhesive and covered with protective wrapping; develops a watertight and airtight seal when compressed to the degree specified by manufacturer; and complies with the following:
1. Available Products:
 - a. EMSEAL Joint Systems, Ltd.; Emseal 25V.
 - b. illbruck Sealant Systems, Inc.; Wilseal 600.
 - c. Polytite Manufacturing Corporation; Polytite B.
 - d. Polytite Manufacturing Corporation; Polytite Standard.
 - e. Sandell Manufacturing Co., Inc.; Polyseal.
 2. Properties: Permanently elastic, mildew resistant, non-migratory, non-staining, and compatible with joint substrates and other joint sealants.
 - a. Density: Manufacturer's standard.

2.06 Joint-Sealant Backing

- A. General: Provide sealant backings of material and type that are non-staining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.07 Miscellaneous Materials

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 EXECUTION

3.01 Examination

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 Preparation

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
3. Remove laitance and form-release agents from concrete.
4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.

B. Joint Priming: Prime joint substrates[, where recommended in writing by joint-sealant manufacturer,] based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.03 Installation of Joint Sealants

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.

3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 1. Place sealants so they directly contact and fully wet joint substrates.
 2. Completely fill recesses in each joint configuration.
 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 1. Remove excess sealant from surfaces adjacent to joints.
 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
- F. Installation of Preformed Tapes: Install according to manufacturer's written instructions.
- G. Installation of Preformed Silicone-Sealant System: Comply with the following requirements:
 1. Apply masking tape to each side of joint, outside of area to be covered by sealant system.
 2. Apply silicone sealant to each side of joint to produce a bead of size complying with preformed silicone-sealant system manufacturer's written instructions and covering a bonding area of not less than 3/8 inch (10 mm). Hold edge of sealant bead 1/4 inch (6 mm) inside masking tape.
 3. Within 10 minutes of sealant application, press silicone extrusion into sealant to wet extrusion and substrate. Use a roller to apply consistent pressure and ensure uniform contact between sealant and both extrusion and substrate.
 4. Complete installation of sealant system in horizontal joints before installing in vertical joints. Lap vertical joints over horizontal joints. At ends of joints, cut silicone extrusion with a razor knife.
- H. Installation of Preformed Foam Sealants: Install each length of sealant immediately after removing protective wrapping, taking care not to pull or stretch material, producing seal continuity at ends, turns, and intersections of joints. For applications at low ambient temperatures where expansion of sealant requires acceleration to produce seal, apply heat to sealant in compliance with sealant manufacturer's written instructions.

3.04 Field Quality Control

- A. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
- B. Inspect tested joints and report on the following:

1. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
2. Whether sealants filled joint cavities and are free of voids.
3. Whether sealant dimensions and configurations comply with specified requirements.

3.05 Cleaning

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.06 Protection

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

DIVISION 10 SPECIALTIES-

10000 GENERAL INSULATION INSTALLATION WORK

10001 SCOPE OF WORK

The work of this section includes all supervision, labor, materials, equipment, and incidentals necessary to perform inspection of existing insulating materials for asbestos and mold. Scope of work includes disinfection and removal of mold or asbestos contaminated insulation materials in compliance with federal state and local regulations. Scope also included any surface preparation recommended by insulation manufacturer(s), proper support shielding at support locations, and outer protective skin, sheathing, or coatings to insulated piping, ducting and equipment at various PVSC Facilities as directed by the Engineer on an as needed basis.

The work shall include but shall not be limited to insulation of piping, ducting, and equipment as specified and in accordance with Division 15, Section 15081 Piping and Equipment Insulation of this specification.

- Preparation of existing piping, ducting, and equipment surfaces for installation of new insulating materials. Existing surfaces and insulating materials may include mold contaminated materials, asbestos, or require may require application to surfaces that are mold-contaminated, cracked, flaked, loose, peeling or to which remnants of previously applied insulation materials exist.
- Perform all asbestos removal in accordance with referenced standards of EPA, DOL ACLA and NJAC.
- Surface restoration work generally involves horizontal, vertical and obstructed duct, piping or equipment surfaces. Repairs shall include surface preparation, removal of contaminated or failed insulation material, and dispose of removed material specified by the owner in compliance with federal, state and local regulations.
- Provide all materials and equipment to replace the defective insulation material as directed by plant engineer, in accordance with the T&M Schedule and in accordance with the Bidder's unit cost price schedule..
- The Contractor shall refer to PVSC drawings available from PVSC archives, provided by the PVSC engineer or project representative.
- Provide and erect all ladders or any additional man-lift equipment required for access to designated areas, including scaffolding.
- Apply primers, mastics, vapor-barriers, support shields, sheathing and top coat per contract and manufacturers specification.
- Clean-up and disposal of all residue from surface preparation and other debris or related materials. Contractor shall be responsible for disposal of all spoils including sand blast materials. (Also refer to paragraphs 00728 and 10016 for clean-up and final acceptance.)
- Care is to be taken so no materials from the surface preparation or overspray materials contaminate other areas inside or outside the insulated piping, ducting or equipment..
- Work surfaces and materials are to be kept dry at all times during the course of the work. No work will be permitted on wet surfaces, or at temperatures below or above that recommended by the insulation manufacturer.

- It is the contractor's responsibility to assure that workers shall wear appropriate personal protective equipment (PPE) and request appropriate shutdowns and lock/tag clearance to protect workers from exposure hot or cold temperatures.
- It is the contractor's responsibility to assure that workers shall wear appropriate (PPE) and breathing apparatus where applicable to protect workers from airborne mold, asbestos, and disinfection chemicals and biocides in accordance MSDS recommended procedures for safe handling and with EPA and OSHA guidelines and standards.
- Where handling mold contaminated or asbestos containing materials, it is the contractor's responsibility to assure that at a minimum workers shall be protected from airborne mold spores or dried mold dust with appropriate NIOSH #N95 single filtering face piece disposable respirator.
- It is the contractor's responsibility to assure that workers shall provide and conduct hot-work permit procedures including monitoring for air content with an LEL meter for contaminants present in the work area, which could be explosive or flammable, decrease oxygen content, have toxic properties. It is the contractor's responsibility to provide adequate ventilation equipment and/or take appropriate actions to bring air content to within acceptable limits.
- It is the contractor's responsibility to designate a full time safety officer to monitor and assure that all work is performed in a safe manner at all times while on PVSC.
- The contractor shall conduct the work in a safety conscious fashion in accordance with Section 01603. This shall include all rules and codes relating to containment procedures and VOC emissions.

10002 REFERENCE STANDARDS

A. American Society for Testing and Materials (ASTM)

(Refer to ASTM Reference Standards listed in Division 15, Section 15081 Piping and Equipment Insulation, entitled "References")

B. Environmental Protection Agency

e. EPA 402-K-01-001 Mold Remediation in Schools and Commercial Buildings

C. Department of Labor Asbestos Control and Licensing Act (ACLA) (N.J.S.A. 34:5A-32 et.seq.) and regulations (NJAC 12:120) Link: <http://lwd.dol.state.nj.us/labor/lasse/employee/asbestos/controlandlicensing.html>

Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

10003 SUBMITTALS

A Submit as a minimum the following in accordance with Section 01301:

1. Manufacturer's literature and product data listed in Division 15, Section 15081 Piping and Equipment Insulation, entitled "Submittals").

10004 QUALIFICATIONS, GENERAL

The Contractor shall have experience in the construction modifications or maintenance in Sewerage Treatment Plants, Pump Stations or similar facilities.

- The contractor shall insure that all requested insulation work, asbestos abatement work, and mold removal work; shall be performed by personnel who are trained to provide the

type of service specified, such as insulator, or laborer for Asbestos and Hazardous Waste Removal. And as outlined with in this contract and in Section 01710 Qualifications of Contractor.

10005 MATERIALS, PARTS AND SUPPLIES

All parts and materials supplied by Contractor under the contract resulting from this Invitation and Bid shall be new, first quality products meeting original equipment manufacturer (OEM) specifications, but are not required to be provided by the OEM.

All materials and supplies shall be billed at cost plus a 15% contractor markup fee. The Contractor must submit a clear and legible copy of the original material invoice with his payment request in order to get reimbursed for the materials.

The pricing of all materials and supplies must be reasonable and competitive with prevailing market pricing.

Examples of reimbursable materials, consumables, and rental supplies include, but are not limited to the following:

- Molded Fiberglass Insulation
- Flexible Elastomeric Cellular Insulation
- Cellular Glass Insulation
- Semi-rigid Fiberglass Board
- Jacketing
- Accessories (Staples, stainless steel bands, wires, cement, adhesives, sealers, protective finishes, sheathing, fittings and fitting covers, etc.)
- Thermal Hanger Shields
- Associated man lifts and/or scaffolds
- Compressors
- Post-Cure Heating Equipment
- Brushes, rollers, extension handles etc.

Examples of items that are to be included with the Contractor General Equipment and are not considered reimbursable materials and supplies include but are not limited to the following:

- Hand Tools
- Power Tools
- Grinders
- Portable Mixers
- Shovels and Rakes
- Various Floats
- Special safety equipment for accessibility (unless pre-approved by PVSC)
- Ladders up to 40 foot extension.
- Airless spray equipment including nozzle tips
- Computers and Office Equipment
- Containment Protection i.e. tarps, drop cloths, etc.

10006 OEM or SPECIALTY SUBCONTRACTOR SERVICES

When requested by the Engineer, work shall include the services of a qualified factory-trained field representative of the manufacturer or specialty subcontractor to properly assist the Contractor for diagnostic services, repair and removal, or installation and startup at cost +5%. The Contractor must submit clear legible copy of the OEM or Specialty Subcontractors services invoice with his payment request in order to get reimbursed for their services.

The pricing of the OEM and Specialty Subcontractor Services must be reasonable and competitive with prevailing market pricing.

10007 QUALIFICATIONS, GENERAL

The Contractor shall have experience in the construction modifications or maintenance in Sewerage Treatment Plants, Pump Stations or similar facilities.

The contractor shall insure that all requested insulation repair work shall be performed by personnel who are trained to provide the type of service specified, and as outlined in Section 01710 Qualifications of Contractor.

10008 DELIVERY, STORAGE AND HANDLING

- A. Products shall be stored in conformity with the manufacturer's recommendations.

10009 AREAS OF WORK

The areas of work to be repaired, modified etc. will be determined by the Engineer.

10010 SURFACE PREPARATION

- A. All areas to be insulated or re-insulated shall be prepared in strict accordance with the Manufacturer's recommendations as described in application or installation instructions, and as specially directed by the PVSC engineer or project representative.
- B. Piping surfaces to receive re-insulating materials shall be clean and sound; frost, dew, dirt, grease, oil, process residue and free of all loose previous insulation and coating materials or foreign matter which may affect the bond or performance of the adhesive, mastic, barrier material or grout.
- C. Remove scaling, broken, loose and disintegrating materials, by use of hand tools, power driven sanders or sandblast equipment, down to solid wall material in accordance with manufacturer's recommendations.
- E. Remove all loose rust, oil or other deleterious substances which may affect the bond or performance of the new insulation materials

10011 JOB CONDITIONS

- A. Perform all work during dry and proper temperature conditions in accordance with the manufacturer's recommendations. All furnished work shall be protected during inclement weather with tarpaulins or heavy gage polyethylene sheeting.

10012 INSTALLATION - GENERAL

- A. All products shall be stored, mixed and applied in strict compliance with the manufacturer's recommendations and as directed by the Engineer
- B. Prior to any work contractor is to confirm that the existing insulation to be removed is non-asbestos containing. This shall be confirmed by testing through a licensed, third-party asbestos testing and monitoring firm.

- C. The contractor, or sub-contractor, used for the purpose of asbestos removal shall be an N.J. licensed asbestos removal contractor.

10013 WORKMANSHIP

All protective coating, finishing and painting work shall be performed and completed in a first class manner.

Items or surfaces not being painted or coated but which are adjacent to surfaces to be cleaned and painted shall be protected against contamination and damage during the preparation and painting operations. Particular care shall be taken to prevent sand or cleaning agents from entering moving mechanical linkage, joints, electric motors, drive chains, bearings, journals, or other moving parts. Nameplates, instruction plates, and similar plates shall be masked or otherwise protected during cleaning and coating, painting and finishing operations.

Particular care shall also be taken to prevent damage to nearby property, automobiles, etc., due to wind drift and airborne particles of either the cleaning agents or finish material.

10014 REPLACEMENTS

In the event of detriment to any PVSC owned equipment due to such causes as mechanical damage, overspray and contamination, immediate necessary repairs and/or replacements shall be made, subject to the approval of the Engineer, and at no additional cost to the Owner.

10015 PRODUCT HANDLING

Deliver all packaged materials to the job-site in their original unopened containers with all labels intact and legible at time of inspection. Storage of materials on site shall be limited to those materials which have been specified and approved by the PVSC Plant Engineer and in areas also so approved.

Store all materials in an approved manner, all materials must be protected at all times from moisture (rain, etc.). The Contractor shall be responsible for the security of materials.

10017 CONTRACTOR OWNED EQUIPMENT

Should the contractor be required to supply equipment that he owns and is not included within these contract requirements he must submit the hourly rate for such Contractor owned equipment.

The pricing of all contractors owned equipment must be reasonable and competitive with prevailing market pricing and as per Equipmentwatch.com

All rates shall include all fuel, lubricants, supplies, small tools, necessary attachment, repairs, overhaul, any maintenance, storage fees and insurance required.

Idle time for equipment will not be paid for, except where the equipment has been held on the site on a standby basis at the request of the Engineer.

END OF SECTION

DIVISION 15: MECHANICAL

15081: PIPING AND EQUIPMENT INSULATION

PART 1 – GENERAL

1.01 Section Includes

- I. This section includes insulation and jacketing requirements for piping systems, including piping, valves and accessories. The Contractor shall provide all labor, materials, equipment and incidentals as shown, specified or required to furnish and install the piping insulation work.

1.02 Related Specifications

- A. None

1.03 Payment

- A. No separate payment will be made for work under this section except as provided for in the Specifications.

1.04 References

- | | | |
|----|-----------------------------|---|
| A. | ASTM C 195 | Standard Specification for Mineral Fiber Thermal Insulating Cement |
| B. | ASTM C 240 | Standard Test Methods of Testing Cellular Glass Insulation Block |
| C. | ASTM C 411 | Standard Test Method for Hot-Surface Performance of High-Temperature Thermal Insulation |
| D. | ASTM C534 | Standard Specification for Preformed Flexible Elastomeric Cellular Thermal Insulation in Sheet and Tubular Form |
| E. | ASTM C 552 | Standard Specification for Cellular Glass Thermal Insulation |
| F. | ASTM C 547 | Standard Specification for Mineral Fiber Pipe Insulation |
| G. | ASTM C 1136 | Standard Specification for Flexible, Low Permeance Vapor Retarders for Thermal Insulation. |
| H. | ASTM D 1056 | Standard Specification for Flexible Cellular Materials – Sponge or Expanded Rubber |
| I. | ASTM E 84 | Standard Test Method for Surface Burning Characteristics of Building Materials |
| J. | ASTM E 96 | Standard Test Method for Water Vapor Transmission of Materials |
| K. | International Building Code | |

- L. Uniform Construction Code – State of New Jersey
- M. International Energy Conservation Code
- N. International Mechanical Code
- O. NFPA 255 Surface Burning Characteristics of Building Materials

1.05 Submittals

- A. General: The Contractor shall provide all submittals, including the following, as specified in Division 1 of the Specifications.
- B. Product Data:
 - 1. Insulation and related materials. Submit the manufacturer's technical product data, insulation materials, densities, fire ratings, flame-spread ratings, smoke-developed ratings, fuel contributed ratings, material safety data sheets and installation instructions for each type of piping insulation and related materials. Submit a schedule showing the manufacturer's product number k-value, thickness, and furnished accessories for each piping system requiring insulation.
 - 2. PVC jacketing. Submit the manufacturer's technical data for jacketing and related materials.
- C. Installation Drawings: Complete assembly, layout and installation drawings with clearly marked dimensions.

1.06 Quality Assurance and Qualifications

- A. Manufacturer's Qualifications: Provide insulation from firms regularly engaged in manufacture of piping insulation products, of the types and sizes required, whose products have been in satisfactory use in similar services for not less than three (3) years.
- B. Installer's Qualifications: Use a single firm with at least five (5) years successful installation experience on projects with insulations similar to that required for this project.

1.07 Delivery, Storage and Handling

- A. General: Deliver, store and handle all products and materials as specified in Division 1 and as follows.
- B. Labeling: Deliver the insulation, coverings, cements, adhesives and coatings to the site in containers with the manufacturer's stamp or label, affixed showing the fire hazard indexes of products.
- C. Protection: Protect the insulation against dirt, water, and chemical and mechanical damage. Do not install damaged or wet insulation. Remove damaged materials from the project site.

PART 2 – PRODUCTS

2.01 Manufacturers

- A. General: Acceptable manufacturers are listed below. Other manufacturers of equivalent products may be submitted for approval.

B. Style A Insulation

1. Johns Manville Corp.
2. Owens-Corning Fiberglass Corp.

C. Style B Insulation

1. Armstrong World Industries, Inc.
2. Rubatex Corp.

D. Style C Insulation

1. Pittsburgh Corning Corp.

E. Style D Insulation

1. Johns Manville Corp.
2. Owens-Corning Fiberglass Corp.

F. Jacketing

1. Johns Manville – PVC Zeston

G. Thermal Hanger Shields

1. Pipe Shields Inc.

2.02 Flame/Smoke Ratings

- A. Piping insulation shall have a composite (insulation, jackets, coverings, sealers, mastics and adhesives) flame-spread index of 25 or less, fuel-contributed rating of 50 or less, and smoke-developed index of 50 or less, as tested by ASTM E 84 (NFPA 255) method. Any treatments of jackets or facings to impart flame and smoke safety shall be permanent. The use of water-soluble treatments shall be prohibited.

2.03 Building Code Compliance

- A. Piping insulation products shall comply with the Uniform Construction Code – State of New Jersey, 2009 International Building Code, 2009 International Mechanical Code and with the 2009 International Energy Conservation Code.

2.04 Materials

A. Style A Insulation – Molded Fiberglass Pipe Insulation

1. Style A insulation shall be heavy-duty, bonded fibrous glass sectional pipe insulation with a thermal conductivity not exceeding 0.26 BTU per hour square foot per degree F per inch thickness at 50 degrees F mean temperature and not exceeding 0.3 BTU per hour per square foot per degree F per inch thickness at 200 degrees F mean temperature. Insulation shall be provided with factory-applied vapor retarder. The vapor retarder shall be an ASJ (all-service jacket) type meeting the requirements of ASTM C 1136 Type 1 and consisting of laminated white Kraft paper, reinforcing scrim and foil. The insulation shall meet the requirements of ASTM C 547 Type 1. Insulation shall be rated for use at temperatures up to 850 degrees F.

2. Joints and Seams: Provide joints and seams meeting one of the following requirements:
 - a. Field cemented joints: All joints and seams shall be sealed with approved adhesive, and the joints covered with joint sealing tape at least three (3") inches in width, permanently adhered.
 - b. Sealing Strips: All longitudinal joints shall be sealed with integral adhesive sealing strip, and butt joints shall be covered with three (3") inch width of vapor barrier butt joint strip tape.
3. Fittings, flanges and valves: Provide insulation meeting one of the following requirements:
 - a. Fittings, flanges and valves shall be insulated with fiberglass molded or segmented insulation, and wrapped with joint sealing tape of matching color.
 - b. Alternatively fittings, flanges and valves may be insulated with factory cut glass blanket.

B. Style B Insulation – Flexible Elastomeric Cellular Insulation

1. Style B insulation shall be flexible elastomeric type, closed cell, cylindrical or sheet type as required by the application. Flexible elastomeric insulation shall have a thermal conductivity not exceeding 0.27 BTU per hour per square foot per degree F per inch thickness at 75 degrees F mean temperature. Water absorption shall be less than 5% (ASTM D 1056). Water vapor permeability shall not exceed 0.10 perms per inch in accordance with ASTM E 96 Procedure A. The insulation shall meet the requirements of ASTM C534 and ASTM D 1056.
2. Joints and Seams: All joints shall be cut straight and butted with no gaps. Seal all joints with the manufacturer's recommended adhesive.
3. Fittings, flanges and valves:
 - a. Seams and mitered joints shall be adhered using the manufacturer's recommended adhesive. Screwed fittings shall be sleeved and adhered with a minimum one (1") inch overlap onto the adjacent insulation.
 - b. Flanges, strainers, couplings and valves shall be insulated using donuts, then covered with sheet or oversize tubular insulation.
4. Coating:
 - a. Where insulation is installed outdoors directly exposed to sunlight, coatings shall be provided to protect the insulation from ultraviolet radiation. Coatings shall be as recommended by the insulation manufacturer and approved by the Engineer. When using Armaflex Exterior Coating material shall be two (2) coats of "Armaflex WB Finish".

C. Style C Insulation – Cellular Glass

1. Cellular glass insulation shall have a water absorption not exceeding 0.2 percent (ASTM C 240), have 0.20 perms-inch water vapor permeability (ASTM E 96), service temperature range of at least 0 to 220 degrees F, a minimum density of 8.0 lbs. per cubic foot, compressive strength of 100 psi, and maximum thermal conductivity of 0.32 BTU per hour per square foot per degree F per inch thickness at 75 degrees F average temperature. Where field-applied stainless steel jacketing is not required over

the insulation, the insulation shall be provided with a factory-applied facing of aluminum foil laminated to glass fiber reinforced white vinyl facing. The insulation shall meet the requirements of ASTM C 552.

2. Joints and Seams:

- a. Insulation joints shall be sealed with the insulation manufacturer's recommended vapor-resistant joint sealant.
- b. Factory-applied facing shall have its longitudinal seams sealed with vapor-resistant adhesive and butt joints shall be wrapped with three (3") inch width joint sealing tape, all as recommended by the insulation manufacturer and approved by the Engineer.

3. Fittings, flanges and valves: Fittings, flanges and valves shall be insulated with preformed cellular glass insulation. Fitted insulation segments shall be used on sizes for which preformed shapes are not manufactured, of the same material and thickness and applied in the same manner as for pipe insulation.
4. Where indicated on the Contract Drawings or in the Specifications, the interior bore of the insulation shall be coated to prevent abrasion of the pipe. For pipe operating near ambient temperature, the coating shall be a gypsum cement molding plaster such as U. S. Gypsum Hydrocal B-11, or equal, as recommended by the insulation manufacturer.

D. Style D Insulation – Fiberglass Pipe and Tank

1. Style D insulation shall be fiberglass pipe and tank insulation consisting of semi-rigid fiberglass board bonded to a flexible vapor retarder. Insulation shall have a thermal conductivity not exceeding 0.27 BTU per hour per square foot per degree F per inch thickness at 75 degrees F mean temperature and 0.43 BTU per hour per square foot per degree F per inch thickness at 250 degrees F mean temperature. Insulation shall be rated for use over an operating temperature range of 0 to 650 degrees F in accordance with ASTM C411. Insulation shall be provided with factory applied vapor retarder. The vapor retarder shall be an ASJ (all service jacket) type consisting of laminated white Kraft paper, reinforcing scrim and foil. ASJ shall be rated for use over a temperature range of -20 to 150 degrees F and shall meet the requirements of ASTM 1136 Type 1.
2. Joints and Seams: All joints and seams shall be sealed with approved adhesive, and the joints covered with joint sealing tape at least three (3") inches in width, permanently adhered.
3. Fittings, flanges and valves: Provide insulation meeting one of the following requirements:
 - a. Fittings, flanges and valves shall be insulated with fiberglass molded or segmented insulation, and wrapped with joint sealing tape of matching color.
 - b. Alternatively, fittings, flanges and valves may be insulated with factory cut glass blanket.

E. Jacketing

1. PVC jacketing shall not be less than 30 mil thick. PVC jacketing shall be Zeston 2000 Series PVC as manufactured by Johns Manville, or approved equal.

F. Accessories

1. Provide staples, bands, wires and cement as recommended by the insulation manufacturer and approved by the Engineer for the applications indicated.
2. Provide adhesives, sealers, and protective finishes as recommended by the insulation manufacturer and approved by the Engineer for the applications indicated.

G. Thermal Hanger Shields

1. Provide insulated pipe protectors consisting of a 360 degree high density, 100 psi, waterproofed calcium silicate inserts encased in 360 degree sheet metal. On cold water pipes provide protectors with insulation extended 1 (1") inch beyond the sheet metal shield. On heat-traced pipe, protectors shall be provided with grooves to accommodate the heat tracing.
2. Provide the thickness of the insulation insert to be the same as the adjoining pipe insulation, and sheet metal gauge in accordance with the manufacturer's recommendations.
3. Provide metal components manufactured of Type 316 stainless steel. Pipe hangers and supports provided in conjunction with the thermal hanger shields shall meet the requirements of paragraph 2.06.

2.05 HVAC Insulation

A. General Information:

1. All HVAC insulation and adhesives shall be made of material which will not support combustion and shall be considered fire resistant. Prior to the commencement of the work, the Contractor shall submit a schedule of the proposed insulation materials and the methods of application to be used to the Engineer for review.
2. The insulation shall have composite (insulation, jacket or facing, and adhesive used to adhere the facing or jacket to the insulation) fire and smoke hazard ratings, not exceeding Flame Spread of 25, Smoke Developed of 50, and Fuel Contributed of 50. Accessories, such as adhesives, mastics, cements, tapes and cloth for fittings shall have component ratings not exceeding Flame Spread of 25, Smoke Developed of 50 and Fuel Contributed of 50. All products or their shipping cartons shall bear a label indicating that flame and smoke ratings do not exceed these ratings. Any treatment of jackets or facings to impart flame and smoke safety shall be permanent. The use of water soluble treatments will be prohibited.

B. Piping Insulation:

1. General Piping Insulation

- a. All heating and cooling water pipelines shall be insulated. The piping shall be cleaned, tested and painted as specified prior to the application of the insulation. All surfaces of pipe jacketing shall be smooth and even. All sectional pipe covering shall be removable and stopped and beveled off a sufficient distance from all flanges and screwed joints to permit easy removal of flange bolts and screwed joints. All insulation shall be product of Owens Corning, Johns Manville, or approved equal.

- b. Fittings and valves shall be insulated with molded or mitered segments of same thickness, type and finish as adjoining pipe covering. Flanged and screwed joints shall be insulated with sectional or block insulation, removable and replaceable. The flanged and screwed joints insulation shall be filled with cement as recommended by the manufacturer.
- c. Pipe insulation shall be A, B or C as indicated in the piping schedule, listed in Paragraph 2.06, Pipe Schedules.
- d. A or B piping insulation systems shall have a composite (insulation jacket and adhesive) Fire and Smoke Hazard rating as tested by ASTM E84 not exceeding:

Flame Spread	25
Smoke Developed	50
- e. A or B piping insulation shall have attached a vapor barrier consisting of a laminate of high density Kraft paper bonded to aluminum foil reinforced with fiberglass yarn.
- f. A, B and C piping insulation shall be covered with a 30 mil PVC jacket.

Jacketing shall be installed in accordance with manufacturer's recommendations. All insulated fittings shall be finished in the same manner, using PVC preformed fitting covers and fabricated covers made from the same material for valves, flanges, tees, in line accessories, etc. Jacketing system shall be Zeston 2000, as manufactured by Johns Manville, or approved equal.
- g. Pipe supports fitted over the outside of the insulation shall have load distributing, stainless steel sheet metal shields positioned between the insulation and the pipe support. The shield shall have a round contour to match the curvature of the pipe insulation and shall cover the lower 120 degrees of the pipe insulation circumference.
- h. Pipe insulation shall be continuous through interior walls and floor openings, except where walls or floors are required to be firestopped, required to have a fire resisting rating or required to be gas tight.
- i. All in line piping accessories, e.g. expansion tanks, air separators, heat exchangers, etc., shall be insulated under this section in accordance with the requirements for the adjacent piping.

2. Type A Insulation

- a. Shall be installed on pipes carrying hot water for the purpose of reducing heat loss and preventing injury to workers.
- b. Shall be fiberglass preformed pipe insulation with thermal conductivity of not more than 0.23 BTU-in./hr.-sq. ft.-degrees F at 75 degrees F mean temperature meeting or exceeding ASTM C547 Class I requirements for pipes up to and including 36 inches nominal pipe size.
- c. Shall be 1-1/2 inch thick for piping 2-1/2 inches and smaller, 2 inch thick for piping 3 inches to six inches, 2-1/2 inch thick for 8 inches and larger.
- d. All valves and in line accessories shall be insulated with the same thickness, type and finish as the adjoining pipe covering.

3. Type B Insulation

- a. Shall be installed on pipes carrying cold water for the purpose of eliminating sweating.
- b. Shall be identical to Type A except that the thickness shall be 1-1/2 inch around the pipe and fittings.
- c. All valves and in line accessories shall be insulated with the same thickness, type and finish as adjoining pipe covering.

4. Type C Insulation

- a. Insulation shall be foamed plastic type, closed cell, cylindrical or sheet type as required by the application, Armstrong Cork, Co. "Armaflex" or Owens Corning. Apply in strict accordance with manufacturer's recommendations. All joints shall be cut straight and butted with no gaps. Seal all joints with the manufacturer's recommended adhesive. The minimum thickness of insulation for all refrigerant piping, fittings and accessories shall be one (2") inch.

C. Equipment Insulation

1. All equipment listed below shall be insulated with 1-1/2 inch thick glass fiber board having a density of not less than 3.0 lbs./cubic foot and a thermal conductivity of not more than .23 BTU-in.hr.,-sq. ft.-degrees F at 75 degrees mean temperature. The insulation shall consist of an aluminum foil reinforced with fiberglass yarn and laminated to Kraft. It shall be secured with copper clad wire or pins and clips on 12 inch centers. All voids shall be filled with insulating cement; all joints and breaks in the vapor facing shall be adhered with vapor barrier adhesive. The facing shall be finished with 316 stainless steel lock on jacketing system.
2. The following equipment shall be insulated:
 - a. Heat exchangers.
 - b. All base mounted pumps. (Pumps shall be provided with removable, insulated metal covers).
 - c. Expansion tanks.
 - d. Air separators.
 - e. Condensate Recovery System

2.06 Pipe Schedules

A. General

1. The Contractor shall furnish and install all piping, and appurtenances as specified, as shown on the Contract Drawings and including, but not limited to, the following schedule.

B. Abbreviations and Legends

1. The following abbreviations and legends shall be used in the reading of the schedule:

a. Service

CWS/R	-	Cooling Water Supply/Return
BD	-	Boiler Drain and Boiler Relief Valve Discharge

DR	-	Drain – Miscellaneous
HW/S/R	-	Hot Water Supply/Return
MU	-	Make-Up Water
NG	-	Natural Gas
REF	-	Refrigerant
DCW	-	Domestic Cold Water
NPW	-	Not Potable Water

b. Material

DI	-	Ductile Iron
CU	-	Copper
STL	-	Steel
SS	-	Stainless Steel

c. Wall Thickness

CL	-	Class
SCH	-	Schedule
PC	-	Pressure Class

d. Type of Joint

FLG	-	Flanged
SLD	-	Soldered
THD	-	Threaded
WLD	-	Welded

e. Type of Fittings

MI	-	Malleable Iron
STL	-	Steel
BR	-	Bronze
SS	-	Stainless Steel

f. Protection

1) Exterior

PR	-	Primer Applied
"A" Ins	-	Type A Insulation
"B" Ins	-	Type B Insulation
"C" Ins	-	Type C Insulation

2) Interior

ACCL	-	Asphalt Coated Cement Line
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C. Schedule

The schedules are presented on the following pages.

INTERIOR AND EXPOSED PIPING										
Service	Nominal Pipe Size (Inches)	Material	Wall Thickness	Type of Joint	Type of Fittings	Working Pressure (psig)	Test Pressure (psig)	Protection		Remarks
								Interior	Exterior	
MU	0 to 3	CU	TYP K	SLD	BR/CU	100	150	--	"B" INS	1-1/2 inch thick INS
DCW/NPW	Up to 2-1/2	STL	SCH 40	THD	MI	100	150	--	"A" INS	1-1/2 inch thick INS
DCW/NPW	3 TO 12	STL	SCH 40	FLG	STL	100	150	--	"A" INS	1-1/2 inch thick INS
HWS/R & STEAM	Up to 2-1/2	STL	SCH 40	THD	MI	100	150	--	"A" INS	2 INCH THICK ins
HWS/R & STEAM	3 to 6	STL	SCH 40	WLD/FLG	STL	100	150	--	"A" INS	2 inch thick INS
HWS/R & STEAM	8 to 24	STL	SCH 40	WLD/FLG	STL	100	150	--	"A" INS	2-1/2 inch thick INS
NG	Up to 12	STL	SCH 80	WLD	STL	50	200	--	PR	
BD	Up to 2-1/2	STL	SCH 40	THD	MI	25	40	--	"B" INS	1-1/2 inch thick INS
DR	Up to 3	CU	TYP L	SLD	BR/CU	100	150	--	"C" INS	1 inch thick INS

NOTE: Where multiple joint types are indicated (i.e. WLD/FLG), the Contractor shall use welded type except when connecting to valves and equipment where flanged joints are required.

SCHEDULE OF PIPE SUPPORTS

Diameter of Pipe	Hanger Type	Diameter of Hanger Rod	Type of Anchor	Adjustable Pipe Saddle Supports	Bracket Support
To 2"	Fig. 65	3/8"	Fig. 279	-	Fig. 194
2" up to 4"	Fig. 260	1/2"	Fig. 279	-	Fig. 195
4"	Fig. 260	5/8"	Fig. 279	Fig. 264	Fig. 199
6"	Fig. 260	3/4"	Fig. 279	Fig. 264	Fig. 199
8" to 10"	Fig. 260	7/8"	Fig. 282	Fig. 264	Fig. 199
12"	Fig. 260	7/8"	-	Fig. 264	Fig. 199

(1) Use multiple hanger rods

(2) Trapeze with chair

(3) To be used for 14 inch pipes only. Bracket supports not to be used for larger pipes.

Note: All hangers, hanger rods, hanger hardware, shall be fabricated of galvanized steel. Figure numbers shown in this schedule refer to Grinnell Company, Inc. and are used to indicate type and size required. Equivalent models by Basic Engineers, Carpenter Patterson, or approved equal shall be acceptable.

2.07 Insulation of Cryogenic and Low Temperature Oxygen Piping of Standard Plant

Refer to Appendix 7

PART 3 - EXECUTION

3.01 Inspection

A. General: Examine areas and conditions under which piping insulation is to be installed. Do not proceed with Work until unsatisfactory conditions have been corrected in a manner acceptable for insulation installation, as determined by the Engineer.

3.02 Installation

A. General: Install piping insulation products in accordance with the manufacturer's recommendations and approved shop drawings, and as specified in Division 1. Install piping insulation products in accordance with the 2009 International Building Code NJ Edition and the 2009 International Mechanical Code. Install all products in accordance with the recognized industry practices so that insulation serves its intended purpose.

Insulated thermal hangers shields shall be installed at all support points, except where otherwise indicated.

B. Piping Insulation:

1. Order of Installation: Install insulation on pipe systems subsequent to the installation of heat tracing, painting, testing, and acceptance tests. Piping shall be field tested and approved by the Engineer prior to installation of insulation.
2. Cleaning and Drying: Pipe surfaces shall be cleaned and dried prior to insulating.
3. Insulation Surfaces: Install the insulation materials with smooth, even and flush adjoining surfaces. Butt insulation joints firmly together to form a complete and tight fit over the surfaces to be covered. Insulate each continuous run of piping with full length units of insulation, with a single cut piece to complete the run. Do not use cut pieces or scraps abutting each other.
4. Vapor Barrier: Maintain integrity of the vapor-barrier jackets on pipe insulation, and protect to prevent puncture or other damage. Vapor barrier materials shall be applied to form a complete, unbroken vapor seal over the entire insulated piping system.
5. Insulating Fittings: Cover valves, fittings and similar items in each piping system with an equivalent thickness and composition of insulation as applied to the adjoining pipe run. Install factory molded, precut or job fabricated units except where a specific form or type is indicated.
 - a. Unless indicated otherwise, piping insulation shall be extended without interruption through interior walls, floors and similar piping penetrations. Annular spaces between pipe and pipe sleeves shall be thoroughly packed with fibrous glass blanket and caulked with mastic so as to be soundproof and vermin-tight. Provide fibrous glass blanket with properties equivalent to the insulation Style installed on the piping.
 - b. Do not extend insulation through walls or floors that are fire rated or are required to be gas-tight.
6. Pipe Hangers:
 - a. Butt pipe insulation against pipe hanger insulation inserts.
 - b. For hot pipes, apply a three (3") inch wide vapor barrier tape or band over the butt joints.
 - c. For cold piping apply a wet coat of the vapor barrier lap cement on butt joints and seal the joints with a three (3") inch wide vapor barrier tape or band. Pipe hangers and supports shall be installed outside of the vapor seal.
7. Removable Items: Install removable insulation sections on the following:
 - a. Devices that require access for maintenance of equipment.
 - b. Items that can be removed, such as unions, screwed joints, flanges, strainers, etc.

C. Jacketing: Provide PVC jacketing over all insulated piping systems. Install jacketing in accordance with the manufacturer's recommendations and approved shop drawings.

D. Pipe exposed to weather:

1. Pipe hangers and supports shall be on the outside of the stainless steel jackets, and shall not penetrate the jacketing.
 2. Do not install thermal hanger shields on pipelines using cellular glass insulation. At each such location, a preformed galvanized steel insulation shield shall be provided. The insulation shield shall envelope at least the lower half of the insulated pipe and shall limit the compressive load on the insulation to 33 psi or less.
- E. All jacket openings – such as at overlaps of jackets with thermal hanger shields, around valve stems and similar projections – shall be sealed with non-hardening, waterproof, clear or white sealing compound so that upon completion the insulation is essentially watertight.

3.03 Existing Insulation Repair

- A. Repair sections of existing piping insulation that are damaged during construction. Use insulation of same thickness as the existing insulation. Install a new jacket lapping and sealer over the existing insulation. If existing insulation is painted, paint new insulation to match the existing surface color. If existing insulation is jacketed, replace damaged jacketing with new jacket.

3.04 Protection and Replacement

- A. Protection: Insulation shall be protected against dirt, water, chemical or mechanical damage before, during and after installation. Follow methods which are required for protection of the insulation work during the remainder of construction period, to avoid damage and deterioration.
- B. Replacement: Any insulation or covering damaged prior to final acceptance of the work shall be satisfactorily repaired or replaced, including units with vapor barrier damage and moisture saturated units.

3.05 Painting and Cleaning

- A. Where required piping insulation shall be painted in accordance with Manufacturers recommendations referenced in Paragraph 2.04.B.4..
- B. The Contractor shall remove all debris, waste materials and loose foreign matter resulting from installation.

3.06 General Contract Piping System Insulation Schedule

- A. General: In addition to the requirements above, the Contractor shall provide piping insulation on the following mechanical piping systems and as indicated in the Specifications.
- B. Thickness: Where not indicated otherwise, the Contractor shall provide the following minimum insulation thicknesses:
1. Insulation shall be one (1") inch thick for pipe sizes up to and including six (6") inches.
 2. Insulation shall be 1-1/2 inch thick for pipe over six (6") inches.
- C. Cold Piping Systems
1. Style: Insulation shall be Style A.
 2. Install on the following for the purpose of eliminating sweating:
 - a. City water systems

- b. Service water systems

D. Hot Piping Systems (to 250 Degrees F)

1. Style:
 - a. Insulation shall be Style A for pipe sizes up to and including 30-inch.
 - b. Insulation shall be Style D for pipe sizes greater than 30-inch.
2. Thickness: The Contractor shall provide the following minimum thicknesses for the purpose of reducing heat loss and preventing injury to workers:
 - a. Insulation shall be 1-1/2 inch thick for pipe sizes up to and including two (2") inch.
 - b. Insulation shall be two (2") inch thick for pipe sizes 2-1/2 inch through six (6") inches.
 - c. Insulation shall be 2-1/2 inch thick for pipe sizes eight (8") inch through thirty (30") inch.
 - d. Insulation shall be three (3") inch thick for pipe sizes greater than thirty (30") inch.
3. Install on the following:
 - a. Heated sludge piping systems.
 - b. Hot water piping systems.
 - c. Hot air piping systems.
 - d. Digester gas piping systems.
 - e. Interior heat-traced piping systems.

- E. Steam and condensate piping systems shall be insulated as specified below in Articles 3.07D "Hot Low Pressure (to 250 degrees F) HVAC Piping Systems" and 3.07E, "Hot Fluids (251 degrees F to 350 degrees F) HVAC Piping Systems".

F. Exterior Piping Systems

1. Style: Insulation shall be Style C.
2. Thickness: Insulation shall be a minimum two (2") inches thick.
3. Install on the following:
 - a. Exterior piping systems that are heat-traced for freeze protection.

3.07 HVAC Piping System Insulation Schedule

- A. General: In addition to the requirements above, the Contractor shall provide piping insulation on HVAC piping systems as indicated below and as indicated in the Specifications.
- B. Sub-Freezing Piping (0 to 39 degrees F) HVAC Piping Systems
1. Style: Insulation shall be Style B.
 2. Thickness:

- a. Insulation shall be one (1") inch thick for pipe sizes up to and including one (1") inch.
 - b. Insulation shall be 1-1/2 inch thick for pipe sizes over one (1") inch.
- 3. Install on the following for the purpose of eliminating sweating:
 - a. Refrigerant suction lines systems between evaporators and compressors.
- C. Cold Piping (40 degrees F to ambient) HVAC Piping Systems.
 - 1. Style: Insulation shall be Style A.
 - 2. Thickness:
 - a. Insulation shall be one (1") inch thick for pipe sizes up to and including four (4") inches.
 - b. Insulation shall be 1-1/2 inch thick for pipe sizes over four (4") inches.
 - 3. Install on the following for the purpose of eliminating sweating:
 - a. HVAC chilled water supply and return piping systems.
 - b. HVAC make-up water piping systems.
 - c. Air conditioner condensate drain piping systems.
- D. Hot Low Pressure (to 250 degrees F) HVAC Piping Systems
 - 1. Style: Insulation shall be Style A
 - 2. Thickness:
 - a. Insulation shall be 1-1/2 inches thick for pipe sizes up to and including two (2") inches.
 - b. Insulation shall be two (2") inches thick for pipe sizes 2-1/2 inches through six (6") inches.
 - c. Insulation shall be 12-1/2 inches thick for pipe sizes eight (8") inches and greater.
 - 3. Install on the following for the purpose of reducing heat loss and preventing injury to workers:
 - a. HVAC hot water (glycol solution) supply and return piping systems.
 - b. Hot gas refrigerant piping systems.
 - c. Low pressure steam and condensate piping systems.
- E. Hot Fluids (251 degrees F to 350 degrees F) HVAC Piping Systems
 - 1. Style: Insulation shall be Style A.
 - 2. Thickness:
 - a. Insulation shall be two (2") inches thick for pipe sizes up to and including one (1") inch.

- b. Insulation shall be 2-1/2 inches thick for pipe sizes 1-1/4 inch through four (4") inches.
 - c. Insulation shall be 3-1/2 inches thick for pipe sizes over four (4") inches.
- 3. Install on the following for the purpose of reducing heat loss and preventing injury to workers:
 - a. High pressure steam and condensate piping systems.

F. Exterior Piping Systems

- 1. Style: Insulation shall be Style C.
- 2. Thickness: Insulation shall be a minimum two (2") inches thick.
- 3. Install on the following:
 - a. Exterior piping systems that are heat-traced for freeze protection.

G. Insulation Omitted: Omit insulation on hot piping within radiation enclosures or unit cabinets, on cold piping within unit cabinets provided that the piping is located over a drain pan and on heating piping beyond a control valve, located within heated space.

3.08 Plumbing Piping System Insulation Schedule

A. General: In addition to the requirements above, the Contractor shall provide insulation for plumbing piping systems as indicated below and as indicated in the Specifications.

B. Cold Plumbing Piping Systems

- 1. Style: Insulation shall be Style A.
- 2. Thickness: Insulation shall be one (1") inch thick.
- 3. Install on the following for the purpose of eliminating sweating:
 - a. Potable cold water piping systems
 - b. Interior above-ground storm water piping systems
 - c. Plumbing vents within six (6) lineal feet of a roof opening.
 - d. Drain piping systems from drip pans

C. Hot Plumbing Piping Systems

- 1. Style: Insulation shall be Style A.
- 2. Thickness:
 - e. Insulation shall be one (1") inch thick for pipe sizes less than or equal to six (6") inches.
 - f. Insulation shall be 1-1/2 inches thick for pipe sizes greater than six (6") inches.
- 3. Install on the following for the purpose of reducing heat loss and preventing injury to workers:

- a. Potable hot water piping systems.
 - b. Potable hot water recirculating piping systems.
 - c. Hot drain piping systems.
 - d. Tempered water piping systems.
- D. Insulation Omitted: Omit the insulation on chrome-plated exposed piping (except for handicapped fixtures), air chambers, unions, strainers, check valves, balance cocks, flow regulators, drain lines from water coolers, drainage piping located in crawl spaces or tunnels, buried piping, fire protection piping, and pre-insulated equipment.

3.09 HVAC Insulation Installation

A. General

1. The HVAC insulation shall be applied on clean dry surfaces only. It shall be continuous through wall and ceiling openings and sleeves. All removable or openable parts such as casing and access doors shall be insulated so that the item can be opened or removed without damage to the insulation or finish.
2. Insulation on all cold surfaces shall be applied with a continuous, unbroken vapor seal.
3. On make-up water piping, galvanized steel shields shall be installed between the hanger or support and the pipe insulation jacket. If the insulation cannot support the weight of the pipe and its contents without being crushed, rigid pipe insulation of the thickness equal to the adjoining insulation shall be installed. The rigid insulation shall be provided with a vapor barrier and shall have sufficient strength to support the weight of the pipe and its contents without being crushed.
4. On hot water supply and return lines, and steam lines, pipe covering protection saddles shall be installed between the hanger or support and the piping. Rigid pipe insulation of thickness equal to the adjoining insulation shall be installed in the space between the saddle and the pipe. Pipe insulations shall be continuous through interior walls and floor openings, except where walls or floors are required to be firestopped, required to have a fire resisting rating or required to be gastight. Firestopping material shall conform to Specification Section 07841.
5. The insulation shall pass through the hanger uninterrupted.
 - a. All piping insulation shall be continuous through the hanger without interruption, and a protection system shall be used. The system shall consist of a block of molded calcium silicate or cellular glass insulation whose thickness and temperature rating shall be compatible with the insulation requirements of the piping system served and a metal shield. The blocking shall be a minimum of twelve (12") inches long, cover the bottom half of the pipe and be secured to the piping to prevent shifting.
6. The metal shield shall be 300 series stainless steel matching the curvature and covering the blocking. The metal gauge shall be as follows:

<u>Nominal Pipe Size</u>	<u>Metal Gauge</u>
Up to 6 inches	16
6 to 10 inches	14
12 inches and over	12

7. The length of the metal shield shall be twelve (12") inches or match the length of blocking used. The shield shall cover the bottom half of the pipe.

B. Testing

1. All tests shall be performed in accordance with the requirements of Division 1.
2. The insulation, composite and accessories shall be tested in accordance with ASTM E84, NFPA 255 or UL723.

15082: INSULATION OF CRYOGENIC AND LOW TEMPERATURE OXYGEN PIPING

1.01 Scope

This specification outlines minimum acceptable requirements, acceptable materials and methods of application for external thermal insulation on oxygen piping operating between -320°F and -50°F.

1.02 General

- A. Any evidence of moisture in the insulation or its accessories, either before or after application, shall be sufficient cause for rejection.
- B. All insulation shall be stored in a dry place and shall be protected from contact with water from the time it is received until it is installed.
- C. All pressure testing shall be satisfactorily completed prior to the application of any insulation materials.
- D. Before any insulation is applied, all surfaces shall be cleaned of dirt, rust and any foreign matter.
- E. Insulation and accessory materials shall be applied only to surfaces that are clean, dry and frost-free.
- F. No insulation, vapor barrier materials, sealers or adhesives should be applied when ambient temperatures are below 35°F.
- G. All exposed edges and sharp corners on insulation shall be rounded to present a smooth contour.
- H. All mating surfaces between adjacent pieces of all insulation are to be tightly butted together so that no voids or gaps occur at any joints except where specifically indicated.
- I. In his quotation, the Contractor shall list all materials he intends to use by trade name.

1.03 Type of Insulation to be Used

A. Cellular Glass Insulation

Cellular glass insulation is the only material to be used in the following areas:

1. At flange, valve, relief valve, and/or pump locations as well as any other locations where oxygen process leakage may occur in normal operation.
2. For a minimum horizontal distance of four (4') feet on either side of the locations listed in 1.03-A.1 above.
3. For a minimum vertical distance of ten (10') feet from the locations defined in 1.03-A.1 above.

B. Urethane Insulation

1. With the exception of the areas defined in 1.03, A above, where it is mandatory that cellular glass insulation be used, urethane insulation is acceptable on oxygen piping.
2. In any areas where there is a question as to the proper material to use (cellular glass or urethane), the decision of the Engineer shall be final.

1.04 Materials

A. Insulation – Only the following materials are acceptable and no substitutes will be permitted:

1. Cellular Glass: Pittsburgh Corning Corp., Pittsburgh, PA – Foamglas
2. Urethane: Owens Corning Fiberglass Corp., Toledo, OH – 250; CPR Division, The Upjohn Co., Torrance, CA – Trymer CPR 9545

B. Accessory Materials – Shall be the following with no substitutions permitted without first obtaining a written approval for the material from the Engineer.

1. Cellular Glass Insulation Adhesive: Keene's Cement
2. Cellular Glass Bore Coating: Epolux Mfg. Corp, Long Island, NY - Cad-A-Seal 780B
3. Insulation Sealer: Foster Division, H.B. Fuller Co., Spring House, PA – 30-45; Insul-Coustic Corporation, Sayreville, NJ – I-C 405
4. Insulation Adhesive (Urethane only): Foster Division, H.B. Fuller Co., Spring House, PA – 81-33; Epolux Mfg. Corp., Long Island, NY – Cad-O-Prene 400
5. Contraction Joint Insulation – 1 lb/ft³ fibrous glass blanket: Owens Corning Fiberglass Corp., Toledo, OH – PF-336; Johns-Manville, Denver, CO – Microlite; or equal
6. Vapor Barrier Laminate: St. Regis Paper Company, NY, NY – Pyro-Kure 626; Ludlow Corporation, Needham Hts., Mass. – Fire-Ban 266; Owens Corning Fiberglass Corp., Toledo, OH – ASJ
7. Vapor Barrier Adhesive: Foster Division, H.B. Fuller Co., Spring House, PA – 85-75; Epolux Mfg. Corp., Long Island, NY – Cad-A-Seal 745
8. Weather Resistant Vapor-Barrier Mastic: Foster Division, H.B. Fuller Co., Spring House, PA – 60-36; Insul-Coustic Corp., Sayreville, NJ – I-C 571; Epolux Mfg. Corp., Long Island, NY – Cadalar 600.

Reinforcement shall be a 20 x 20 mesh (1.5 oz./S.Y.) glass cloth: J.P. Stevens, Waterboro, SC – Style 2000; Childers Produces Co., Bristol, PA – Chilglas #20; or approved equal.

9. Metal Jacketing- .016" thick aluminum with 3/16" corrugations (no moisture barrier required): Insul-Coustic Corp., Sayreville, NJ; Childers Manufacturing Co., Bristol, PA; or approved equal.
10. Neoprene Covers – 1/16" thick neoprene rubber sheet stock: B.F. Goodrich Co., Akron, OH - (40 durometer neoprene); Groendyk Mfg. Co., Buchanan, VA – (40 durometer neoprene); or approved equal.
11. Adhesive for Neoprene Covers: Foster Division, H.B. Fuller Col, Spring House, PA – 85-75; Insul-Coustic Corp., Sayreville, NJ – I-C 204; or approved equal.

12. Insulation Banding Tape – $\frac{3}{4}$ " wide reinforced fiberglass: Permacel, New Brunswick, NJ – 162; 3M Company, St. Paul, Minn. – Scotch Brand Filament Tape #898; or approved equal.
13. Metal Bands $\frac{1}{2}$ " wide x .020" thick stainless steel with matching seals: Childers Manufacturing Co., Bristol, PA; Insul-Coustic Corp., Sayreville, NJ; Signode Company, Chicago, IL; or approved equal.
14. Insulation Tie Wire – Where specified, the wire for securing the inner layer of insulation shall be 16 BWG gage dead soft annealed type 304 or 430 stainless steel.

1.05 Insulation Material Construction

A. General

The dimensions and tolerances of all pipe covering and fitting and valve covers shall be in accordance with ASTM Recommended Practice C 450-657.

B. Cellular Glass

1. General

- a. All insulation shall be pre-fabricated using a minimum number of pieces and using butt-joint construction.
- b. The maximum thickness of any layer shall be three (3") inches.

2. Piping

- a. Insulation shall be supplied in minimum lengths of two (2') feet with all ends of butt-joint (square) construction.
- b. Insulation shall be supplied in sectional (2 piece) form up to and including 12-3/4 inch O.D. Above this size, sectional insulation is preferred but segmented (multi-piece) form is acceptable providing the number of segments is kept to a minimum.
- c. Insulation shall be supplied in multi-layer construction without a vapor barrier. Each layer shall be approximately the same thickness.

3. Fitting and Valve Insulation

- a. Insulation covers for fittings and valves shall be pre-fabricated in two halves. Mitered segments are permissible in each of the halves, but each of the segments are to be joined with cellular glass insulation adhesive. See Section 1.04, B.1.
- b. With the exception of the joints between half-sections, straight through joints between layers are to be avoided wherever possible.

C. Urethane

1. Piping Insulation

- a. Insulation shall be supplied in minimum lengths of three (3') feet with all ends of butt-joint (square) construction.

- b. Insulation shall be supplied in sectional (2 piece) form up to and including 12-3/4 inch O.D. Above this size, sectional insulation is preferred, but segmented (multi-piece) form is acceptable providing the number of segments is kept to a minimum.
- c. Insulation shall be supplied in double-layer construction. The first layer shall be plain (no jacket), but the second layer shall be supplied with a factory applied fire-retardant vapor barrier jacket of the type specified in these specifications under Accessory Materials. Each layer shall be of approximately the same thickness, but in no case shall their thicknesses differ by more than ½ inch. When the thicknesses of each layer are different, the thicker piece is to be used for the first layer.

2. Fitting and Valve Insulation

- a. All fitting and valve insulation shall be supplied in single layer sectional (two piece) form. Each half-section shall be of one piece construction up to and including 12-3/4 inch O.D. Above this size, one piece construction of each half is preferred, but factory fabricated mitered half-sections are acceptable, provided the mitered segments are fabricated with keyed-construction which eliminates any straight-thru joints and these keyed joints are joined with insulation adhesive.
- b. Longitudinal seams on all fitting and valve insulation shall be of keyed-joint construction.
- c. Circumferential ends of all fitting and valve insulation shall be of socket construction. The depth of socket shall be a minimum of ¾ inch and the inside diameter of the socket shall be such that it will nest over the first layer of adjacent piping insulation. The outside diameter of the fitting or valve insulation shall be equal to or greater than the outside diameter of the second layer of adjacent piping insulation.
- d. All fitting and valve insulation shall be preformed in a manner that will insure that the minimum thickness of this insulation shall be at least equal to the required total thickness of insulation used on the adjacent piping.
- e. No jacket is to be provided on valve or fitting insulation.

Recommended fabricators of fitting and valve insulation are: Atlas Industries, Ayer, Mass.; Styro-Fabricators, Kansas City, Kansas; Penns-Valley Insulation Co., Aston, PA.

1.06 Insulation Thickness

The total thickness of insulation to be used on each piping system is to be as specified on the insulation schedule which is supplied by APCI.

1.07 Application of Insulation Systems (Refer to Appendix 7 for Figures 1 through 16)

A. Cellular Glass

1. Straight Piping (See Figure 1)

- a. The first layer of the insulation shall have its inner surface coated with bore-coating material which is allowed to dry completely prior to application. See Section 1.04.B.2.
- b. The inner layer(s) of double or multi-layer applications are to be installed dry with no sealer or adhesive. They are to be secured by installing tie wires as indicated in Figure 1. Ends of these wires are to be twisted together, bent over and carefully embedded into the surface of the insulation.

- c. All joints in the outer layer of double or multi-layer insulation shall be buttered with insulation sealer for the full depth of the thickness of that layer by applying a thin layer of sealer to one of the mating surfaces of insulation. The joint sealer need not be applied to the mating butt-ends of the succeeding adjacent section of insulation provided that proper precautions are taken to insure that a thin continuous seal is provided for the full length and depth of each joint and that the open cells of the cellular glass are completely filled with sealer. If this method proves unsatisfactory, it should be considered mandatory that both surfaces of mating insulation have sealer applied to them prior to installation.
 - d. Secure the outer layer of insulation with metal bands as indicated in Figure 1.
 - e. Circumferential joints between layers are to be staggered a minimum of six (6") inches and longitudinal joints between layers are to be staggered midway from one another. Longitudinal joints in the outer layer are not to be located on the vertical centerline of horizontal piping.
 - f. All joints in the insulation shall be tightly butted together.
 - g. Support rings for the cellular glass insulation are required on vertical piping at maximum spacings of twelve (12') feet where not interrupted by flanges, fittings or valves. At flanges, fittings or valve locations, support rings are to be installed as close as is practical above these locations. These support rings are to be insulated as indicated in Figure 3.
2. Contraction Joints (See Figure 4)

Contraction joints are to be installed in the insulation in accordance with Figure 4 when required by the following rules:

- a. Straight section of piping up to 6'-0" in length – no contraction joint required.
 - b. Straight sections of piping from 6'-0" to 12'-0" in length – one contraction joint required.
 - c. Straight sections of piping 12'-0" and longer – one contraction joint required for 12'-0" of length. In addition, one contraction joint is required for any remaining portion of the line which is from 6'-0" to 12'-0" in length.
 - d. Flange locations which are insulated in accordance with Figure 5 may be considered as fulfilling the requirement of a contraction joint.
 - e. Support ring locations on vertical piping which are insulated in accordance with Figure 3 may be considered as fulfilling the requirement of a contraction joint.
3. Fittings and Valves
- a. For fittings, the two halves in each layer are to be joined with cellular glass insulation adhesive; and for valves, the two halves in each layer are to be joined with insulation sealer.
 - b. During installation, inner layers are to be secured with tie wires and the outer layers are to be secured with metal bands. Although a minimum of three wires or bands is mandatory, it is the Contractor's responsibility to use as many more wires or bands as is required to insure that the insulation is adequately secured.

4. Flanges (See Figure 5)

- a. All flange insulation shall be the same thickness as is used on the mating piping insulation.
 - b. The same methods used on the pipe shall be used when insulating flanges.
 - c. Flanges shall be insulated in such a manner that the insulation can be removed from the flanges and the flanges opened without disturbing the adjacent pipe insulation.
 - d. The flange insulation shall overlap the adjacent pipe insulation a minimum of six (6") inches.
 - e. The void areas between the flanges and the cellular glass insulation shall be packed tightly with contraction joint insulation.
 - f. A heavy coating of insulation sealer shall be used between mating surfaces of the flange insulation and the adjacent piping insulation.
5. Termination of Insulation and Small Metal Projections (See Figures 6 and 7)
- a. At locations where insulation terminates on a pipeline, this insulation shall be installed as detailed in Figure 6.
 - b. Small metal projections from insulated piping shall be insulated in general accordance with Figure 7.
 - c. For triple layer construction, the same methods of application are to be used as is shown for double layer construction in the attached figures.

6. Weather Resistant Vapor Barrier Mastic

The weather resistant vapor barrier mastic shall be installed over the outer layer of all cellular glass insulation and then examined in the following manner:

- a. Apply a tack coat of the mastic at a minimum rate of two (2) gallons/100 square feet.
 - b. Embed the 20 x 20 glass cloth into the wet tack coat and overlap all seams a minimum of three (3") inches. This cloth shall be free of wrinkles.
 - c. Apply a second coat of the mastic at a minimum rate of four (4) gallons/100 square feet. The glass cloth shall be completely covered so that the texture will not show through after the mastic has dried.
 - d. The coating shall be carefully examined after drying to insure that no cracks, holes, thin spots or open joints of any sort exist. If any defects of this type are noted, an additional coating of the mastic is to be applied at these locations.
7. Method of Joining Urethane and Cellular Glass Insulation (See Figure 2)

At locations where a transition is made between urethane and cellular glass, these insulations are to be installed in accordance with the applicable method shown in Figure 2.

B. Urethane

1. Straight Piping (See Figure 8)

- a. All insulation shall be applied using double layer construction.

- b. The first layer of insulation shall be applied dry without adhesive or dealer. All joints, longitudinal and circumferential, shall be tightly butted together. Circumferential butt-ends are not to be staggered relative to one another. When sectional insulation is used on horizontal pipe, the longitudinal joints in the first layer shall be in a vertical plane. The insulation is to be secured by installing tie wires as indicated in Figure 8. Ends of these wires are to be twisted together, bent over, and carefully embedded into the surface of the insulation.
- c. The second layer of insulation shall be applied with the longitudinal and circumferential joints staggered relative to the first layer. Longitudinal joints are to be staggered midway between longitudinal joints in the first layer and circumferential joints are to be staggered approximately midway between circumferential joints in the first layer, but in no case are to be closer than six (6") inches from the first layer circumferential joints. The circumferential butt-ends in the second layer are not to be staggered relative to one another. All joints in the insulation shall be tightly butted together.
- d. Prior to application, sealer is to be applied in all joints of the outer layer of urethane insulation for the full depth of the thickness of that layer by applying a thin layer of sealer to one of the mating surfaces of insulation. The joint sealer need not be applied to the mating butt-ends of the succeeding adjacent section of insulation provided that proper precautions are taken to insure that a thin continuous seal is provided for the full length and depth of each joint. If this method proves unsatisfactory, it shall be considered mandatory that both surfaces of mating insulation have sealer applied to them prior to installation.
- e. The longitudinal flaps of the vapor barrier laminate on the outer layer of insulation are to be sealed with vapor barrier adhesive. Circumferential joints are to be sealed with a three (3") inch wide strip of the same vapor barrier laminate centered over the joint using the vapor barrier adhesive.
- f. Secure the outer layer of insulation with insulation banding tape as indicated in Figure 8. When installing these bands, care is to be exercised in order that the vapor barrier is not damaged or punctured. Any damaged or punctured areas are to be repaired with pieces of vapor barrier laminate and vapor barrier adhesive.
- g. Insulation shall be covered with an additional protective metal jacket. The jacketing shall be applied with minimum longitudinal circumferential laps of two (2") inches. Longitudinal laps shall be located at the horizontal centerline of the pipe with the lap installed to shed water. Adjacent sections of jacketing shall have the longitudinal laps at 180° from one another to eliminate double circumferential lap areas. These jackets are to be secured over the insulation with metal bands and seals as indicated in Figure 8.
- h. Support rings for the insulation are required on vertical piping at maximum spacings of 15 feet where not interrupted by flanges, fittings or valves. These support ring locations to be insulated as indicated in Figure 10.

2. Contraction Joints (See Figure 9)

Contraction joints are to be installed in the insulation in accordance with Figure 9 where required by the following rules:

- a. Straight section of piping up to 8'-0" in length. No contraction joint required.
- b. Straight sections of piping from 8'-0" to 15'-0" in length – one contraction joint required.

- c. Straight sections of piping 15'-0" and longer – one contraction joint required for each 15'-0" of length. In addition, one contraction joint is required for any remaining portion of the line which is from 8'-0" to 15'-0" in length.
 - d. Flange locations which are insulated in accordance with Figure 14 may be considered as fulfilling the requirement of a contraction joint.
 - e. Support ring locations on vertical piping which are insulated in accordance with Figure 10 may be considered as fulfilling the requirement of a contraction joint.
3. Fittings and Valves (See Figures 11, 12 & 13)
- a. All insulation for fittings and valves shall be installed in single layer construction.
 - b. The minimum thickness of insulation on fittings and valves shall be at least equal to the total required thickness of insulation used on the adjacent piping with the exception of the extended stems on cryogenic valves.
 - c. Extended stems of cryogenic valves are to be insulated with a two (2") inch thickness of single layer piping insulation for a minimum distance from the top packing gland of the valve of six (6") inches on valves up to and including 1-1/2 NPS and ten (10") inches on valves larger than 1-1/2 inches NPS. The insulation on this stem is to extend into the socket of the valve body insulation, and insulation sealer is to be applied to this socket joint. The same methods used in applying insulation on straight piping is to be used when insulating these extended stems.
 - d. The valve insulation need not fit the exact contour of the valve, but all void areas between the valve and its urethane insulation shall be packed tightly with contraction joint insulation.
 - e. Insulation adhesive is to be applied to the longitudinal joints of one of the half-sections of all f fitting covers, and insulation sealer is to be applied to one of the half-sections of all valve cover.
 - f. The sockets of the fitting or valve insulation that lap the first layer of adjacent piping insulation are to be installed dry with no sealer or adhesive, but the butt-ends of the fitting or valve insulation that mate with the second layer of adjacent piping insulation are to be coated with a thin layer of insulation sealer.
 - g. The two half-sections of fitting or valve insulation are to be secured with insulation banding tape. Although a minimum of three (3) bands on each fitting is mandatory, it is the Contractor's responsibility to use as many bands as is required to insure that the insulation is adequately secured.
 - h. The weather resistant vapor-barrier mastic shall be installed over all valve and fitting insulation and is to extend a minimum of three (3") inches under the metal jacket weather barrier on the adjacent piping insulation. The mastic vapor-barrier system shall be installed as described in Section 1.07.A.6.a. through d.
4. Flanges (See Figure 14)
- a. All flange insulation shall be applied in double layer construction using the same thickness as is used on the mating pipe insulation.
 - b. The same methods used on the pipe shall be used when insulating flanges.
 - c. Flanges shall be insulated in such a manner that the insulation can be removed from the flanges and the flanges opened without disturbing the adjacent pipe insulation.

- d. The flange insulation shall overlap the adjacent pipe insulation a minimum of six (6") inches.
 - e. The void areas between the flanges and the insulation shall be packed tightly with contraction joint insulation.
 - f. A heavy coating of insulation sealer shall be used between mating surfaces of the flange insulation and the adjacent piping insulation.
 - g. The weather resistant vapor barrier mastic is to be installed over the ends of the flange insulation as detailed in Section 1.07.A.6.a through d.
 - h. A metal jacket weather barrier shall be installed over the flange insulation.
5. Termination of Insulation and Small Metal Projections (See Figures 15 & 16)
- a. At locations where insulation terminates on a pipe line, this insulation shall be installed as detailed in Figure 15.
 - b. Small metal projections from insulated piping shall be insulated in general accordance with Figure 16.

END OF SECTION

APPENDIX

APPENDIX 1

Certification of Non-Involvement in Prohibited Activities In Russia Or Belarus

APPENDIX 2

American with Disabilities Act (ADA) of 1990

APPENDIX 3

Prevailing Wages:

- oEssex County
- oStatewide – NJ
- oFederal – Essex County, NJ

APPENDIX 4

Notification Letter for Temporary Chemical or Fuel Storage Tanks, Equipment, & Reciprocation Internal Combustion Engines (RICE) Form. And the Contractor Equipment Visual Leak Inspection SOP and Weekly Visual Leak Detection Log

- 1. Temporary Equipment Notification Package**
- 2. Attachment A (Temporary Equipment Notification Form)**
- 3. Attachment B (Temporary Equipment Schedule)**
- 4. Attachment C (Temporary Equipment Visual Inspection and Monitoring Checklist Procedure)**
- 5. Attachment D (Temporary Equipment Visual Inspection and Monitoring Checklist)**

APPENDIX 5

Executive Order 189

APPENDIX 6

Disclosure of Investment Activities in Iran Form

APPENDIX 7

Installation of Cryogenic and Low Temperature Oxygen Piping Standard Plants (Details -Pipe, fittings, Joints and Valves – Figures 1-16)

APPENDIX 1

Certification of Non-Involvement in Prohibited Activities in Iran and Russia or Belarus

APPENDIX 2

American with Disabilities Act (ADA) of 1990

APPENDIX 3

Prevailing Wages:

- **Essex County**
- **Statewide – NJ**
- **Federal – Essex County, NJ**

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APPENDIX 5

Executive Order 189

APPENDIX 6

Disclosure of Investment Activities in Iran Form

APPENDIX 7

Installation of Cryogenic and Low Temperature Oxygen Piping Standard Plants (Details -Pipe, fittings, Joints and Valves – Figures 1-16)

CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. and N.J.S.A.40A:11-2.2 (L. 2022, c. 3) any person or entity (hereinafter "Vendor") that seeks to enter into or renew a contract with a local contracting unit subject to the Local Public Contracts Law for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: <https://sanctionssearch.ofac.treas.gov/>. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify

(Check the Appropriate Box)

☐ A. That the Vendor is not identified on the [OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus](#).

OR

☐ B. That I am unable to certify as to "A" above, because the Vendor is identified on the [OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus](#).

OR

☐ C. That I am unable to certify as to "A" above, because the Vendor is identified on the [OFAC Specially Designated Nationals and Blocked Persons list](#). However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

(Attach Additional Sheets If Necessary.)

Signature of Vendor's Authorized Representative

Date

Print Name and Title of Vendor's Authorized Representative

Vendor's FEIN

Vendor's Name

Vendor's Phone Number

Vendor's Address (Street Address)

Vendor's Fax Number

Vendor's Address (City/State/Zip Code)

Vendor's Email Address

ⁱ Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2).

AMERICANS WITH DISABILITIES ACT OF 1990, AS AMENDED

Following is the current text of the Americans with Disabilities Act of 1990 (ADA), including changes made by the ADA Amendments Act of 2008 (P.L. 110-325), which became effective on January 1, 2009. The ADA was originally enacted in public law format and later rearranged and published in the United States Code. The United States Code is divided into titles and chapters that classify laws according to their subject matter. Titles I, II, III, and V of the original law are codified in Title 42, chapter 126, of the United States Code beginning at section 12101. Title IV of the original law is codified in Title 47, chapter 5, of the United States Code. Since this codification resulted in changes in the numbering system, the Table of Contents provides the section numbers of the ADA as originally enacted in brackets after the codified section numbers and headings.

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TITLE 42 - THE PUBLIC HEALTH AND WELFARE

CHAPTER 126 - EQUAL OPPORTUNITY FOR INDIVIDUALS WITH DISABILITIES

Sec. 12101. Findings and purpose

(a) Findings. The Congress finds that

(1) physical or mental disabilities in no way diminish a person's right to fully participate in all aspects of society, yet many people with physical or mental disabilities have been precluded from doing so because of discrimination; others who have a record of a disability or are regarded as having a disability also have been subjected to discrimination;

(2) historically, society has tended to isolate and segregate individuals with disabilities, and, despite some improvements, such forms of discrimination against individuals with disabilities continue to be a serious and pervasive social problem;

(3) discrimination against individuals with disabilities persists in such critical areas as employment, housing, public accommodations, education, transportation, communication, recreation, institutionalization, health services, voting, and access to public services;

(4) unlike individuals who have experienced discrimination on the basis of race, color, sex, national origin, religion, or age, individuals who have experienced discrimination on the basis of disability have often had no legal recourse to redress such discrimination;

(5) individuals with disabilities continually encounter various forms of discrimination, including outright intentional exclusion, the discriminatory effects of architectural, transportation, and communication barriers, overprotective rules and policies, failure to make modifications to existing facilities and practices, exclusionary qualification standards and criteria, segregation, and relegation to lesser services, programs, activities, benefits, jobs, or other opportunities;

(6) census data, national polls, and other studies have documented that people with disabilities, as a group, occupy an inferior status in our society, and are severely disadvantaged socially, vocationally, economically, and educationally;

(7) the Nation's proper goals regarding individuals with disabilities are to assure equality of opportunity, full participation, independent living, and economic self-sufficiency for such individuals; and

(8) the continuing existence of unfair and unnecessary discrimination and prejudice denies people with disabilities the opportunity to compete on an equal basis and to pursue those opportunities for which our free society is justifiably famous, and costs the United States billions of dollars in unnecessary expenses resulting from dependency and nonproductivity.

(b) Purpose. It is the purpose of this chapter

(1) to provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities;

(2) to provide clear, strong, consistent, enforceable standards addressing discrimination against individuals with disabilities;

(3) to ensure that the Federal Government plays a central role in enforcing the standards established in this chapter on behalf of individuals with disabilities; and

(4) to invoke the sweep of congressional authority, including the power to enforce the fourteenth amendment and to regulate commerce, in order to address the major areas of discrimination faced day-to-day by people with disabilities.

Sec. 12101 note: Findings and Purposes of ADA Amendments Act of 2008, Pub. L. 110-325, § 2, Sept. 25, 2008, 122 Stat. 3553, provided that:

(a) Findings. Congress finds that

(1) in enacting the Americans with Disabilities Act of 1990 (ADA), Congress intended that the Act “provide a clear and comprehensive national mandate for the elimination of discrimination against individuals with disabilities” and provide broad coverage;

(2) in enacting the ADA, Congress recognized that physical and mental disabilities in no way diminish a person's right to fully participate in all aspects of society, but that people with physical or mental disabilities are frequently precluded from doing so because of prejudice, antiquated attitudes, or the failure to remove societal and institutional barriers;

(3) while Congress expected that the definition of disability under the ADA would be interpreted consistently with how courts had applied the definition of a handicapped individual under the Rehabilitation Act of 1973, that expectation has not been fulfilled;

(4) the holdings of the Supreme Court in *Sutton v. United Air Lines, Inc.*, 527 U.S. 471 (1999) and its companion cases have narrowed the broad scope of protection intended to be afforded by the ADA, thus eliminating protection for many individuals whom Congress intended to protect;

(5) the holding of the Supreme Court in *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*, 534 U.S. 184 (2002) further narrowed the broad scope of protection intended to be afforded by the ADA;

(6) as a result of these Supreme Court cases, lower courts have incorrectly found in individual cases that people with a range of substantially limiting impairments are not people with disabilities;

(7) in particular, the Supreme Court, in the case of *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*, 534 U.S. 184 (2002), interpreted the term “substantially limits” to require a greater degree of limitation than was intended by Congress; and

(8) Congress finds that the current Equal Employment Opportunity Commission ADA regulations defining the term “substantially limits” as “significantly restricted” are inconsistent with congressional intent, by expressing too high a standard.

(b) Purposes. The purposes of this Act are

(1) to carry out the ADA’s objectives of providing “a clear and comprehensive national mandate for the elimination of discrimination” and “clear, strong, consistent, enforceable standards addressing discrimination” by reinstating a broad scope of protection to be available under the ADA;

(2) to reject the requirement enunciated by the Supreme Court in *Sutton v. United Air Lines, Inc.*, 527 U.S. 471 (1999) and its companion cases that whether an impairment substantially limits a major life activity is to be determined with reference to the ameliorative effects of mitigating measures;

(3) to reject the Supreme Court’s reasoning in *Sutton v. United Air Lines, Inc.*, 527 U.S. 471 (1999) with regard to coverage under the third prong of the definition of disability and to reinstate the reasoning of the Supreme Court in *School Board of Nassau County v. Arline*, 480 U.S. 273 (1987) which set forth a broad view of the third prong of the definition of handicap under the Rehabilitation Act of 1973;

(4) to reject the standards enunciated by the Supreme Court in *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*, 534 U.S. 184 (2002), that the terms “substantially” and “major” in the definition of disability under the ADA “need to be interpreted strictly to create a demanding standard for qualifying as disabled,” and that to be substantially limited in performing a major life activity under the ADA “an individual must have an impairment that prevents or severely restricts the individual from doing activities that are of central importance to most people’s daily lives”;

(5) to convey congressional intent that the standard created by the Supreme Court in the case of *Toyota Motor Manufacturing, Kentucky, Inc. v. Williams*, 534 U.S. 184 (2002) for “substantially limits”, and applied by lower courts in numerous decisions, has created an inappropriately high level of limitation necessary to obtain coverage under the ADA, to convey that it is the intent of Congress that the primary object of attention in cases brought under the ADA should be whether entities covered under the ADA have complied with their obligations, and to convey that the question of whether an individual’s impairment is a disability under the ADA should not demand extensive analysis; and

(6) to express Congress’ expectation that the Equal Employment Opportunity Commission will revise that portion of its current regulations that defines the term “substantially limits” as “significantly restricted” to be consistent with this Act, including the amendments made by this Act.

Sec. 12102. Definition of disability

As used in this chapter:

(1) Disability. The term "disability" means, with respect to an individual

(A) a physical or mental impairment that substantially limits one or more major life activities of such individual;

(B) a record of such an impairment; or

(C) being regarded as having such an impairment (as described in paragraph (3)).

(2) Major Life Activities

(A) In general. For purposes of paragraph (1), major life activities include, but are not limited to, caring for oneself, performing manual tasks, seeing, hearing, eating, sleeping, walking, standing, lifting, bending, speaking, breathing, learning, reading, concentrating, thinking, communicating, and working.

(B) Major bodily functions. For purposes of paragraph (1), a major life activity also includes the operation of a major bodily function, including but not limited to, functions of the immune system, normal cell growth, digestive, bowel, bladder, neurological, brain, respiratory, circulatory, endocrine, and reproductive functions.

(3) Regarded as having such an impairment. For purposes of paragraph (1)(C):

(A) An individual meets the requirement of "being regarded as having such an impairment" if the individual establishes that he or she has been subjected to an action prohibited under this chapter because of an actual or perceived physical or mental impairment whether or not the impairment limits or is perceived to limit a major life activity.

(B) Paragraph (1)(C) shall not apply to impairments that are transitory and minor. A transitory impairment is an impairment with an actual or expected duration of 6 months or less.

(4) Rules of construction regarding the definition of disability. The definition of "disability" in paragraph (1) shall be construed in accordance with the following:

(A) The definition of disability in this chapter shall be construed in favor of broad coverage of individuals under this chapter, to the maximum extent permitted by the terms of this chapter.

(B) The term "substantially limits" shall be interpreted consistently with the findings and purposes of the ADA Amendments Act of 2008.

(C) An impairment that substantially limits one major life activity need not limit other major life activities in order to be considered a disability.

(D) An impairment that is episodic or in remission is a disability if it would substantially limit a major life activity when active.

(E) (i) The determination of whether an impairment substantially limits a major life activity shall be made without regard to the ameliorative effects of mitigating measures such as

(I) medication, medical supplies, equipment, or appliances, low-vision devices (which do not include ordinary eyeglasses or contact lenses), prosthetics including limbs and devices, hearing aids and cochlear implants or other implantable hearing devices, mobility devices, or oxygen therapy equipment and supplies;

(II) use of assistive technology;

(III) reasonable accommodations or auxiliary aids or services; or

(IV) learned behavioral or adaptive neurological modifications.

(ii) The ameliorative effects of the mitigating measures of ordinary eyeglasses or contact lenses shall be considered in determining whether an impairment substantially limits a major life activity.

(iii) As used in this subparagraph

(I) the term "ordinary eyeglasses or contact lenses" means lenses that are intended to fully correct visual acuity or eliminate refractive error; and

(II) the term "low-vision devices" means devices that magnify, enhance, or otherwise augment a visual image.

Sec. 12103. Additional definitions. As used in this chapter

(1) Auxiliary aids and services. The term "auxiliary aids and services" includes

(A) qualified interpreters or other effective methods of making aurally delivered materials available to individuals with hearing impairments;

(B) qualified readers, taped texts, or other effective methods of making visually delivered materials available to individuals with visual impairments;

(C) acquisition or modification of equipment or devices; and

(D) other similar services and actions.

(2) State. The term "State" means each of the several States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the Virgin Islands of the United States, the Trust Territory of the Pacific Islands, and the Commonwealth of the Northern Mariana Islands.

SUBCHAPTER I - EMPLOYMENT

Sec. 12111. Definitions

As used in this subchapter:

(1) Commission. The term "Commission" means the Equal Employment Opportunity Commission established by section 2000e-4 of this title.

(2) Covered entity. The term "covered entity" means an employer, employment agency, labor organization, or joint labor-management committee.

(3) Direct threat. The term "direct threat" means a significant risk to the health or safety of others that cannot be eliminated by reasonable accommodation.

(4) Employee. The term "employee" means an individual employed by an employer. With respect to employment in a foreign country, such term includes an individual who is a citizen of the United States.

(5) Employer

(A) In general. The term "employer" means a person engaged in an industry affecting commerce who has 15 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding calendar year, and any agent of such person, except that, for two years following the effective date of this subchapter, an employer means a person engaged in an industry affecting commerce who has 25 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding year, and any agent of such person.

(B) Exceptions. The term "employer" does not include

(i) the United States, a corporation wholly owned by the government of the United States, or an Indian tribe; or

(ii) a bona fide private membership club (other than a labor organization) that is exempt from taxation under section 501(c) of title 26.

(6) Illegal use of drugs

(A) In general. The term "illegal use of drugs" means the use of drugs, the possession or distribution of which is unlawful under the Controlled Substances Act [21 U.S.C. 801 et seq.]. Such term does not include the use of a drug taken under supervision by a licensed health care professional, or other uses authorized by the Controlled Substances Act or other provisions of Federal law.

(B) Drugs. The term "drug" means a controlled substance, as defined in schedules I through V of section 202 of the Controlled Substances Act [21 U.S.C. 812].

(7) Person, etc. The terms "person", "labor organization", "employment agency", "commerce", and "industry affecting commerce", shall have the same meaning given such terms in section 2000e of this title.

(8) Qualified individual. The term "qualified individual" means an individual who, with or without reasonable accommodation, can perform the essential functions of the employment position that such individual holds or desires. For the purposes of this subchapter, consideration shall be given to the employer's judgment as to what functions of a job are essential, and if an employer has prepared a written description before advertising or interviewing applicants for the job, this description shall be considered evidence of the essential functions of the job.

(9) Reasonable accommodation. The term "reasonable accommodation" may include

(A) making existing facilities used by employees readily accessible to and usable by individuals with disabilities; and

(B) job restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices, appropriate adjustment or modifications of examinations, training materials or policies, the provision of qualified

readers or interpreters, and other similar accommodations for individuals with disabilities.

(10) Undue hardship

(A) In general. The term "undue hardship" means an action requiring significant difficulty or expense, when considered in light of the factors set forth in subparagraph (B).

(B) Factors to be considered. In determining whether an accommodation would impose an undue hardship on a covered entity, factors to be considered include

(i) the nature and cost of the accommodation needed under this chapter;

(ii) the overall financial resources of the facility or facilities involved in the provision of the reasonable accommodation; the number of persons employed at such facility; the effect on expenses and resources, or the impact otherwise of such accommodation upon the operation of the facility;

(iii) the overall financial resources of the covered entity; the overall size of the business of a covered entity with respect to the number of its employees; the number, type, and location of its facilities; and

(iv) the type of operation or operations of the covered entity, including the composition, structure, and functions of the workforce of such entity; the geographic separateness, administrative, or fiscal relationship of the facility or facilities in question to the covered entity.

Sec. 12112. Discrimination

(a) General rule. No covered entity shall discriminate against a qualified individual on the basis of disability in regard to job application procedures, the hiring, advancement, or discharge of employees, employee compensation, job training, and other terms, conditions, and privileges of employment.

(b) Construction. As used in subsection (a) of this section, the term "discriminate against a qualified individual on the basis of disability" includes

(1) limiting, segregating, or classifying a job applicant or employee in a way that adversely affects the opportunities or status of such applicant or employee because of the disability of such applicant or employee;

(2) participating in a contractual or other arrangement or relationship that has the effect of subjecting a covered entity's qualified applicant or employee with a disability to the discrimination prohibited by this subchapter (such relationship includes a relationship with an employment or referral agency, labor union, an organization providing fringe benefits to an employee of the covered entity, or an organization providing training and apprenticeship programs);

(3) utilizing standards, criteria, or methods of administration

(A) that have the effect of discrimination on the basis of disability;

(B) that perpetuates the discrimination of others who are subject to common administrative control;

(4) excluding or otherwise denying equal jobs or benefits to a qualified individual because of the known disability of an individual with whom the qualified individual is known to have a

relationship or association;

(5) (A) not making reasonable accommodations to the known physical or mental limitations of an otherwise qualified individual with a disability who is an applicant or employee, unless such covered entity can demonstrate that the accommodation would impose an undue hardship on the operation of the business of such covered entity; or

(B) denying employment opportunities to a job applicant or employee who is an otherwise qualified individual with a disability, if such denial is based on the need of such covered entity to make reasonable accommodation to the physical or mental impairments of the employee or applicant;

(6) using qualification standards, employment tests or other selection criteria that screen out or tend to screen out an individual with a disability or a class of individuals with disabilities unless the standard, test or other selection criteria, as used by the covered entity, is shown to be job-related for the position in question and is consistent with business necessity; and

(7) failing to select and administer tests concerning employment in the most effective manner to ensure that, when such test is administered to a job applicant or employee who has a disability that impairs sensory, manual, or speaking skills, such test results accurately reflect the skills, aptitude, or whatever other factor of such applicant or employee that such test purports to measure, rather than reflecting the impaired sensory, manual, or speaking skills of such employee or applicant (except where such skills are the factors that the test purports to measure).

(c) Covered entities in foreign countries

(1) In general. It shall not be unlawful under this section for a covered entity to take any action that constitute discrimination under this section with respect to an employee in a workplace in a foreign country if compliance with this section would cause such covered entity to violate the law of the foreign country in which such workplace is located.

(2) Control of corporation

(A) Presumption. If an employer controls a corporation whose place of incorporation is a foreign country, any practice that constitutes discrimination under this section and is engaged in by such corporation shall be presumed to be engaged in by such employer.

(B) Exception. This section shall not apply with respect to the foreign operations of an employer that is a foreign person not controlled by an American employer.

(C) Determination. For purposes of this paragraph, the determination of whether an employer controls a corporation shall be based on

(i) the interrelation of operations;

(ii) the common management;

(iii) the centralized control of labor relations; and

(iv) the common ownership or financial control of the employer and the corporation.

(d) Medical examinations and inquiries

(1) In general. The prohibition against discrimination as referred to in subsection (a) of this section shall include medical examinations and inquiries.

(2) Preemployment

(A) Prohibited examination or inquiry. Except as provided in paragraph (3), a covered entity shall not conduct a medical examination or make inquiries of a job applicant as to whether such applicant is an individual with a disability or as to the nature or severity of such disability.

(B) Acceptable inquiry. A covered entity may make preemployment inquiries into the ability of an applicant to perform job-related functions.

(3) Employment entrance examination. A covered entity may require a medical examination after an offer of employment has been made to a job applicant and prior to the commencement of the employment duties of such applicant, and may condition an offer of employment on the results of such examination, if

(A) all entering employees are subjected to such an examination regardless of disability;

(B) information obtained regarding the medical condition or history of the applicant is collected and maintained on separate forms and in separate medical files and is treated as a confidential medical record, except that

(i) supervisors and managers may be informed regarding necessary restrictions on the work or duties of the employee and necessary accommodations;

(ii) first aid and safety personnel may be informed, when appropriate, if the disability might require emergency treatment; and

(iii) government officials investigating compliance with this chapter shall be provided relevant information on request; and

(C) the results of such examination are used only in accordance with this subchapter.

(4) Examination and inquiry

(A) Prohibited examinations and inquiries. A covered entity shall not require a medical examination and shall not make inquiries of an employee as to whether such employee is an individual with a disability or as to the nature or severity of the disability, unless such examination or inquiry is shown to be job-related and consistent with business necessity.

(B) Acceptable examinations and inquiries. A covered entity may conduct voluntary medical examinations, including voluntary medical histories, which are part of an employee health program available to employees at that work site. A covered entity may make inquiries into the ability of an employee to perform job-related functions.

(C) Requirement. Information obtained under subparagraph (B) regarding the medical condition or history of any employee are subject to the requirements of subparagraphs (B) and (C) of paragraph (3).

Sec. 12113. Defenses

(a) In general. It may be a defense to a charge of discrimination under this chapter that an alleged application of qualification standards, tests, or selection criteria that screen out or tend to screen out or otherwise deny a job or benefit to an individual with a disability has been shown to be job-related and consistent with business necessity, and such performance cannot be accomplished by reasonable accommodation, as required under this subchapter.

(b) Qualification standards. The term "qualification standards" may include a requirement that an individual shall not pose a direct threat to the health or safety of other individuals in the workplace.

(c) Qualification standards and tests related to uncorrected vision. Notwithstanding section 12102(4)(E)(ii), a covered entity shall not use qualification standards, employment tests, or other selection criteria based on an individual's uncorrected vision unless the standard, test, or other selection criteria, as used by the covered entity, is shown to be job-related for the position in question and consistent with business necessity.

(d) Religious entities

(1) In general. This subchapter shall not prohibit a religious corporation, association, educational institution, or society from giving preference in employment to individuals of a particular religion to perform work connected with the carrying on by such corporation, association, educational institution, or society of its activities.

(2) Religious tenets requirement. Under this subchapter, a religious organization may require that all applicants and employees conform to the religious tenets of such organization.

(e) List of infectious and communicable diseases

(1) In general. The Secretary of Health and Human Services, not later than 6 months after July 26, 1990, shall

(A) review all infectious and communicable diseases which may be transmitted through handling the food supply;

(B) publish a list of infectious and communicable diseases which are transmitted through handling the food supply;

(C) publish the methods by which such diseases are transmitted; and

(D) widely disseminate such information regarding the list of diseases and their modes of transmissibility to the general public.

Such list shall be updated annually.

(2) Applications. In any case in which an individual has an infectious or communicable disease that is transmitted to others through the handling of food, that is included on the list developed by the Secretary of Health and Human Services under paragraph (1), and which cannot be eliminated by reasonable accommodation, a covered entity may refuse to assign or continue to assign such individual to a job involving food handling.

(3) Construction. Nothing in this chapter shall be construed to preempt, modify, or amend any State, county, or local law, ordinance, or regulation applicable to food handling which is designed to protect the public health from individuals who pose a significant risk to the health or safety of others, which cannot be eliminated by reasonable accommodation, pursuant to the list of infectious or communicable diseases and the modes of transmissibility published by the Secretary of Health and Human Services.

Sec. 12114. Illegal use of drugs and alcohol

(a) Qualified individual with a disability. For purposes of this subchapter, a qualified individual with a disability shall not include any employee or applicant who is currently engaging in the illegal use of drugs, when the covered entity acts on the basis of such use.

(b) Rules of construction. Nothing in subsection (a) of this section shall be construed to exclude as a qualified individual with a disability an individual who

(1) has successfully completed a supervised drug rehabilitation program and is no longer engaging in the illegal use of drugs, or has otherwise been rehabilitated successfully and is no longer engaging in such use;

(2) is participating in a supervised rehabilitation program and is no longer engaging in such use; or

(3) is erroneously regarded as engaging in such use, but is not engaging in such use;

except that it shall not be a violation of this chapter for a covered entity to adopt or administer reasonable policies or procedures, including but not limited to drug testing, designed to ensure that an individual described in paragraph (1) or (2) is no longer engaging in the illegal use of drugs.

(c) Authority of covered entity. A covered entity

(1) may prohibit the illegal use of drugs and the use of alcohol at the workplace by all employees;

(2) may require that employees shall not be under the influence of alcohol or be engaging in the illegal use of drugs at the workplace;

(3) may require that employees behave in conformance with the requirements established under the Drug-Free Workplace Act of 1988 (41 U.S.C. 701 et seq.);

(4) may hold an employee who engages in the illegal use of drugs or who is an alcoholic to the same qualification standards for employment or job performance and behavior that such entity holds other employees, even if any unsatisfactory performance or behavior is related to the drug use or alcoholism of such employee; and

(5) may, with respect to Federal regulations regarding alcohol and the illegal use of drugs, require that

(A) employees comply with the standards established in such regulations of the Department of Defense, if the employees of the covered entity are employed in an industry subject to such regulations, including complying with regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Department of Defense);

(B) employees comply with the standards established in such regulations of the Nuclear Regulatory Commission, if the employees of the covered entity are employed in an industry subject to such regulations, including complying with regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Nuclear Regulatory Commission); and

(C) employees comply with the standards established in such regulations of the Department of Transportation, if the employees of the covered entity are employed in a transportation industry subject to such regulations, including complying with such regulations (if any) that apply to employment in sensitive positions in such an industry, in the case of employees of the covered entity who are employed in such positions (as defined in the regulations of the Department of Transportation).

(d) Drug testing

(1) In general. For purposes of this subchapter, a test to determine the illegal use of drugs shall not be considered a medical examination.

(2) Construction. Nothing in this subchapter shall be construed to encourage, prohibit, or authorize the conducting of drug testing for the illegal use of drugs by job applicants or employees or making employment decisions based on such test results.

(e) Transportation employees. Nothing in this subchapter shall be construed to encourage, prohibit, restrict, or authorize the otherwise lawful exercise by entities subject to the jurisdiction of the Department of Transportation of authority to

(1) test employees of such entities in, and applicants for, positions involving safety-sensitive duties for the illegal use of drugs and for on-duty impairment by alcohol; and

(2) remove such persons who test positive for illegal use of drugs and on-duty impairment by alcohol pursuant to paragraph (1) from safety-sensitive duties in implementing subsection (c) of this section.

Sec. 12115. Posting notices

Every employer, employment agency, labor organization, or joint labor-management committee covered under this subchapter shall post notices in an accessible format to applicants, employees, and members describing the applicable provisions of this chapter, in the manner prescribed by section 2000e-10 of this title.

Sec. 12116. Regulations

Not later than 1 year after July 26, 1990, the Commission shall issue regulations in an accessible format to carry out this subchapter in accordance with subchapter II of chapter 5 of title 5.

Sec. 12117. Enforcement

(a) Powers, remedies, and procedures. The powers, remedies, and procedures set forth in sections 2000e-4, 2000e-5, 2000e-6, 2000e-8, and 2000e-9 of this title shall be the powers, remedies, and procedures this subchapter provides to the Commission, to the Attorney General, or to any person alleging discrimination on the basis of disability in violation of any provision of this chapter, or regulations promulgated under section 12116 of this title, concerning employment.

(b) Coordination. The agencies with enforcement authority for actions which allege employment discrimination under this subchapter and under the Rehabilitation Act of 1973 [29 U.S.C. 701 et seq.] shall develop procedures to ensure that administrative complaints filed under this subchapter and under the Rehabilitation Act of 1973 are dealt with in a manner that avoids duplication of effort and prevents imposition of inconsistent or conflicting standards for the same requirements under this subchapter and the Rehabilitation Act of 1973. The Commission, the Attorney General, and the Office of Federal Contract Compliance Programs shall establish such coordinating mechanisms (similar to provisions contained in the joint regulations promulgated by the Commission and the Attorney General at part 42 of title 28 and part 1691 of title 29, Code of Federal Regulations, and the Memorandum of Understanding between the Commission and the Office of Federal Contract Compliance Programs dated January 16, 1981 (46 Fed. Reg. 7435, January 23, 1981)) in regulations implementing this subchapter and Rehabilitation Act of 1973 not later than 18 months after July 26, 1990.

SUBCHAPTER II - PUBLIC SERVICES

Part A - Prohibition Against Discrimination and Other Generally Applicable Provisions

Sec. 12131. Definitions

As used in this subchapter:

(1) Public entity. The term "public entity" means

(A) any State or local government;

(B) any department, agency, special purpose district, or other instrumentality of a State or States or local government; and

(C) the National Railroad Passenger Corporation, and any commuter authority (as defined in section 24102(4) of title 49).

(2) Qualified individual with a disability. The term "qualified individual with a disability" means an individual who, with or without reasonable modifications to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity.

Sec. 12132. Discrimination

Subject to the provisions of this subchapter, no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of services, programs, or activities of a public entity, or be subjected to discrimination by any such entity.

Sec. 12133. Enforcement

The remedies, procedures, and rights set forth in section 794a of title 29 shall be the remedies, procedures, and rights this subchapter provides to any person alleging discrimination on the basis of disability in violation of section 12132 of this title.

Sec. 12134. Regulations

(a) In general. Not later than 1 year after July 26, 1990, the Attorney General shall promulgate regulations in an accessible format that implement this part. Such regulations shall not include any matter within the scope of the authority of the Secretary of Transportation under section 12143, 12149, or 12164 of this title.

(b) Relationship to other regulations. Except for "program accessibility, existing facilities", and "communications", regulations under subsection (a) of this section shall be consistent with this chapter and with the coordination regulations under part 41 of title 28, Code of Federal Regulations (as promulgated by the Department of Health, Education, and Welfare on January 13, 1978), applicable to recipients of Federal financial assistance under section 794 of title 29. With respect to "program accessibility, existing facilities", and "communications", such regulations shall be consistent with regulations and analysis as in part 39 of title 28 of the Code of Federal Regulations, applicable to federally conducted activities under section 794 of title 29.

(c) Standards. Regulations under subsection (a) of this section shall include standards applicable to facilities and vehicles covered by this part, other than facilities, stations, rail passenger cars, and vehicles covered by part B of this subchapter. Such standards shall be consistent with the minimum guidelines and requirements issued by the Architectural and Transportation Barriers

Compliance Board in accordance with section 12204(a) of this title.

Part B - Actions Applicable to Public Transportation Provided by Public Entities Considered Discriminatory

Subpart I - Public Transportation Other than by Aircraft or Certain Rail Operations

Sec. 12141. Definitions

As used in this subpart:

(1) Demand responsive system. The term "demand responsive system" means any system of providing designated public transportation which is not a fixed route system.

(2) Designated public transportation. The term "designated public transportation" means transportation (other than public school transportation) by bus, rail, or any other conveyance (other than transportation by aircraft or intercity or commuter rail transportation (as defined in section 12161 of this title)) that provides the general public with general or special service (including charter service) on a regular and continuing basis.

(3) Fixed route system. The term "fixed route system" means a system of providing designated public transportation on which a vehicle is operated along a prescribed route according to a fixed schedule.

(4) Operates. The term "operates", as used with respect to a fixed route system or demand responsive system, includes operation of such system by a person under a contractual or other arrangement or relationship with a public entity.

(5) Public school transportation. The term "public school transportation" means transportation by school bus vehicles of schoolchildren, personnel, and equipment to and from a public elementary or secondary school and school-related activities.

(6) Secretary. The term "Secretary" means the Secretary of Transportation.

Sec. 12142. Public entities operating fixed route systems

(a) Purchase and lease of new vehicles. It shall be considered discrimination for purposes of section which operates a fixed route system to purchase or lease a new bus, a new rapid rail vehicle, a new light rail vehicle, or any other new vehicle to be used on such system, if the solicitation for such purchase or lease is made after the 30th day following July 26, 1990, and if such bus, rail vehicle, or other vehicle is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(b) Purchase and lease of used vehicles. Subject to subsection (c)(1) of this section, it shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a public entity which operates a fixed route system to purchase or lease, after the 30th day following July 26, 1990, a used vehicle for use on such system unless such entity makes demonstrated good faith efforts to purchase or lease a used vehicle for use on such system that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) Remanufactured vehicles

(1) General rule. Except as provided in paragraph (2), it shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a public entity which operates a fixed route system

(A) to remanufacture a vehicle for use on such system so as to extend its usable life for 5 years or more, which remanufacture begins (or for which the solicitation is made) after the 30th day following July 26, 1990; or

(B) to purchase or lease for use on such system a remanufactured vehicle which has been remanufactured so as to extend its usable life for 5 years or more, which purchase or lease occurs after such 30th day and during the period in which the usable life is extended; unless, after remanufacture, the vehicle is, to the maximum extent feasible, readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(2) Exception for historic vehicles

(A) General rule. If a public entity operates a fixed route system any segment of which is included on the National Register of Historic Places and if making a vehicle of historic character to be used solely on such segment readily accessible to and usable by individuals with disabilities would significantly alter the historic character of such vehicle, the public entity only has to make (or to purchase or lease a remanufactured vehicle with) those modifications which are necessary to meet the requirements of paragraph (1) and which do not significantly alter the historic character of such vehicle.

(B) Vehicles of historic character defined by regulations. For purposes of this paragraph and section 12148(a) of this title, a vehicle of historic character shall be defined by the regulations issued by the Secretary to carry out this subsection.

Sec. 12143. Paratransit as a complement to fixed route service

(a) General rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a public entity which operates a fixed route system (other than a system which provides solely commuter bus service) to fail to provide with respect to the operations of its fixed route system, in accordance with this section, paratransit and other special transportation services to individuals with disabilities, including individuals who use wheelchairs that are sufficient to provide to such individuals a level of service

(1) which is comparable to the level of designated public transportation services provided to individuals without disabilities using such system; or

(2) in the case of response time, which is comparable, to the extent practicable, to the level of designated public transportation services provided to individuals without disabilities using such system.

(b) Issuance of regulations. Not later than 1 year after July 26, 1990, the Secretary shall issue final regulations to carry out this section.

(c) Required contents of regulations

(1) Eligible recipients of service. The regulations issued under this section shall require each public entity which operates a fixed route system to provide the paratransit and other special transportation services required under this section

(A) (i) to any individual with a disability who is unable, as a result of a physical or mental impairment (including a vision impairment) and without the assistance of another individual (except an operator of a wheelchair lift or other boarding assistance device), to board, ride, or disembark from any vehicle on the system which is readily accessible to and usable by individuals with disabilities;

(ii) to any individual with a disability who needs the assistance of a wheelchair lift or other boarding assistance device (and is able with such assistance) to board, ride, and disembark from any vehicle which is readily accessible to and usable by individuals with disabilities if the individual wants to travel on a route on the system during the hours of operation of the system at a time (or within a reasonable period of such time) when such a vehicle is not being used to provide designated public transportation on the route; and

(iii) to any individual with a disability who has a specific impairment-related condition which prevents such individual from traveling to a boarding location or from a disembarking location on such system;

(B) to one other individual accompanying the individual with the disability; and

(C) to other individuals, in addition to the one individual described in subparagraph (a), accompanying the individual with a disability provided that space for these additional individuals are available on the paratransit vehicle carrying the individual with a disability and that the transportation of such additional individuals will not result in a denial of service to individuals with disabilities.

For purposes of clauses (i) and (ii) of subparagraph (A), boarding or disembarking from a vehicle does not include travel to the boarding location or from the disembarking location.

(2) Service area. The regulations issued under this section shall require the provision of paratransit and special transportation services required under this section in the service area of each public entity which operates a fixed route system, other than any portion of the service area in which the public entity solely provides commuter bus service.

(3) Service criteria. Subject to paragraphs (1) and (2), the regulations issued under this section shall establish minimum service criteria for determining the level of services to be required under this section.

(4) Undue financial burden limitation. The regulations issued under this section shall provide that, if the public entity is able to demonstrate to the satisfaction of the Secretary that the provision of paratransit and other special transportation services otherwise required under this section would impose an undue financial burden on the public entity, the public entity, notwithstanding any other provision of this section (other than paragraph (5)), shall only be required to provide such services to the extent that providing such services would not impose such a burden.

(5) Additional services. The regulations issued under this section shall establish circumstances under which the Secretary may require a public entity to provide, notwithstanding paragraph (4), paratransit and other special transportation services under this section beyond the level of paratransit and other special transportation services which would otherwise be required under paragraph (4).

(6) Public participation. The regulations issued under this section shall require that each public entity which operates a fixed route system hold a public hearing, provide an opportunity for public comment, and consult with individuals with disabilities in preparing its plan under paragraph (7).

(7) Plans. The regulations issued under this section shall require that each public entity which operates a fixed route system

(A) within 18 months after July 26, 1990, submit to the Secretary, and commence implementation of, a plan for providing paratransit and other special transportation

services which meets the requirements of this section; and

(B) on an annual basis thereafter, submit to the Secretary, and commence implementation of, a plan for providing such services.

(8) Provision of services by others. The regulations issued under this section shall

(A) require that a public entity submitting a plan to the Secretary under this section identify in the plan any person or other public entity which is providing a paratransit or other special transportation service for individuals with disabilities in the service area to which the plan applies; and

(B) provide that the public entity submitting the plan does not have to provide under the plan such service for individuals with disabilities.

(9) Other provisions. The regulations issued under this section shall include such other provisions and requirements as the Secretary determines are necessary to carry out the objectives of this section.

(d) Review of plan

(1) General rule. The Secretary shall review a plan submitted under this section for the purpose of determining whether or not such plan meets the requirements of this section, including the regulations issued under this section.

(2) Disapproval. If the Secretary determines that a plan reviewed under this subsection fails to meet the requirements of this section, the Secretary shall disapprove the plan and notify the public entity which submitted the plan of such disapproval and the reasons therefor.

(3) Modification of disapproved plan. Not later than 90 days after the date of disapproval of a plan under this subsection, the public entity which submitted the plan shall modify the plan to meet the requirements of this section and shall submit to the Secretary, and commence implementation of, such modified plan.

(e) "Discrimination" defined. As used in subsection (a) of this section, the term "discrimination" includes

(1) a failure of a public entity to which the regulations issued under this section apply to submit, or commence implementation of, a plan in accordance with subsections (c)(6) and (c)(7) of this section;

(2) a failure of such entity to submit, or commence implementation of, a modified plan in accordance with subsection (d) (3) of this section;

(3) submission to the Secretary of a modified plan under subsection (d)(3) of this section which does not meet the requirements of this section; or

(4) a failure of such entity to provide paratransit or other special transportation services in accordance with the plan or modified plan the public entity submitted to the Secretary under this section.

(f) Statutory construction. Nothing in this section shall be construed as preventing a public entity

(1) from providing paratransit or other special transportation services at a level which is greater than the level of such services which are required by this section,

(2) from providing paratransit or other special transportation services in addition to those paratransit and special transportation services required by this section, or

(3) from providing such services to individuals in addition to those individuals to whom such services are required to be provided by this section.

Sec. 12144. Public entity operating a demand responsive system

If a public entity operates a demand responsive system, it shall be considered discrimination, for purposes of section 12132 of this title and section 794 of title 29, for such entity to purchase or lease a new vehicle for use on such system, for which a solicitation is made after the 30th day following July 26, 1990, that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, unless such system, when viewed in its entirety, provides a level of service to such individuals equivalent to the level of service such system provides to individuals without disabilities.

Sec. 12145. Temporary relief where lifts are unavailable

(a) Granting. With respect to the purchase of new buses, a public entity may apply for, and the Secretary may temporarily relieve such public entity from the obligation under section 12142(a) or 12144 of this title to purchase new buses that are readily accessible to and usable by individuals with disabilities if such public entity demonstrates to the satisfaction of the Secretary

(1) that the initial solicitation for new buses made by the public entity specified that all new buses were to be lift-equipped and were to be otherwise accessible to and usable by individuals with disabilities;

(2) the unavailability from any qualified manufacturer of hydraulic, electromechanical, or other lifts for such new buses;

(3) that the public entity seeking temporary relief has made good faith efforts to locate a qualified manufacturer to supply the lifts to the manufacturer of such buses in sufficient time to comply with such solicitation; and

(4) that any further delay in purchasing new buses necessary to obtain such lifts would significantly impair transportation services in the community served by the public entity.

(b) Duration and notice to Congress. Any relief granted under subsection (a) of this section shall be limited in duration by a specified date, and the appropriate committees of Congress shall be notified of any such relief granted.

(c) Fraudulent application. If, at any time, the Secretary has reasonable cause to believe that any relief granted under subsection (a) of this section was fraudulently applied for, the Secretary shall

(1) cancel such relief if such relief is still in effect; and

(2) take such other action as the Secretary considers appropriate.

Sec. 12146. New facilities

For purposes of section 12132 of this title and section 794 of title 29, it shall be considered discrimination for a public entity to construct a new facility to be used in the provision of designated public transportation services unless such facility is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

Sec. 12147. Alterations of existing facilities

(a) General rule. With respect to alterations of an existing facility or part thereof used in the provision of designated public transportation services that affect or could affect the usability of the facility or part thereof, it shall be considered discrimination, for purposes of section 12132 of this title and section 794 of title 29, for a public entity to fail to make such alterations (or to ensure that the alterations are made) in such a manner that, to the maximum extent feasible, the altered portions of the facility are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon the completion of such alterations. Where the public entity is undertaking an alteration that affects or could affect usability of or access to an area of the facility containing a primary function, the entity shall also make the alterations in such a manner that, to the maximum extent feasible, the path of travel to the altered area and the bathrooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon completion of such alterations, where such alterations to the path of travel or the bathrooms, telephones, and drinking fountains serving the altered area are not disproportionate to the overall alterations in terms of cost and scope (as determined under criteria established by the Attorney General).

(b) Special rule for stations

(1) General rule. For purposes of section 12132 of this title and section 794 of title 29, it shall be considered discrimination for a public entity that provides designated public transportation to fail, in accordance with the provisions of this subsection, to make key stations (as determined under criteria established by the Secretary by regulation) in rapid rail and light rail systems readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(2) Rapid rail and light rail key stations

(A) Accessibility. Except as otherwise provided in this paragraph, all key stations (as determined under criteria established by the Secretary by regulation) in rapid rail and light rail systems shall be made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as soon as practicable but in no event later than the last day of the 3-year period beginning on July 26, 1990.

(B) Extension for extraordinarily expensive structural changes. The Secretary may extend the 3-year period under subparagraph (A) up to a 30-year period for key stations in a rapid rail or light rail system which stations need extraordinarily expensive structural changes to, or replacement of, existing facilities; except that by the last day of the 20th year following July 26, 1990, at least 2/3 of such key stations must be readily accessible to and usable by individuals with disabilities.

(3) Plans and milestones. The Secretary shall require the appropriate public entity to develop and submit to the Secretary a plan for compliance with this subsection

(A) that reflects consultation with individuals with disabilities affected by such plan and the results of a public hearing and public comments on such plan, and

(B) that establishes milestones for achievement of the requirements of this subsection.

Sec. 12148. Public transportation programs and activities in existing facilities and one car per train rule

(a) Public transportation programs and activities in existing facilities

(1) In general. With respect to existing facilities used in the provision of designated public transportation services, it shall be considered discrimination, for purposes of section 12132 of

this title and section 794 of title 29, for a public entity to fail to operate a designated public transportation program or activity conducted in such facilities so that, when viewed in the entirety, the program or activity is readily accessible to and usable by individuals with disabilities.

(2) Exception. Paragraph (1) shall not require a public entity to make structural changes to existing facilities in order to make such facilities accessible to individuals who use wheelchairs, unless and to the extent required by section 12147(a) of this title (relating to alterations) or section 12147(a) of this title (relating to key stations).

(3) Utilization. Paragraph (1) shall not require a public entity to which paragraph (2) applies, to provide to individuals who use wheelchairs services made available to the general public at such facilities when such individuals could not utilize or benefit from such services provided at such facilities.

(b) One car per train rule

(1) General rule. Subject to paragraph (2), with respect to 2 or more vehicles operated as a train by a light or rapid rail system, for purposes of section 12132 of this title and section 794 of title 29, it shall be considered discrimination for a public entity to fail to have at least 1 vehicle per train that is accessible to individuals with disabilities, including individuals who use wheelchairs, as soon as practicable but in no event later than the last day of the 5-year period beginning on the effective date of this section.

(2) Historic trains. In order to comply with paragraph (1) with respect to the remanufacture of a vehicle of historic character which is to be used on a segment of a light or rapid rail system which is included on the National Register of Historic Places, if making such vehicle readily accessible to and usable by individuals with disabilities would significantly alter the historic character of such vehicle, the public entity which operates such system only has to make (or to purchase or lease a remanufactured vehicle with) those modifications which are necessary to meet the requirements of section 12142(c)(1) of this title and which do not significantly alter the historic character of such vehicle.

Sec. 12149. Regulations

(a) In general. Not later than 1 year after July 26, 1990, the Secretary of Transportation shall issue regulations, in an accessible format, necessary for carrying out this subpart (other than section 12143 of this title).

(b) Standards. The regulations issued under this section and section 12143 of this title shall include standards applicable to facilities and vehicles covered by this part. The standards shall be consistent with the minimum guidelines and requirements issued by the Architectural and Transportation Barriers Compliance Board in accordance with section 12204 of this title.

Sec. 12150. Interim accessibility requirements

If final regulations have not been issued pursuant to section 12149 of this title, for new construction or alterations for which a valid and appropriate State or local building permit is obtained prior to the issuance of final regulations under such section, and for which the construction or alteration authorized by such permit begins within one year of the receipt of such permit and is completed under the terms of such permit, compliance with the Uniform Federal Accessibility Standards in effect at the time the building permit is issued shall suffice to satisfy the requirement that facilities be readily accessible to and usable by persons with disabilities as required under sections 12146 and 12147 of this title, except that, if such final regulations have not been issued one year after the Architectural and Transportation Barriers Compliance Board has issued the supplemental minimum guidelines required under section 12204(a) of this title, compliance with such supplemental minimum guidelines shall be

necessary to satisfy the requirement that facilities be readily accessible to and usable by persons with disabilities prior to issuance of the final regulations.

Subpart II - Public Transportation by Intercity and Commuter Rail

Sec. 12161. Definitions

As used in this subpart:

(1) Commuter authority. The term "commuter authority" has the meaning given such term in section 24102(4) of title 49.

(2) Commuter rail transportation. The term "commuter rail transportation" has the meaning given the term "commuter rail passenger transportation" in section 24102(5) of title 49.

(3) Intercity rail transportation. The term "intercity rail transportation" means transportation provided by the National Railroad Passenger Corporation.

(4) Rail passenger car. The term "rail passenger car" means, with respect to intercity rail transportation, single-level and bi-level coach cars, single-level and bi-level dining cars, single-level and bi-level sleeping cars, single-level and bi-level lounge cars, and food service cars.

(5) Responsible person. The term "responsible person" means

(A) in the case of a station more than 50 percent of which is owned by a public entity, such public entity;

(B) in the case of a station more than 50 percent of which is owned by a private party, the persons providing intercity or commuter rail transportation to such station, as allocated on an equitable basis by regulation by the Secretary of Transportation; and

(C) in a case where no party owns more than 50 percent of a station, the persons providing intercity or commuter rail transportation to such station and the owners of the station, other than private party owners, as allocated on an equitable basis by regulation by the Secretary of Transportation.

(6) Station. The term "station" means the portion of a property located appurtenant to a right-of-way on which intercity or commuter rail transportation is operated, where such portion is used by the general public and is related to the provision of such transportation, including passenger platforms, designated waiting areas, ticketing areas, restrooms, and, where a public entity providing rail transportation owns the property, concession areas, to the extent that such public entity exercises control over the selection, design, construction, or alteration of the property, but such term does not include flag stops.

Sec. 12162. Intercity and commuter rail actions considered discriminatory

(a) Intercity rail transportation

(1) One car per train rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person who provides intercity rail transportation to fail to have at least one passenger car per train that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, in accordance with regulations issued under section 12164 of this title, as soon as practicable, but in no event later than 5 years after July 26, 1990.

(2) New intercity cars

(A) General rule. Except as otherwise provided in this subsection with respect to individuals who use wheelchairs, it shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person to purchase or lease any new rail passenger cars for use in intercity rail transportation, and for which a solicitation is made later than 30 days after July 26, 1990, unless all such rail cars are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(B) Special rule for single-level passenger coaches for individuals who use wheelchairs. Single-level passenger coaches shall be required to

(i) be able to be entered by an individual who uses a wheelchair;

(ii) have space to park and secure a wheelchair;

(iii) have a seat to which a passenger in a wheelchair can transfer, and a space to fold and store such passenger's wheelchair; and

(iv) have a restroom usable by an individual who uses a wheelchair, only to the extent provided in paragraph (3).

(C) Special rule for single-level dining cars for individuals who use wheelchairs. Single-level dining cars shall not be required to

(i) be able to be entered from the station platform by an individual who uses a wheelchair; or

(ii) have a restroom usable by an individual who uses a wheelchair if no restroom is provided in such car for any passenger.

(D) Special rule for bi-level dining cars for individuals who use wheelchairs. Bi-level dining cars shall not be required to

(i) be able to be entered by an individual who uses a wheelchair;

(ii) have space to park and secure a wheelchair;

(iii) have a seat to which a passenger in a wheelchair can transfer, or a space to fold and store such passenger's wheelchair; or

(iv) have a restroom usable by an individual who uses a wheelchair.

(3) Accessibility of single-level coaches

(A) General rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person who provides intercity rail transportation to fail to have on each train which includes one or more single-level rail passenger coaches

(i) a number of spaces

(I) to park and secure wheelchairs (to accommodate individuals who wish to remain in their wheelchairs) equal to not less than one-half of the number of single-level rail passenger coaches in such train; and

(II) to fold and store wheelchairs (to accommodate individuals who wish to transfer to coach seats) equal to not less than one-half of the number of single-level rail passenger coaches in such train, as soon as practicable, but in no event later than 5 years after July 26, 1990; and

(ii) a number of spaces

(I) to park and secure wheelchairs (to accommodate individuals who wish to remain in their wheelchairs) equal to not less than the total number of single-level rail passenger coaches in such train; and

(II) to fold and store wheelchairs (to accommodate individuals who wish to transfer to coach seats) equal to not less than the total number of single-level rail passenger coaches in such train, as soon as practicable, but in no event later than 10 years after July 26, 1990.

(B) Location. Spaces required by subparagraph (A) shall be located in single-level rail passenger coaches or food service cars.

(C) Limitation. Of the number of spaces required on a train by subparagraph (A), not more than two spaces to park and secure wheelchairs nor more than two spaces to fold and store wheelchairs shall be located in any one coach or food service car.

(D) Other accessibility features. Single-level rail passenger coaches and food service cars on which the spaces required by subparagraph (a) are located shall have a restroom usable by an individual who uses a wheelchair and shall be able to be entered from the station platform by an individual who uses a wheelchair.

(4) Food service

(A) Single-level dining cars. On any train in which a single-level dining car is used to provide food service

(i) if such single-level dining car was purchased after July 26, 1990, table service in such car shall be provided to a passenger who uses a wheelchair if

(I) the car adjacent to the end of the dining car through which a wheelchair may enter is itself accessible to a wheelchair;

(II) such passenger can exit to the platform from the car such passenger occupies, move down the platform, and enter the adjacent accessible car described in subclause (I) without the necessity of the train being moved within the station; and

(III) space to park and secure a wheelchair is available in the dining car at the time such passenger wishes to eat (if such passenger wishes to remain in a wheelchair), or space to store and fold a wheelchair is available in the dining car at the time such passenger wishes to eat (if such passenger wishes to transfer to a dining car seat); and

(ii) appropriate auxiliary aids and services, including a hard surface on which to eat, shall be provided to ensure that other equivalent food service is available to individuals with disabilities, including individuals who use wheelchairs, and to passengers traveling with such individuals. Unless not practicable, a person providing intercity rail transportation shall place an accessible car adjacent to the end of a dining car described in clause (I) through which an individual who uses a wheelchair

may enter.

(B) Bi-level dining cars. On any train in which a bi-level dining car is used to provide food service

(i) if such train includes a bi-level lounge car purchased after July 26, 1990, table service in such lounge car shall be provided to individuals who use wheelchairs and to other passengers; and

(ii) appropriate auxiliary aids and services, including a hard surface on which to eat, shall be provided to ensure that other equivalent food service is available to individuals with disabilities, including individuals who use wheelchairs, and to passengers traveling with such individuals.

(b) Commuter rail transportation

(1) One car per train rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person who provides commuter rail transportation to fail to have at least one passenger car per train that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, in accordance with regulations issued under section 12164 of this title, as soon as practicable, but in no event later than 5 years after July 26, 1990.

(2) New commuter rail cars

(A) General rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person to purchase or lease any new rail passenger cars for use in commuter rail transportation, and for which a solicitation is made later than 30 days after July 26, 1990, unless all such rail cars are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(B) Accessibility. For purposes of section 12132 of this title and section 794 of title 29, a requirement that a rail passenger car used in commuter rail transportation be accessible to or readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, shall not be construed to require

(i) a restroom usable by an individual who uses a wheelchair if no restroom is provided in such car for any passenger;

(ii) space to fold and store a wheelchair; or

(iii) a seat to which a passenger who uses a wheelchair can transfer.

(c) Used rail cars. It shall be considered discrimination for purposes of section 1132 of this title and section 794 of title 29 for a person to purchase or lease a used rail passenger car for use in intercity or commuter rail transportation, unless such person makes demonstrated good faith efforts to purchase or lease a used rail car that is readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(d) Remanufactured rail cars

(1) Remanufacturing. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person to remanufacture a rail passenger car for use

in intercity or commuter rail transportation so as to extend its usable life for 10 years or more, unless the rail car, to the maximum extent feasible, is made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(2) Purchase or lease. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person to purchase or lease a remanufactured rail passenger car for use in intercity or commuter rail transportation unless such car was remanufactured in accordance with paragraph (1).

(e) Stations

(1) New stations. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a person to build a new station for use in intercity or commuter rail transportation that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(2) Existing stations

(A) Failure to make readily accessible

(i) General rule. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for a responsible person to fail to make existing stations in the intercity rail transportation system, and existing key stations in commuter rail transportation systems, readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as prescribed by the Secretary of Transportation in regulations issued under section 12164 of this title.

(ii) Period for compliance

(I) Intercity rail. All stations in the intercity rail transportation system shall be made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as soon as practicable, but in no event later than 20 years after July 26, 1990.

(II) Commuter rail. Key stations in commuter rail transportation systems shall be made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, as soon as practicable but in no event later than 3 years after July 26, 1990, except that the time limit may be extended by the Secretary of Transportation up to 20 years after July 26, 1990, in a case where the raising of the entire passenger platform is the only means available of attaining accessibility or where other extraordinarily expensive structural changes are necessary to attain accessibility.

(iii) Designation of key stations. Each commuter authority shall designate the key stations in its commuter rail transportation system, in consultation with individuals with disabilities and organizations representing such individuals, taking into consideration such factors as high ridership and whether such station serves as a transfer or feeder station. Before the final designation of key stations under this clause, a commuter authority shall hold a public hearing.

(iv) Plans and milestones. The Secretary of Transportation shall require the appropriate person to develop a plan for carrying out this subparagraph that reflects consultation with individuals with disabilities affected by such plan and that establishes milestones for achievement of the requirements of this subparagraph.

(B) Requirement when making alterations

(i) General rule. It shall be considered discrimination, for purposes of section 12132 of this title and section 794 of title 29, with respect to alterations of an existing station or part thereof in the intercity or commuter rail transportation systems that affect or could affect the usability of the station or part thereof, for the responsible person, owner, or person in control of the station to fail to make the alterations in such a manner that, to the maximum extent feasible, the altered portions of the station are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon completion of such alterations.

(ii) Alterations to a primary function area. It shall be considered discrimination, for purposes of section 12132 of this title and section 794 of title 29, with respect to alterations that affect or could affect the usability of or access to an area of the station containing a primary function, for the responsible person, owner, or person in control of the station to fail to make the alterations in such a manner that, to the maximum extent feasible, the path of travel to the altered area, and the bathrooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs, upon completion of such alterations, where such alterations to the path of travel or the bathrooms, telephones, and drinking fountains serving the altered area are not disproportionate to the overall alterations in terms of cost and scope (as determined under criteria established by the Attorney General).

(C) Required cooperation. It shall be considered discrimination for purposes of section 12132 of this title and section 794 of title 29 for an owner, or person in control, of a station governed by subparagraph (a) or (b) to fail to provide reasonable cooperation to a responsible person with respect to such station in that responsible person's efforts to comply with such subparagraph. An owner, or person in control, of a station shall be liable to a responsible person for any failure to provide reasonable cooperation as required by this subparagraph. Failure to receive reasonable cooperation required by this subparagraph shall not be a defense to a claim of discrimination under this chapter.

Sec. 12163. Conformance of accessibility standards

Accessibility standards included in regulations issued under this subpart shall be consistent with the minimum guidelines issued by the Architectural and Transportation Barriers Compliance Board under section 504(a) of this title.

Sec. 12164. Regulations

Not later than 1 year after July 26, 1990, the Secretary of Transportation shall issue regulations, in an accessible format, necessary for carrying out this subpart.

Sec. 12165. Interim accessibility requirements

(a) Stations. If final regulations have not been issued pursuant to section 12164 of this title, for new construction or alterations for which a valid and appropriate State or local building permit is obtained prior to the issuance of final regulations under such section, and for which the construction or alteration authorized by such permit begins within one year of the receipt of such permit and is completed under the terms of such permit, compliance with the Uniform Federal Accessibility Standards in effect at the time the building permit is issued shall suffice to satisfy the requirement that stations be readily accessible to and usable by persons with disabilities as required under section 12162(e) of this title, except that, if such final regulations have not been issued one year after the Architectural and Transportation Barriers Compliance Board has issued the supplemental minimum guidelines required under section 12204(a) of this title, compliance

with such supplemental minimum guidelines shall be necessary to satisfy the requirement that stations be readily accessible to and usable by persons with disabilities prior to issuance of the final regulations.

(b) Rail passenger cars. If final regulations have not been issued pursuant to section 12164 of this title, a person shall be considered to have complied with the requirements of section 12162(a) through (d) of this title that a rail passenger car be readily accessible to and usable by individuals with disabilities, if the design for such car complies with the laws and regulations (including the Minimum Guidelines and Requirements for Accessible Design and such supplemental minimum guidelines as are issued under section 12204(a) of this title) governing accessibility of such cars, to the extent that such laws and regulations are not inconsistent with this subpart and are in effect at the time such design is substantially completed.

SUBCHAPTER III - PUBLIC ACCOMMODATIONS AND SERVICES OPERATED BY PRIVATE ENTITIES

Sec. 12181. Definitions

As used in this subchapter:

(1) Commerce. The term "commerce" means travel, trade, traffic, commerce, transportation, or communications

(A) among the several States;

(B) between any foreign country or any territory or possession and any State; or

(C) between points in the same State but through another State or foreign country.

(2) Commercial facilities. The term "commercial facilities" means facilities

(A) that are intended for nonresidential use; and

(B) whose operations will affect commerce.

Such term shall not include railroad locomotives, railroad freight cars, railroad cabooses, railroad cars described in section 12162 of this title or covered under this subchapter, railroad rights-of-way, or facilities that are covered or expressly exempted from coverage under the Fair Housing Act of 1968 (42 U.S.C. 3601 et seq.).

(3) Demand responsive system. The term "demand responsive system" means any system of providing transportation of individuals by a vehicle, other than a system which is a fixed route system.

(4) Fixed route system. The term "fixed route system" means a system of providing transportation of individuals (other than by aircraft) on which a vehicle is operated along a prescribed route according to a fixed schedule.

(5) Over-the-road bus. The term "over-the-road bus" means a bus characterized by an elevated passenger deck located over a baggage compartment.

(6) Private entity. The term "private entity" means any entity other than a public entity (as defined in section 12131(1) of this title).

(7) Public accommodation. The following private entities are considered public accommodations for purposes of this subchapter, if the operations of such entities affect

commerce

(A) an inn, hotel, motel, or other place of lodging, except for an establishment located within a building that contains not more than five rooms for rent or hire and that is actually occupied by the proprietor of such establishment as the residence of such proprietor;

(B) a restaurant, bar, or other establishment serving food or drink;

(C) a motion picture house, theater, concert hall, stadium, or other place of exhibition entertainment;

(D) an auditorium, convention center, lecture hall, or other place of public gathering;

(E) a bakery, grocery store, clothing store, hardware store, shopping center, or other sales or rental establishment;

(F) a laundromat, dry-cleaner, bank, barber shop, beauty shop, travel service, shoe repair service, funeral parlor, gas station, office of an accountant or lawyer, pharmacy, insurance office, professional office of a health care provider, hospital, or other service establishment;

(G) a terminal, depot, or other station used for specified public transportation;

(H) a museum, library, gallery, or other place of public display or collection;

(I) a park, zoo, amusement park, or other place of recreation;

(J) a nursery, elementary, secondary, undergraduate, or postgraduate private school, or other place of education;

(K) a day care center, senior citizen center, homeless shelter, food bank, adoption agency, or other social service center establishment; and

(L) a gymnasium, health spa, bowling alley, golf course, or other place of exercise or recreation.

(8) Rail and railroad. The terms "rail" and "railroad" have the meaning given the term "railroad" in section 20102[1] of title 49.

(9) Readily achievable. The term "readily achievable" means easily accomplishable and able to be carried out without much difficulty or expense. In determining whether an action is readily achievable, factors to be considered include

(A) the nature and cost of the action needed under this chapter;

(B) the overall financial resources of the facility or facilities involved in the action; the number of persons employed at such facility; the effect on expenses and resources, or the impact otherwise of such action upon the operation of the facility;

(C) the overall financial resources of the covered entity; the overall size of the business of a covered entity with respect to the number of its employees; the number, type, and location of its facilities; and

(D) the type of operation or operations of the covered entity, including the composition, structure, and functions of the workforce of such entity; the geographic separateness, administrative or fiscal relationship of the facility or facilities in question to the covered

entity.

(10) Specified public transportation. The term "specified public transportation" means transportation by bus, rail, or any other conveyance (other than by aircraft) that provides the general public with general or special service (including charter service) on a regular and continuing basis.

(11) Vehicle. The term "vehicle" does not include a rail passenger car, railroad locomotive, railroad freight car, railroad caboose, or a railroad car described in section 12162 of this title or covered under this subchapter.

Sec. 12182. Prohibition of discrimination by public accommodations

(a) General rule. No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of the goods, services, facilities, privileges, advantages, or accommodations of any place of public accommodation by any person who owns, leases (or leases to), or operates a place of public accommodation.

(b) Construction

(1) General prohibition

(A) Activities

(i) Denial of participation. It shall be discriminatory to subject an individual or class of individuals on the basis of a disability or disabilities of such individual or class, directly, or through contractual, licensing, or other arrangements, to a denial of the opportunity of the individual or class to participate in or benefit from the goods, services, facilities, privileges, advantages, or accommodations of an entity.

(ii) Participation in unequal benefit. It shall be discriminatory to afford an individual or class of individuals, on the basis of a disability or disabilities of such individual or class, directly, or through contractual, licensing, or other arrangements with the opportunity to participate in or benefit from a good, service, facility, privilege, advantage, or accommodation that is not equal to that afforded to other individuals.

(iii) Separate benefit. It shall be discriminatory to provide an individual or class of individuals, on the basis of a disability or disabilities of such individual or class, directly, or through contractual, licensing, or other arrangements with a good, service, facility, privilege, advantage, or accommodation that is different or separate from that provided to other individuals, unless such action is necessary to provide the individual or class of individuals with a good, service, facility, privilege, advantage, or accommodation, or other opportunity that is as effective as that provided to others.

(iv) Individual or class of individuals. For purposes of clauses (i) through (iii) of this subparagraph, the term "individual or class of individuals" refers to the clients or customers of the covered public accommodation that enters into the contractual, licensing or other arrangement.

(B) Integrated settings. Goods, services, facilities, privileges, advantages, and accommodations shall be afforded to an individual with a disability in the most integrated setting appropriate to the needs of the individual.

(C) Opportunity to participate. Notwithstanding the existence of separate or different programs or activities provided in accordance with this section, an individual with a disability shall not be denied the opportunity to participate in such programs or activities

that are not separate or different.

(D) Administrative methods. An individual or entity shall not, directly or through contractual or other arrangements, utilize standards or criteria or methods of administration

(i) that have the effect of discriminating on the basis of disability; or

(ii) that perpetuate the discrimination of others who are subject to common administrative control.

(E) Association. It shall be discriminatory to exclude or otherwise deny equal goods, services, facilities, privileges, advantages, accommodations, or other opportunities to an individual or entity because of the known disability of an individual with whom the individual or entity is known to have a relationship or association.

(2) Specific prohibitions

(A) Discrimination. For purposes of subsection (a) of this section, discrimination includes

(i) the imposition or application of eligibility criteria that screen out or tend to screen out an individual with a disability or any class of individuals with disabilities from fully and equally enjoying any goods, services, facilities, privileges, advantages, or accommodations, unless such criteria can be shown to be necessary for the provision of the goods, services, facilities, privileges, advantages, or accommodations being offered;

(ii) a failure to make reasonable modifications in policies, practices, or procedures, when such modifications are necessary to afford such goods, services, facilities, privileges, advantages, or accommodations to individuals with disabilities, unless the entity can demonstrate that making such modifications would fundamentally alter the nature of such goods, services, facilities, privileges, advantages, or accommodations;

(iii) a failure to take such steps as may be necessary to ensure that no individual with a disability is excluded, denied services, segregated or otherwise treated differently than other individuals because of the absence of auxiliary aids and services, unless the entity can demonstrate that taking such steps would fundamentally alter the nature of the good, service, facility, privilege, advantage, or accommodation being offered or would result in an undue burden;

(iv) a failure to remove architectural barriers, and communication barriers that are structural in nature, in existing facilities, and transportation barriers in existing vehicles and rail passenger cars used by an establishment for transporting individuals (not including barriers that can only be removed through the retrofitting of vehicles or rail passenger cars by the installation of a hydraulic or other lift), where such removal is readily achievable; and

(v) where an entity can demonstrate that the removal of a barrier under clause (iv) is not readily achievable, a failure to make such goods, services, facilities, privileges, advantages, or accommodations available through alternative methods if such methods are readily achievable.

(B) Fixed route system

(i) Accessibility. It shall be considered discrimination for a private entity which operates a fixed route system and which is not subject to section 12184 of this title to

purchase or lease a vehicle with a seating capacity in excess of 16 passengers (including the driver) for use on such system, for which a solicitation is made after the 30th day following the effective date of this subparagraph, that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(ii) Equivalent service. If a private entity which operates a fixed route system and which is not subject to section 12184 of this title purchases or leases a vehicle with a seating capacity of 16 passengers or less (including the driver) for use on such system after the effective date of this subparagraph that is not readily accessible to or usable by individuals with disabilities, it shall be considered discrimination for such entity to fail to operate such system so that, when viewed in its entirety, such system ensures a level of service to individuals with disabilities, including individuals who use wheelchairs, equivalent to the level of service provided to individuals without disabilities.

(C) Demand responsive system. For purposes of subsection (a) of this section, discrimination includes

(i) a failure of a private entity which operates a demand responsive system and which is not subject to section 12184 of this title to operate such system so that, when viewed in its entirety, such system ensures a level of service to individuals with disabilities, including individuals who use wheelchairs, equivalent to the level of service provided to individuals without disabilities; and

(ii) the purchase or lease by such entity for use on such system of a vehicle with a seating capacity in excess of 16 passengers (including the driver), for which solicitations are made after the 30th day following the effective date of this subparagraph, that is not readily accessible to and usable by individuals with disabilities (including individuals who use wheelchairs) unless such entity can demonstrate that such system, when viewed in its entirety, provides a level of service to individuals with disabilities equivalent to that provided to individuals without disabilities.

(D) Over-the-road buses

(i) Limitation on applicability. Subparagraphs (B) and (C) do not apply to over-the-road buses.

(ii) Accessibility requirements. For purposes of subsection (a) of this section, discrimination includes

(I) the purchase or lease of an over-the-road bus which does not comply with the regulations issued under section 12186(a)(2) of this title by a private entity which provides transportation of individuals and which is not primarily engaged in the business of transporting people, and

(II) any other failure of such entity to comply with such regulations.

(3) Specific construction. Nothing in this subchapter shall require an entity to permit an individual to participate in or benefit from the goods, services, facilities, privileges, advantages and accommodations of such entity where such individual poses a direct threat to the health or safety of others. The term "direct threat" means a significant risk to the health or safety of others that cannot be eliminated by a modification of policies, practices, or procedures or by the provision of auxiliary aids or services.

Sec. 12183. New construction and alterations in public accommodations and commercial facilities

(a) Application of term. Except as provided in subsection (b) of this section, as applied to public accommodations and commercial facilities, discrimination for purposes of section 12182(a) of this title includes

(1) a failure to design and construct facilities for first occupancy later than 30 months after July 26, 1990, that are readily accessible to and usable by individuals with disabilities, except where an entity can demonstrate that it is structurally impracticable to meet the requirements of such subsection in accordance with standards set forth or incorporated by reference in regulations issued under this subchapter; and

(2) with respect to a facility or part thereof that is altered by, on behalf of, or for the use of an establishment in a manner that affects or could affect the usability of the facility or part thereof, a failure to make alterations in such a manner that, to the maximum extent feasible, the altered portions of the facility are readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs. Where the entity is undertaking an alteration that affects or could affect usability of or access to an area of the facility containing a primary function, the entity shall also make the alterations in such a manner that, to the maximum extent feasible, the path of travel to the altered area and the bathrooms, telephones, and drinking fountains serving the altered area, are readily accessible to and usable by individuals with disabilities where such alterations to the path of travel or the bathrooms, telephones, and drinking fountains serving the altered area are not disproportionate to the overall alterations in terms of cost and scope (as determined under criteria established by the Attorney General).

(b) Elevator. Subsection (a) of this section shall not be construed to require the installation of an elevator for facilities that are less than three stories or have less than 3,000 square feet per story unless the building is a shopping center, a shopping mall, or the professional office of a health care provider or unless the Attorney General determines that a particular category of such facilities requires the installation of elevators based on the usage of such facilities.

Sec. 12184. Prohibition of discrimination in specified public transportation services provided by private entities

(a) General rule. No individual shall be discriminated against on the basis of disability in the full and equal enjoyment of specified public transportation services provided by a private entity that is primarily engaged in the business of transporting people and whose operations affect commerce.

(b) Construction. For purposes of subsection (a) of this section, discrimination includes

(1) the imposition or application by an entity described in subsection (a) of eligibility criteria that screen out or tend to screen out an individual with a disability or any class of individuals with disabilities from fully enjoying the specified public transportation services provided by the entity, unless such criteria can be shown to be necessary for the provision of the services being offered;

(2) the failure of such entity to

(A) make reasonable modifications consistent with those required under section 12182(b)(2)(A)(ii) of this title;

(B) provide auxiliary aids and services consistent with the requirements of section 12182(b)(2)(A)(iii) of this title; and

(C) remove barriers consistent with the requirements of section 12182(b)(2)(A) of this title

and with the requirements of section 12183(a)(2) of this title;

(3) the purchase or lease by such entity of a new vehicle (other than an automobile, a van with a seating capacity of less than 8 passengers, including the driver, or an over-the-road bus) which is to be used to provide specified public transportation and for which a solicitation is made after the 30th day following the effective date of this section, that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs; except that the new vehicle need not be readily accessible to and usable by such individuals if the new vehicle is to be used solely in a demand responsive system and if the entity can demonstrate that such system, when viewed in its entirety, provides a level of service to such individuals equivalent to the level of service provided to the general public;

(4) (A) the purchase or lease by such entity of an over-the-road bus which does not comply with the regulations issued under section 12186(a)(2) of this title; and

(B) any other failure of such entity to comply with such regulations; and

(5) the purchase or lease by such entity of a new van with a seating capacity of less than 8 passengers, including the driver, which is to be used to provide specified public transportation and for which a solicitation is made after the 30th day following the effective date of this section that is not readily accessible to or usable by individuals with disabilities, including individuals who use wheelchairs; except that the new van need not be readily accessible to and usable by such individuals if the entity can demonstrate that the system for which the van is being purchased or leased, when viewed in its entirety, provides a level of service to such individuals equivalent to the level of service provided to the general public;

(6) the purchase or lease by such entity of a new rail passenger car that is to be used to provide specified public transportation, and for which a solicitation is made later than 30 days after the effective date of this paragraph, that is not readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs; and

(7) the remanufacture by such entity of a rail passenger car that is to be used to provide specified public transportation so as to extend its usable life for 10 years or more, or the purchase or lease by such entity of such a rail car, unless the rail car, to the maximum extent feasible, is made readily accessible to and usable by individuals with disabilities, including individuals who use wheelchairs.

(c) Historical or antiquated cars

(1) Exception. To the extent that compliance with subsection (a)(2)© or (a)(7) of this section would significantly alter the historic or antiquated character of a historical or antiquated rail passenger car, or a rail station served exclusively by such cars, or would result in violation of any rule, regulation, standard, or order issued by the Secretary of Transportation under the Federal Railroad Safety Act of 1970, such compliance shall not be required.

(2) Definition. As used in this subsection, the term "historical or antiquated rail passenger car" means a rail passenger car

(A) which is not less than 30 years old at the time of its use for transporting individuals;

(B) the manufacturer of which is no longer in the business of manufacturing rail passenger cars; and

(C) which

(i) has a consequential association with events or persons significant to the past; or

(ii) embodies, or is being restored to embody, the distinctive characteristics of a type of rail passenger car used in the past, or to represent a time period which has passed.

Sec. 12185. Study

(a) Purposes. The Office of Technology Assessment shall undertake a study to determine

(1) the access needs of individuals with disabilities to over-the-road buses and over-the-road bus service; and

(2) the most cost-effective methods for providing access to over-the-road buses and over-the-road bus service to individuals with disabilities, particularly individuals who use wheelchairs, through all forms of boarding options.

(b) Contents. The study shall include, at a minimum, an analysis of the following:

(1) The anticipated demand by individuals with disabilities for accessible over-the-road buses and over-the-road bus service.

(2) The degree to which such buses and service, including any service required under sections 12184(a)(4) and 12186(a)(2) of this title, are readily accessible to and usable by individuals with disabilities.

(3) The effectiveness of various methods of providing accessibility to such buses and service to individuals with disabilities.

(4) The cost of providing accessible over-the-road buses and bus service to individuals with disabilities, including consideration of recent technological and cost saving developments in equipment and devices.

(5) Possible design changes in over-the-road buses that could enhance accessibility, including the installation of accessible restrooms which do not result in a loss of seating capacity.

(6) The impact of accessibility requirements on the continuation of over-the-road bus service, with particular consideration of the impact of such requirements on such service to rural communities.

(c) Advisory committee. In conducting the study required by subsection (a) of this section, the Office of Technology Assessment shall establish an advisory committee, which shall consist of

(1) members selected from among private operators and manufacturers of over-the-road buses;

(2) members selected from among individuals with disabilities, particularly individuals who use wheelchairs, who are potential riders of such buses; and

(3) members selected for their technical expertise on issues included in the study, including manufacturers of boarding assistance equipment and devices.

The number of members selected under each of paragraphs (1) and (2) shall be equal, and the total number of members selected under paragraphs (1) and (2) shall exceed the number of members selected under paragraph (3).

(d) Deadline. The study required by subsection (a) of this section, along with recommendations by the Office of Technology Assessment, including any policy options for legislative action, shall

be submitted to the President and Congress within 36 months after July 26, 1990. If the President determines that compliance with the regulations issued pursuant to section 12186(a)(2)(B) of this title on or before the applicable deadlines specified in section 12186(a)(2)(B) of this title will result in a significant reduction in intercity over-the-road bus service, the President shall extend each such deadline by 1 year.

(e) Review. In developing the study required by subsection (a) of this section, the Office of Technology Assessment shall provide a preliminary draft of such study to the Architectural and Transportation Barriers Compliance Board established under section 792 of title 29. The Board shall have an opportunity to comment on such draft study, and any such comments by the Board made in writing within 120 days after the Board's receipt of the draft study shall be incorporated as part of the final study required to be submitted under subsection (d) of this section.

Sec. 12186. Regulations

(a) Transportation provisions

(1) General rule. Not later than 1 year after July 26, 1990, the Secretary of Transportation shall issue regulations in an accessible format to carry out sections 12182 (b)(2)(B) and (C) of this title and to carry out section 12184 of this title (other than subsection (a)(4)).

(2) Special rules for providing access to over-the-road buses

(A) Interim requirements

(i) Issuance. Not later than 1 year after July 26, 1990, the Secretary of Transportation shall issue regulations in an accessible format to carry out sections 12184(b)(4) and 12182(b)(2)(D)(ii) of this title that require each private entity which uses an over-the-road bus to provide transportation of individuals to provide accessibility to such bus; except that such regulations shall not require any structural changes in over-the-road buses in order to provide access to individuals who use wheelchairs during the effective period of such regulations and shall not require the purchase of boarding assistance devices to provide access to such individuals.

(ii) Effective period. The regulations issued pursuant to this subparagraph shall be effective until the effective date of the regulations issued under subparagraph (a).

(B) Final requirement

(i) Review of study and interim requirements. The Secretary shall review the study submitted under section 12185 of this title and the regulations issued pursuant to subparagraph (A).

(ii) Issuance. Not later than 1 year after the date of the submission of the study under section 12185 of this title, the Secretary shall issue in an accessible format new regulations to carry out sections 12184(b)(4) and 12182(b)(2)(D)(ii) of this title that require, taking into account the purposes of the study under section 12185 of this title and any recommendations resulting from such study, each private entity which uses an over-the-road bus to provide transportation to individuals to provide accessibility to such bus to individuals with disabilities, including individuals who use wheelchairs.

(iii) Effective period. Subject to section 12185(d) of this title, the regulations issued pursuant to this subparagraph shall take effect

(I) with respect to small providers of transportation (as defined by the Secretary), 3 years after the date of issuance of final regulations under clause (ii); and

(II) with respect to other providers of transportation, 2 years after the date of issuance of such final regulations.

(C) Limitation on requiring installation of accessible restrooms. The regulations issued pursuant to this paragraph shall not require the installation of accessible restrooms in over-the-road buses if such installation would result in a loss of seating capacity.

(3) Standards. The regulations issued pursuant to this subsection shall include standards applicable to facilities and vehicles covered by sections 12182(b) (2) and 12184 of this title.

(b) Other provisions. Not later than 1 year after July 26, 1990, the Attorney General shall issue regulations in an accessible format to carry out the provisions of this subchapter not referred to in subsection (a) of this section that include standards applicable to facilities and vehicles covered under section 12182 of this title.

(c) Consistency with ATBCB guidelines. Standards included in regulations issued under subsections (a) and (b) of this section shall be consistent with the minimum guidelines and requirements issued by the Architectural and Transportation Barriers Compliance Board in accordance with section 12204 of this title.

(d) Interim accessibility standards

(1) Facilities. If final regulations have not been issued pursuant to this section, for new construction or alterations for which a valid and appropriate State or local building permit is obtained prior to the issuance of final regulations under this section, and for which the construction or alteration authorized by such permit begins within one year of the receipt of such permit and is completed under the terms of such permit, compliance with the Uniform Federal Accessibility Standards in effect at the time the building permit is issued shall suffice to satisfy the requirement that facilities be readily accessible to and usable by persons with disabilities as required under section 12183 of this title, except that, if such final regulations have not been issued one year after the Architectural and Transportation Barriers Compliance Board has issued the supplemental minimum guidelines required under section 12204(a) of this title, compliance with such supplemental minimum guidelines shall be necessary to satisfy the requirement that facilities be readily accessible to and usable by persons with disabilities prior to issuance of the final regulations.

(2) Vehicles and rail passenger cars. If final regulations have not been issued pursuant to this section, a private entity shall be considered to have complied with the requirements of this subchapter, if any, that a vehicle or rail passenger car be readily accessible to and usable by individuals with disabilities, if the design for such vehicle or car complies with the laws and regulations (including the Minimum Guidelines and Requirements for Accessible Design and such supplemental minimum guidelines as are issued under section 12204(a) of this title) governing accessibility of such vehicles or cars, to the extent that such laws and regulations are not inconsistent with this subchapter and are in effect at the time such design is substantially completed.

Sec. 12187. Exemptions for private clubs and religious organizations

The provisions of this subchapter shall not apply to private clubs or establishments exempted from coverage under title II of the Civil Rights Act of 1964 (42 U.S.C. 2000-a(e)) or to religious organizations or entities controlled by religious organizations, including places of worship.

Sec. 12188. Enforcement

(a) In general

(1) Availability of remedies and procedures. The remedies and procedures set forth in section 2000a-3(a) of this title are the remedies and procedures this subchapter provides to any person who is being subjected to discrimination on the basis of disability in violation of this subchapter or who has reasonable grounds for believing that such person is about to be subjected to discrimination in violation of section 12183 of this title. Nothing in this section shall require a person with a disability to engage in a futile gesture if such person has actual notice that a person or organization covered by this subchapter does not intend to comply with its provisions.

(2) Injunctive relief. In the case of violations of sections 12182(b)(2)(A)(iv) and Section 12183(a) of this title, injunctive relief shall include an order to alter facilities to make such facilities readily accessible to and usable by individuals with disabilities to the extent required by this subchapter. Where appropriate, injunctive relief shall also include requiring the provision of an auxiliary aid or service, modification of a policy, or provision of alternative methods, to the extent required by this subchapter.

(b) Enforcement by Attorney General

(1) Denial of rights

(A) Duty to investigate

(i) In general. The Attorney General shall investigate alleged violations of this subchapter, and shall undertake periodic reviews of compliance of covered entities under this subchapter.

(ii) Attorney General certification. On the application of a State or local government, the Attorney General may, in consultation with the Architectural and Transportation Barriers Compliance Board, and after prior notice and a public hearing at which persons, including individuals with disabilities, are provided an opportunity to testify against such certification, certify that a State law or local building code or similar ordinance that establishes accessibility requirements meets or exceeds the minimum requirements of this chapter for the accessibility and usability of covered facilities under this subchapter. At any enforcement proceeding under this section, such certification by the Attorney General shall be rebuttable evidence that such State law or local ordinance does meet or exceed the minimum requirements of this chapter.

(B) Potential violation. If the Attorney General has reasonable cause to believe that

(i) any person or group of persons is engaged in a pattern or practice of discrimination under this subchapter; or

(ii) any person or group of persons has been discriminated against under this subchapter and such discrimination raises an issue of general public importance,

the Attorney General may commence a civil action in any appropriate United States district court.

(2) Authority of court. In a civil action under paragraph (1) (B), the court

(A) may grant any equitable relief that such court considers to be appropriate, including, to the extent required by this subchapter

(i) granting temporary, preliminary, or permanent relief;

(ii) providing an auxiliary aid or service, modification of policy, practice, or procedure,

or alternative method; and

(iii) making facilities readily accessible to and usable by individuals with disabilities;

(B) may award such other relief as the court considers to be appropriate, including monetary damages to persons aggrieved when requested by the Attorney General; and

(C) may, to vindicate the public interest, assess a civil penalty against the entity in an amount

(i) not exceeding \$50,000 for a first violation; and

(ii) not exceeding \$100,000 for any subsequent violation.

(3) Single violation. For purposes of paragraph (2) (C), in determining whether a first or subsequent violation has occurred, a determination in a single action, by judgment or settlement, that the covered entity has engaged in more than one discriminatory act shall be counted as a single violation.

(4) Punitive damages. For purposes of subsection (b) (2) (B) of this section, the term "monetary damages" and "such other relief" does not include punitive damages.

(5) Judicial consideration. In a civil action under paragraph (1)(B), the court, when considering what amount of civil penalty, if any, is appropriate, shall give consideration to any good faith effort or attempt to comply with this chapter by the entity. In evaluating good faith, the court shall consider, among other factors it deems relevant, whether the entity could have reasonably anticipated the need for an appropriate type of auxiliary aid needed to accommodate the unique needs of a particular individual with a disability.

Sec. 12189. Examinations and courses

Any person that offers examinations or courses related to applications, licensing, certification, or credentialing for secondary or postsecondary education, professional, or trade purposes shall offer such examinations or courses in a place and manner accessible to persons with disabilities or offer alternative accessible arrangements for such individuals.

SUBCHAPTER IV - MISCELLANEOUS PROVISIONS

Sec. 12201. Construction

(a) In general. Except as otherwise provided in this chapter, nothing in this chapter shall be construed to apply a lesser standard than the standards applied under title V of the Rehabilitation Act of 1973 (29 U.S.C. 790 et seq.) or the regulations issued by Federal agencies pursuant to such title.

(b) Relationship to other laws. Nothing in this chapter shall be construed to invalidate or limit the remedies, rights, and procedures of any Federal law or law of any State or political subdivision of any State or jurisdiction that provides greater or equal protection for the rights of individuals with disabilities than are afforded by this chapter. Nothing in this chapter shall be construed to preclude the prohibition of, or the imposition of restrictions on, smoking in places of employment covered by subchapter I of this chapter, in transportation covered by subchapter II or III of this chapter, or in places of public accommodation covered by subchapter III of this chapter.

(c) Insurance. Subchapters I through III of this chapter and title IV of this Act shall not be construed to prohibit or restrict

(1) an insurer, hospital or medical service company, health maintenance organization, or any agent, or entity that administers benefit plans, or similar organizations from underwriting risks, classifying risks, or administering such risks that are based on or not inconsistent with State law; or

(2) a person or organization covered by this chapter from establishing, sponsoring, observing or administering the terms of a bona fide benefit plan that are based on underwriting risks, classifying risks, or administering such risks that are based on or not inconsistent with State law; or

(3) a person or organization covered by this chapter from establishing, sponsoring, observing or administering the terms of a bona fide benefit plan that is not subject to State laws that regulate insurance.

Paragraphs (1), (2), and (3) shall not be used as a subterfuge to evade the purposes of subchapter I and III of this chapter.

(d) Accommodations and services. Nothing in this chapter shall be construed to require an individual with a disability to accept an accommodation, aid, service, opportunity, or benefit which such individual chooses not to accept.

(e) Benefits under State worker's compensation laws. Nothing in this chapter alters the standards for determining eligibility for benefits under State worker's compensation laws or under State and Federal disability benefit programs.

(f) Fundamental alteration. Nothing in this chapter alters the provision of section 12182(b)(2)(A)(ii), specifying that reasonable modifications in policies, practices, or procedures shall be required, unless an entity can demonstrate that making such modifications in policies, practices, or procedures, including academic requirements in postsecondary education, would fundamentally alter the nature of the goods, services, facilities, privileges, advantages, or accommodations involved.

(g) Claims of no disability. Nothing in this chapter shall provide the basis for a claim by an individual without a disability that the individual was subject to discrimination because of the individual's lack of disability.

(h) Reasonable accommodations and modifications. A covered entity under subchapter I, a public entity under subchapter II, and any person who owns, leases (or leases to), or operates a place of public accommodation under subchapter III, need not provide a reasonable accommodation or a reasonable modification to policies, practices, or procedures to an individual who meets the definition of disability in section 12102(1) solely under subparagraph (C) of such section.

Sec. 12202. State immunity

A State shall not be immune under the eleventh amendment to the Constitution of the United States from an action in Federal or State court of competent jurisdiction for a violation of this chapter. In any action against a State for a violation of the requirements of this chapter, remedies (including remedies both at law and in equity) are available for such a violation to the same extent as such remedies are available for such a violation in an action against any public or private entity other than a State.

Sec. 12203. Prohibition against retaliation and coercion

(a) Retaliation. No person shall discriminate against any individual because such individual has opposed any act or practice made unlawful by this chapter or because such individual made a charge, testified, assisted, or participated in any manner in an investigation, proceeding, or hearing under this chapter.

(b) Interference, coercion, or intimidation. It shall be unlawful to coerce, intimidate, threaten, or interfere with any individual in the exercise or enjoyment of, or on account of his or her having exercised or enjoyed, or on account of his or her having aided or encouraged any other individual in the exercise or enjoyment of, any right granted or protected by this chapter.

(c) Remedies and procedures. The remedies and procedures available under sections 12117, 12133, and 12188 of this title shall be available to aggrieved persons for violations of subsections (a) and (b) of this section, with respect to subchapter I, subchapter II and subchapter III of this chapter, respectively.

Sec. 12204. Regulations by Architectural and Transportation Barriers Compliance Board

(a) Issuance of guidelines. Not later than 9 months after July 26, 1990, the Architectural and Transportation Barriers Compliance Board shall issue minimum guidelines that shall supplement the existing Minimum Guidelines and Requirements for Accessible Design for purposes of subchapters II and III of this chapter.

(b) Contents of guidelines. The supplemental guidelines issued under subsection (a) of this section shall establish additional requirements, consistent with this chapter, to ensure that buildings, facilities, rail passenger cars, and vehicles are accessible, in terms of architecture and design, transportation, and communication, to individuals with disabilities.

(c) Qualified historic properties

(1) In general. The supplemental guidelines issued under subsection (a) of this section shall include procedures and requirements for alterations that will threaten or destroy the historic significance of qualified historic buildings and facilities as defined in 4.1.7(1)(a) of the Uniform Federal Accessibility Standards.

(2) Sites eligible for listing in National Register. With respect to alterations of buildings or facilities that are eligible for listing in the National Register of Historic Places under the National Historic Preservation Act (16 U.S.C. 470 et seq.), the guidelines described in paragraph (1) shall, at a minimum, maintain the procedures and requirements established in 4.1.7(1) and (2) of the Uniform Federal Accessibility Standards.

(3) Other sites. With respect to alterations of buildings or facilities designated as historic under State or local law, the guidelines described in paragraph (1) shall establish procedures equivalent to those established by 4.1.7(1)(b) and (c) of the Uniform Federal Accessibility Standards, and shall require, at a minimum, compliance with the requirements established in 4.1.7(2) of such standards.

Sec. 12205. Attorney's fees

In any action or administrative proceeding commenced pursuant to this chapter, the court or agency, in its discretion, may allow the prevailing party, other than the United States, a reasonable attorney's fee, including litigation expenses, and costs, and the United States shall be liable for the foregoing the same as a private individual.

Sec. 12205a. Rule of Construction Regarding Regulatory Authority

The authority to issue regulations granted to the Equal Employment Opportunity Commission, the Attorney General, and the Secretary of Transportation under this chapter includes the authority to issue regulations implementing the definitions of disability in section 12102 (including rules of construction) and the definitions in section 12103, consistent with the ADA Amendments Act of 2008.

Sec. 12206. Technical assistance

(a) Plan for assistance

(1) In general. Not later than 180 days after July 26, 1990, the Attorney General, in consultation with the Chair of the Equal Employment Opportunity Commission, the Secretary of Transportation, the Chair of the Architectural and Transportation Barriers Compliance Board, and the Chairman of the Federal Communications Commission, shall develop a plan to assist entities covered under this chapter, and other Federal agencies, in understanding the responsibility of such entities and agencies under this chapter.

(2) Publication of plan. The Attorney General shall publish the plan referred to in paragraph (1) for public comment in accordance with subchapter II of chapter 5 of title 5 (commonly known as the Administrative Procedure Act).

(b) Agency and public assistance. The Attorney General may obtain the assistance of other Federal agencies in carrying out subsection (a) of this section, including the National Council on Disability, the President's Committee on Employment of People with Disabilities, the Small Business Administration, and the Department of Commerce.

(c) Implementation

(1) Rendering assistance. Each Federal agency that has responsibility under paragraph (2) for implementing this chapter may render technical assistance to individuals and institutions that have rights or duties under the respective subchapter or subchapters of this chapter for which such agency has responsibility.

(2) Implementation of subchapters

(A) Subchapter I. The Equal Employment Opportunity Commission and the Attorney General shall implement the plan for assistance developed under subsection (a) of this section, for subchapter I of this chapter.

(B) Subchapter II

(i) Part A. The Attorney General shall implement such plan for assistance for part A of subchapter II of this chapter.

(ii) Part B. The Secretary of Transportation shall implement such plan for assistance for part B of subchapter II of this chapter.

(C) Subchapter III. The Attorney General, in coordination with the Secretary of Transportation and the Chair of the Architectural Transportation Barriers Compliance Board, shall implement such plan for assistance for subchapter III of this chapter, except for section 12184 of this title, the plan for assistance for which shall be implemented by the Secretary of Transportation.

(D) Title IV. The Chairman of the Federal Communications Commission, in coordination with the Attorney General, shall implement such plan for assistance for title IV.

(3) Technical assistance manuals. Each Federal agency that has responsibility under paragraph (2) for implementing this chapter shall, as part of its implementation responsibilities, ensure the availability and provision of appropriate technical assistance manuals to individuals or entities with rights or duties under this chapter no later than six months after applicable final regulations are published under subchapters I, II, and III of this chapter and title IV.

(d) Grants and contracts

(1) In general. Each Federal agency that has responsibility under subsection (2) of this section for implementing this chapter may make grants or award contracts to effectuate the purposes of this section, subject to the availability of appropriations. Such grants and contracts may be awarded to individuals, institutions not organized for profit and no part of the net earnings of which inures to the benefit of any private shareholder or individual (including educational institutions), and associations representing individuals who have rights or duties under this chapter. Contracts may be awarded to entities organized for profit, but such entities may not be the recipients or grants described in this paragraph.

(2) Dissemination of information. Such grants and contracts, among other uses, may be designed to ensure wide dissemination of information about the rights and duties established by this chapter and to provide information and technical assistance about techniques for effective compliance with this chapter.

(e) Failure to receive assistance. An employer, public accommodation, or other entity covered under this chapter shall not be excused from compliance with the requirements of this chapter because of any failure to receive technical assistance under this section, including any failure in the development or dissemination of any technical assistance manual authorized by this section.

Sec. 12207. Federal wilderness areas

(a) Study. The National Council on Disability shall conduct a study and report on the effect that wilderness designations and wilderness land management practices have on the ability of individuals with disabilities to use and enjoy the National Wilderness Preservation System as established under the Wilderness Act (16 U.S.C. 1131 et seq.).

(b) Submission of report. Not later than 1 year after July 26, 1990, the National Council on Disability shall submit the report required under subsection (a) of this section to Congress.

(c) Specific wilderness access

(1) In general. Congress reaffirms that nothing in the Wilderness Act (16 U.S.C. 1131 et seq.) is to be construed as prohibiting the use of a wheelchair in a wilderness area by an individual whose disability requires use of a wheelchair, and consistent with the Wilderness Act no agency is required to provide any form of special treatment or accommodation, or to construct any facilities or modify any conditions of lands within a wilderness area in order to facilitate such use.

(2) "Wheelchair" defined. For purposes of paragraph (1), the term "wheelchair" means a device designed solely for use by a mobility-impaired person for locomotion, that is suitable for use in an indoor pedestrian area.

Sec. 12208. Transvestites

For the purposes of this chapter, the term "disabled" or "disability" shall not apply to an individual solely because that individual is a transvestite.

Sec. 12209. Instrumentalities of Congress

The General Accounting Office, the Government Printing Office, and the Library of Congress shall be covered as follows:

(1) In general. The rights and protections under this chapter shall, subject to paragraph (2), apply with respect to the conduct of each instrumentality of the Congress.

(2) Establishment of remedies and procedures by instrumentalities. The chief official of each

instrumentality of the Congress shall establish remedies and procedures to be utilized with respect to the rights and protections provided pursuant to paragraph (1).

(3) Report to Congress. The chief official of each instrumentality of the Congress shall, after establishing remedies and procedures for purposes of paragraph (2), submit to the Congress a report describing the remedies and procedures.

(4) Definition of instrumentalities. For purposes of this section, the term "instrumentality of the Congress" means the following: the General Accounting Office, the Government Printing Office, and the Library of Congress.

(5) Enforcement of employment rights. The remedies and procedures set forth in section 2000e -16 of this title shall be available to any employee of an instrumentality of the Congress who alleges a violation of the rights and protections under sections 12112 through 12114 of this title that are made applicable by this section, except that the authorities of the Equal Employment Opportunity Commission shall be exercised by the chief official of the instrumentality of the Congress.

(6) Enforcement of rights to public services and accommodations. The remedies and procedures set forth in section 2000e -16 of this title shall be available to any qualified person with a disability who is a visitor, guest, or patron of an instrumentality of Congress and who alleges a violation of the rights and protections under sections 12131 through 12150 of this title or section 12182 or 12183 of this title that are made applicable by this section, except that the authorities of the Equal Employment Opportunity Commission shall be exercised by the chief official of the instrumentality of the Congress.

(7) Construction. Nothing in this section shall alter the enforcement procedures for individuals with disabilities provided in the General Accounting Office Personnel Act of 1980 and regulations promulgated pursuant to that Act.

Sec. 12210. Illegal use of drugs

(a) In general. For purposes of this chapter, the term "individual with a disability" does not include an individual who is currently engaging in the illegal use of drugs, when the covered entity acts on the basis of such use.

(b) Rules of construction. Nothing in subsection (a) of this section shall be construed to exclude as an individual with a disability an individual who

(1) has successfully completed a supervised drug rehabilitation program and is no longer engaging in the illegal use of drugs, or has otherwise been rehabilitated successfully and is no longer engaging in such use;

(2) is participating in a supervised rehabilitation program and is no longer engaging in such use; or

(3) is erroneously regarded as engaging in such use, but is not engaging in such use;

except that it shall not be a violation of this chapter for a covered entity to adopt or administer reasonable policies or procedures, including but not limited to drug testing, designed to ensure that an individual described in paragraph (1) or (2) is no longer engaging in the illegal use of drugs; however, nothing in this section shall be construed to encourage, prohibit, restrict, or authorize the conducting of testing for the illegal use of drugs.

(c) Health and other services. Notwithstanding subsection (a) of this section and section 12211(b)(3) of this subchapter, an individual shall not be denied health services, or services

provided in connection with drug rehabilitation, on the basis of the current illegal use of drugs if the individual is otherwise entitled to such services.

(d) "Illegal use of drugs" defined

(1) In general. The term "illegal use of drugs" means the use of drugs, the possession or distribution of which is unlawful under the Controlled Substances Act (21 U.S.C. 801 et seq.). Such term does not include the use of a drug taken under supervision by a licensed health care professional, or other uses authorized by the Controlled Substances Act or other provisions of Federal law.

(2) Drugs. The term "drug" means a controlled substance, as defined in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812).

Sec. 12211. Definitions

(a) Homosexuality and bisexuality. For purposes of the definition of "disability" in section 12102(2) of this title, homosexuality and bisexuality are not impairments and as such are not disabilities under this chapter.

(b) Certain conditions. Under this chapter, the term "disability" shall not include

(1) transvestism, transsexualism, pedophilia, exhibitionism, voyeurism, gender identity disorders not resulting from physical impairments, or other sexual behavior disorders;

(2) compulsive gambling, kleptomania, or pyromania; or

(3) psychoactive substance use disorders resulting from current illegal use of drugs.

Sec. 12212. Alternative means of dispute resolution

Where appropriate and to the extent authorized by law, the use of alternative means of dispute resolution, including settlement negotiations, conciliation, facilitation, mediation, fact-finding, minitrials, and arbitration, is encouraged to resolve disputes arising under this chapter.

Sec. 12213. Severability

Should any provision in this chapter be found to be unconstitutional by a court of law, such provision shall be severed from the remainder of the chapter, and such action shall not affect the enforceability of the remaining provisions of the chapter.

TITLE 47 - TELEGRAPHS, TELEPHONES, AND RADIOTELEGRAPHS

CHAPTER 5 - WIRE OR RADIO COMMUNICATION

SUBCHAPTER II - COMMON CARRIERS

Part I - Common Carrier Regulation

Sec. 225. Telecommunications services for hearing-impaired and speech-impaired individuals

(a) Definitions. As used in this section

(1) Common carrier or carrier. The term "common carrier" or "carrier" includes any common carrier engaged in interstate communication by wire or radio as defined in section 153 of this

title and any common carrier engaged in intrastate communication by wire or radio, notwithstanding sections 152(a) and 221(a) of this title.

(2) TDD. The term "TDD" means a Telecommunications Device for the Deaf which is a machine that employs graphic communication in the transmission of coded signals through a wire or radio communication system.

(3) Telecommunications relay services. The term "telecommunications relay services" means telephone transmission services that provide the ability for an individual who has a hearing impairment or speech impairment to engage in communication by wire or radio with a hearing individual in a manner that is functionally equivalent to the ability of an individual who does not have a hearing impairment or speech impairment to communicate using voice communication services by wire or radio. Such term includes services that enable two-way communication between an individual who uses a TDD or other nonvoice terminal device and an individual who does not use such a device.

(b) Availability of telecommunications relay services

(1) In general. In order to carry out the purposes established under section 151 of this title, to make available to all individuals in the United States a rapid, efficient nationwide communication service, and to increase the utility of the telephone system of the Nation, the Commission shall ensure that interstate and intrastate telecommunications relay services are available, to the extent possible and in the most efficient manner, to hearing-impaired and speech-impaired individuals in the United States.

(2) Use of general authority and remedies. For the purposes of administering and enforcing the provisions of this section and the regulations prescribed thereunder, the Commission shall have the same authority, power, and functions with respect to common carriers engaged in intrastate communication as the Commission has in administering and enforcing the provisions of this subchapter with respect to any common carrier engaged in interstate communication. Any violation of this section by any common carrier engaged in intrastate communication shall be subject to the same remedies, penalties, and procedures as are applicable to a violation of this chapter by a common carrier engaged in interstate communication.

(c) Provision of services. Each common carrier providing telephone voice transmission services shall, not later than 3 years after July 26, 1990, provide in compliance with the regulations prescribed under this section, throughout the area in which it offers service, telecommunications relay services, individually, through designees, through a competitively selected vendor, or in concert with other carriers. A common carrier shall be considered to be in compliance with such regulations

(1) with respect to intrastate telecommunications relay services in any State that does not have a certified program under subsection (f) of this section and with respect to interstate telecommunications relay services, if such common carrier (or other entity through which the carrier is providing such relay services) is in compliance with the Commission's regulations under subsection (d) of this section; or

(2) with respect to intrastate telecommunications relay services in any State that has a certified program under subsection (f) of this section for such State, if such common carrier (or other entity through which the carrier is providing such relay services) is in compliance with the program certified under subsection (f) of this section for such State.

(d) Regulations

(1) In general. The Commission shall, not later than 1 year after July 26, 1990, prescribe

regulations to implement this section, including regulations that

- (A) establish functional requirements, guidelines, and operations procedures for telecommunications relay services;
- (B) establish minimum standards that shall be met in carrying out subsection (c) of this section;
- (C) require that telecommunications relay services operate every day for 24 hours per day;
- (D) require that users of telecommunications relay services pay rates no greater than the rates paid for functionally equivalent voice communication services with respect to such factors as the duration of the call, the time of day, and the distance from point of origination to point of termination;
- (E) prohibit relay operators from failing to fulfill the obligations of common carriers by refusing calls or limiting the length of calls that use telecommunications relay services;
- (F) prohibit relay operators from disclosing the content of any relayed conversation and from keeping records of the content of any such conversation beyond the duration of the call; and
- (G) prohibit relay operators from intentionally altering a relayed conversation.

(2) Technology. The Commission shall ensure that regulations prescribed to implement this section encourage, consistent with section 157(a) of this title, the use of existing technology and do not discourage or impair the development of improved technology.

(3) Jurisdictional separation of costs

- (A) In general. Consistent with the provisions of section 410 of this title, the Commission shall prescribe regulations governing the jurisdictional separation of costs for the services provided pursuant to this section.
- (B) Recovering costs. Such regulations shall generally provide that costs caused by interstate telecommunications relay services shall be recovered from all subscribers for every interstate service and costs caused by intrastate telecommunications relay services shall be recovered from the intrastate jurisdiction. In a State that has a certified program under subsection (f) of this section, a State commission shall permit a common carrier to recover the costs incurred in providing intrastate telecommunications relay services by a method consistent with the requirements of this section.

(e) Enforcement

- (1) In general. Subject to subsections (f) and (g) of this section, the Commission shall enforce this section.
- (2) Complaint. The Commission shall resolve, by final order, a complaint alleging a violation of this section within 180 days after the date such complaint is filed.

(f) Certification

- (1) State documentation. Any State desiring to establish a State program under this section shall submit documentation to the Commission that describes the program of such State for implementing intrastate telecommunications relay services and the procedures and remedies

available for enforcing any requirements imposed by the State program.

(2) Requirements for certification. After review of such documentation, the Commission shall certify the State program if the Commission determines that

(A) the program makes available to hearing-impaired and speech-impaired individuals, either directly, through designees, through a competitively selected vendor, or through regulation of intrastate common carriers, intrastate telecommunications relay services in such State in a manner that meets or exceeds the requirements of regulations prescribed by the Commission under subsection (d) of this section; and

(B) the program makes available adequate procedures and remedies for enforcing the requirements of the State program.

(3) Method of funding. Except as provided in subsection (d) of this section, the Commission shall not refuse to certify a State program based solely on the method such State will implement for funding intrastate telecommunication relay services.

(4) Suspension or revocation of certification. The Commission may suspend or revoke such certification if, after notice and opportunity for hearing, the Commission determines that such certification is no longer warranted. In a State whose program has been suspended or revoked, the Commission shall take such steps as may be necessary, consistent with this section, to ensure continuity of telecommunications relay services.

(g) Complaint

(1) Referral of complaint. If a complaint to the Commission alleges a violation of this section with respect to intrastate telecommunications relay services within a State and certification of the program of such State under subsection (f) of this section is in effect, the Commission shall refer such complaint to such State.

(2) Jurisdiction of Commission. After referring a complaint to a State under paragraph (1), the Commission shall exercise jurisdiction over such complaint only if

(A) final action under such State program has not been taken on such complaint by such State

(i) within 180 days after the complaint is filed with such State; or

(ii) within a shorter period as prescribed by the regulations of such State; or

(B) the Commission determines that such State program is no longer qualified for certification under subsection (f) of this section.

TITLE 47 - TELEGRAPHS, TELEPHONES, AND RADIOTELEGRAPHS

CHAPTER 5 - WIRE OR RADIO COMMUNICATION

SUBCHAPTER VI - MISCELLANEOUS PROVISIONS

Sec. 611. Closed-captioning of public service announcements

Any television public service announcement that is produced or funded in whole or in part by any agency or instrumentality of Federal Government shall include closed captioning of the verbal content of such announcement. A television broadcast station licensee

(1) shall not be required to supply closed captioning for any such announcement that fails to include it; and

(2) shall not be liable for broadcasting any such announcement without transmitting a closed caption unless the licensee intentionally fails to transmit the closed caption that was included with the announcement.

TO BE COMPLETED BY THE CONTRACTOR

ATTACHMENT A TEMPORARY EQUIPMENT NOTIFICATION FORM

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

INSTRUCTIONS ARE ON PAGE 5.

Please note, no regulated equipment shall be brought onsite without prior approval by the Resident Engineer or PVSC Project Manager. Any violations, fines or fees resulting from failure to meet the notification requirements will be the responsibility of the Contractor. If you have any questions or require additional information on the Temporary Equipment Notification requirements, contact the Resident Project Representative or PVSC Project Manager.

PROJECT INFORMATION	
PROJECT NAME:	_____
CONTRACTOR COMPANY NAME:	_____
PROJECT FACILITY LOCATION:	_____
CONTRACTOR NAME:	_____
CONTRACTOR CONTACT PERSON:	_____
RESIDENT PROJECT REPRESENTATIVE:	_____
PVSC ENGINEERING PROJECT MANAGER:	_____
PVSC PROCESS CONTROL ENGINEER:	_____

SECTION A: GENERAL EQUIPMENT DESCRIPTION

EQUIPMENT: _____	
ARRIVAL DATE: _____	ESTIMATED DEPARTURE DATE: _____
DURATION ONSITE: _____ Calendar Days	DATE OF MANUFACTURE: _____
EQUIPMENT SERIAL NUMBER: _____	
EQUIPMENT SIZE, MAKE, MODEL, AND MATERIAL OF CONSTRUCTION:	

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

Equipment Type (check type below)			
☐ Chemical Drum	☐ Chemical Storage Tank	☐ Chemical Tanker Truck	
☐ Compressor (belly tank)	☐ Compressor (separate tank)	☐ Concrete Mixer	
☐ Fuel Drum	☐ Fuel Storage Tank (single walled)	☐ Fuel Storage Tank (double walled)	
☐ Fuel Storage Tank (dispenser)	☐ Fuel Tanker Truck	☐ Generator (belly tank)	
☐ Generator (separate tank)	☐ Fuel Cell	☐ Other (_____)	
SECONDARY CONTAINMENT TO BE PROVIDED FOR TANK, EQUIPMENT, AND/OR PIPING (Attach sketch or specifications): ☐ YES; Capacity _____ gallons ☐ NO ☐ N/A			
DOES EQUIPMENT FIT WITHIN THE SECONDARY CONTAINMENT? ☐ YES ☐ NO			
ALARM DESCRIPTION FOR LEAKS, SPILLS, OR MAJOR MALFUNCTIONS: 			
ALARM TYPE: ☐ Audible ☐ Visual ☐ Local ☐ Remote ☐ None			
ATTACHED SKETCH OF PVSC FACILITY LOCATION OF EQUIPMENT? ☐ Yes ☐ No			
FILL/EMPTYING METHODOLOGY: 			
EMERGENCY CONTACT: _____		24 HR. PHONE NUMBER: (_____)_____	

SECTION B: CHEMICAL OR SUBSTANCE STORAGE ☐ Not Applicable

TANK 1	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	
TANK 2	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	
TANK 3	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

DESCRIPTION THE USE OF THE TEMPORARY STORAGE TANK & STORED SUBSTANCE:
ALARM DESCRIPTION FOR OVERFILL FOR TANKS IN EXCESS OF 2,000 GALLONS:
ALARM TYPE: ☐ Audible ☐ Visual ☐ Local ☐ Remote ☐ None

SECTION C: GENERAL EQUIPMENT EMISSIONS ☐ Not Applicable

TYPE OF FUEL: _____	VOLUME OF FUEL TANK: _____ (GAL)
MAXIMUM FUEL CONSUMPTION: _____	☐ Gal/Hr (liquid fuels) ☐ CFM (gaseous fuels)
MAXIMUM HEAT INPUT: _____ MMBTU/HR (million BTU/hr)	
For reference: 1 million BTU/hr = 7.2 gal/hr of No. 2 diesel fuel (ULSD), or 8.0 gal/hr of unleaded gasoline, or 10.8 gal/hr of liquefied propane, or 980 scf/hr of natural gas	

SECTION D: EMERGENCY GENERATOR EMISSIONS ☐ Not Applicable

KILOWATT RATING: _____ KW	EPA TIER RATING: _____
ATTACHED COPY OF CUT SHEETS WITH EPA TIER CERTIFICATION? ☐ Yes ☐ No	

SECTION E: SURFACE COATING EQUIPMENT EMISSIONS

☐ Not Applicable

COATING MATERIAL: _____	DOES THE MATERIAL COMPLY WITH N.J.A.C. 7:27-23.3?? ☐ Yes ☐ No
COATING MATERIAL SDS ATTACHED?	☐ YES ☐ NO
SELECT COATING TYPE:	☐ ARCHITECTURAL COATING ☐ PAINT ☐ SEALANT ☐ OTHER (_____)
VOC CONTENT: _____	☐ % WEIGHT ☐ % VOLUME

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

SECTION F: RCRA INFORMATION

☐ Not Applicable

CONTACTED RESIDENT PROJECT REPRESENTATIVE OR PVSC PROJECT MANAGER IF EQUIPMENT OR ACTIVITY MAY POTENTIALLY GENERATE > 10 KG OF HAZARDOUS WASTE?

☐ YES ☐ NO

SECTION G: DISCHARGE OF WASTEWATER OR GROUNDWATER FROM DEWATERING OPERATIONS

☐ Not Applicable

PRIOR TO DISCHARGE, HAS CONTRACTOR SUBMITTED APPLICATION? ☐ YES ☐ NO

https://www.nj.gov/pvsc/home/forms/pdf/Application_GROUNDWATER_2019.pdf

CONTACTED RESIDENT PROJECT REPRESENTATIVE OR PVSC PROJECT MANAGER?

☐ YES ☐ NO

¹ In order for an event to be classified as an actual emergency (see definition of “emergency generator” at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.

INSTRUCTIONS:

Please complete the following checklist for each piece of temporary equipment. Provide, at minimum, the information requested, and transmit to the listed addressees using PMWeb. Provide a separate form for each item.

1. Complete **Section A** for each piece of equipment that can potentially store 5 gallons or more of a hazardous substance, fuel, or is equipped with a combustion source (e.g. RICE, boiler). **This section is to be completed for all equipment.**
2. Complete **Section B** if the equipment is meant to provide storage for hazardous substances, or fuel storage to be dispensed into other equipment. **This section is to be completed for all storage tanks.**
3. Complete **Section C** for all equipment with a Reciprocating Internal Combustion Engine (RICE), such as non-emergency generators, trailer-mounted pumps, and other combustion sources. **This section is to be completed for all Reciprocating Internal Combustion Engines (RICE) and other combustion sources.**
4. Complete **Section D** only if the equipment is an emergency generator¹ used to provide power during power outages.
5. Complete **Section E** only for surface coating equipment.
6. Complete **Section F** only if the temporary equipment or process will potentially generate 10+ kg of RCRA Hazardous Waste (as defined in federal regulations 40 CFR Part 261).
7. Complete **Section G** only if there will be discharge of wastewater or groundwater from dewatering operations into PVSC sanitary sewers or treatment plant.
8. Attach all additional data, cut sheets, or shop drawings as needed. All equipment which stores hazardous substances or fuel must be protected by secondary containment, and secondary containment must have overfill protection such as high-level alarms, visual inspections, spill alarms, leak detection, etc.

NOTIFICATION INFORMATION

The following shall be notified by the Contractor of any temporary equipment. Notifications shall be sent via PMWeb, or via mail/email for projects that do not utilize PMWeb.

- Beth Engelbert, P.E., Senior Engineer: EEngelbert@pvsc.com
- Resident Project Representative
- PVSC Project Manager
- PVSC Process Control Project Representative

ATTACHMENT B

TEMPORARY EQUIPMENT SCHEDULE

Project Name: _____
 Contractor Number: _____
 Project Facility Location: _____
 Contractor Name: _____
 Contractor Contact Person: _____

Resident Project Representative: _____
 PVSC Engineering Project Manager: _____
 PVSC Process Control Engineer: _____
 DATE: _____

Instructions:

1. Complete the "Temporary Equipment Schedule" once monthly and for every project meeting.
2. Enter information in the "General Equipment Description", "Equipment Arrival Date" and "Equipment Departure Date" columns. The other dates are calculated automatically.
3. Return completed schedule to Resident Project Representative via PMWeb, or via mail/email if the project does not use PMWeb. The PVSC Project Manager is responsible for maintaining all records.
4. Schedule shall be attached to the construction meeting agenda for all project meetings.

ITEM #	General Equipment Description	Equipment Arrival Date	DPCC Submit request to PVSC if >180 Days Date	DPCC NJDEP 60 Day Notification Date	DPCC 180 Day Max Date	Title V Submit Request to PVSC if > 1 year Date	Title V Equipment Limit Date	Equipment Departure Date
1			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
2			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
3			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
4			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
5			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
6			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
7			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
8			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
9			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
10			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
11			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
12			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
13			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
14			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
15			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
16			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
17			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
18			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
19			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
20			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	

Equipment Arrival Date:	This is the date the equipment will arrive at the PVSC facility; this date is independent of the date of initial use.
DPCC Submit request to PVSC if >180 Days Date:	This is the deadline for PVSC to receive contractor DPCC submittals for equipment that will be onsite for more than 180 days.
DPCC NJDEP 60 Day Notification Date:	As per N.J.A.C. 7:1E-4.8(a) NJDEP requires that PVSC provide a written 60 day notice for permanently installed equipment/storage tanks on its property.
DPCC 180 Day Max Date:	As per N.J.A.C. 7:1E-4.8(a), temporary equipment is defined as being onsite for one (1) night and up to 180 consecutive calendar days; more than 180 days it is considered a permanent installation.
Title V Submit Request to PVSC if > 1 year Date:	As per N.J.A.C. 7:27-8.2(d)15 and 7:27-22.1, NJDEP requires that PVSC submit a request to modify its air permit for permanently installed equipment/storage tanks on its property.
Title V Equipment Equipment Limit Date:	As per N.J.A.C. 7:27-8.2(d)15 and 7:27-22.1, temporary equipment is defined as being onsite for one (1) night and up to one (1) year; more than one year it is considered a permanent installation.
Equipment Departure Date:	This is the date the equipment left the PVSC facility.

TEMPORARY EQUIPMENT NOTIFICATION PACKAGE

INTRODUCTION

The Passaic Valley Sewerage Commission (PVSC) is required by the regulations of State and Federal regulatory agencies to monitor and maintain records for certain temporary pieces of equipment utilized on the PVSC plant property. This Notification Package details the information that is required for the Contractor to determine if the regulations apply to the equipment proposed to be used, and to provide the information needed for PVSC to comply with the monitoring and recordkeeping requirements.

If after receiving training from the PVSC staff and reviewing of the following guidelines, the Contractor determines that temporary equipment that will be brought to the site meets any of the criteria, the following Attachments must be completed by the Contractor (or Resident Project Representative) where indicated.

ATTACHMENTS

The Temporary Equipment Notification Package contains the following documents:

- **Attachment A –Temporary Equipment Notification Form:** This form must be completed after the Contractor has determined that the equipment meets any of the criteria listed. Applicable sections shall be completed.
- **Attachment B –Temporary Equipment Schedule:** This form tracks the arrival, departure, and several other key regulatory dates for each piece of temporary equipment.
- **Attachment C – Temporary Equipment Visual Inspection and Monitoring Checklist Procedure:** This procedure provides instructions to conduct, document, and complete Attachment D – Temporary Equipment Visual Inspection and Monitoring Checklist.
- **Attachment D – Temporary Equipment Visual Inspection and Monitoring Checklist:** This checklist must be completed weekly and during transfers of hazardous substances.

NOTIFICATIONS

The notification shall be submitted for Resident Project Representative (if an outside consultant is providing these services) or the PVSC Project Manager review and approval at least fourteen (14) days prior to the delivery of such equipment onsite.

To meet the notification requirements, the Contractor must complete and deliver (through PMWeb) “**Attachment A – Temporary Equipment Notification Form**” for each piece of applicable equipment that will be brought onsite, prior to equipment arrival, to the PVSC personnel listed below.

PVSC must have periodic schedule updates, included in “**Attachment B – Temporary Equipment Schedule**”, which include forecasted durations onsite for regulated equipment and regulatory notification deadlines. This form must be provided at construction progress meetings or monthly if meetings are not held, at a frequency that is most stringent.

For each piece of equipment listed in **Attachment A**, once weekly and during the transfer of hazardous substances, visual inspection and monitoring must be completed and documented using the “**Attachment D – Temporary Equipment Visual Inspection and Monitoring Checklist**,”.

If the project is not using PMWeb, the package must be submitted via mail/email. The Resident Project Representative or PVSC Project Manager will review the provided information, and if acceptable, approve the equipment, as well as provide any additional inspection requirements, record keeping requirements, and onsite time limitations.

The following shall be notified by the Contractor of any temporary equipment to be brought onsite. Notifications shall be sent via PMWeb, or via mail/email for projects that do not utilize PMWeb:

- Beth Engelbert, P.E., Senior Engineer: BEengelbert@pvsc.com
- Resident Project Representative
- PVSC Project Manager
- PVSC Process Control Project Representative

Please note, no regulated equipment shall be brought onsite without prior approval by PVSC. Any violations, fines or fees resulting from failure to meet the notification requirements will be the responsibility of the Contractor.

BACKGROUND

PVSC maintains several State and Federally mandated environmental control plans and permits which describe and govern the operation of equipment, tanks, and the overall wastewater treatment plant facility and pump stations. These include, but are not limited to, the Stormwater Pollution Prevention Plan (SPPP), Discharge Prevention Containment and Countermeasure Plan (DPCC), Spill Prevention Control and Countermeasure Plan (SPCC), Discharge Cleanup and Removal Plan (DCR), Resource Conservation and Recovery Act (RCRA) and Title V Air Permit.

PVSC is required by these plans and permits to keep a record of all equipment and storage tanks on its property to ensure PVSC adheres to spill prevention measures and prevent permit violations. As a result, PVSC requires all outside contractors to provide advanced written notification of their intent to bring temporary equipment on the property.

It is important to note that PVSC does not distinguish between equipment that is inactive from those in active service. If the equipment can hold a hazardous substance and is on PVSC property, it is considered active and the Temporary Equipment Notification Package must be completed.

GENERAL APPLICABILITY

NOTIFICATION REQUIREMENTS APPLICABLE TO THE FOLLOWING TYPES EQUIPMENT: (including, but not limited to)		
• Emergency Generators	• Compressors	• Fuel Storage Tanks/ Dispensers
• Chemical Storage Tanks	• Pumps	• Welding Equipment (fossil fuel burning and non-acetylene)
• Light Towers		

- Fuel/Chemical Tanker Trucks - Blowers	- Concrete Mixers - Oil Filled Transformers	- Any petroleum powered equipment with onboard storage of 5 gallons or more onsite for a minimum of 24 hours (e.g. piles drivers, hydraulic power packs) - Surface Coating Equipment, such as sprayers or blasting equipment.
Reciprocating Internal Combustion Engines (RICE)		

DPCC Information:

The DPCC plan governs the storage of hazardous chemicals, oils, and petroleum products. As part of this Plan, PVSC must be notified of any temporary equipment which can store or hold five (5) gallons or more of hazardous substances or petroleum product.

Temporary, according to the DPCC, is defined as being onsite for one (1) night and less than 180 consecutive calendar days. Also, should a piece of equipment or storage tank be onsite for more than 180 days it is considered a **permanent installation**; and PVSC must submit notifications and amendments to its plan to the NJDEP for Agency review and approval. The NJDEP requires PVSC provide a written 60-day notice for permanently installed equipment/storage tanks on its property. To allow time to prepare the notice, PVSC requires the submittal of all documentation necessary for the submittal to NJDEP 74 days prior to the end of the 180-day period.

Equipment that is used for transport, such as forklifts, excavators, backhoes, cars, trucks, self-propelled pile drivers, etc. are **excluded** from the notification requirements for the DPCC and the Title V Air Permit. However, they are not necessarily excluded from other environmental regulations, such as “no idling”.

RCRA Information:

RCRA governs how PVSC will properly dispose of hazardous wastes. PVSC must be notified of any temporary equipment or construction activity which may potentially generate 10+ kg of RCRA Hazardous Waste (as defined in federal regulations 40 CFR Part 261). The Contractor must contact the Resident Project Representative or PVSC Project Manager if the equipment or construction activity has the potential to generate RCRA Hazardous Wastes.

Per RCRA, PVSC is a small quantity generator and is **limited to the generation of 1,000 kg of hazardous waste per month and no more than 6,000 kg per calendar year.** Episodic events which may result in exceeding that limit, which PVSC planned and prepared for (e.g. regular maintenance, tank cleanouts, short-term projects, and removal of excess chemical inventory) are defined as **planned episodic events**. PVSC is limited to one planned episodic event per calendar year and must notify the EPA prior to initiating a planned episodic event using EPA Form 8700-12. Federal regulations require that PVSC provide a written 30-day notice for planned events.

A Waste Classification sampling protocol must be submitted and approved by PVSC before any samples of potentially hazardous wastes are collected. Potentially hazardous materials must be properly labeled and stored while lab results are pending. All sample results must be provided to

the Resident Project Representative or PVSC Project Manager for review and approval, and they must approve of any hazardous waste disposal location.

SPPP Information:

The SPPP governs how PVSC will eliminate the contact between source materials and stormwater through the implementation of specific Best Management Practices.

- Materials storage equipment, such as roll-off containers, must be covered by a tarp when not in use.
- Stormwater accumulated within portable secondary containment may be discharged to the wastewater treatment process, surface and/or groundwater as long the Contractor can document that the stormwater has not been exposed to the materials stored or by the activities conducted within the containment area. If the contractor believes the accumulated stormwater may have been exposed, contact the Resident Project Representative or the PVSC Project Manager.

Discharges of Wastewater or Groundwater from Dewatering Operations Information:

Any discharge of Wastewater or Groundwater from Dewatering Operations into PVSC sanitary sewers or treatment plant must be approved by PVSC's Chief Operating Officer. The request for approval must be submitted using PVSC Application for Letter of Authorization ("Application") and/or Contractual Discharge Agreement. The application document can be found at:

https://www.nj.gov/pvsc/home/forms/pdf/Application_GROUNDWATER_2019.pdf.

All requested information must be provided for the application to be complete. No discharges to PVSC sanitary sewers or treatment plant are permitted without submittal of an application and approval in writing. Direct discharge to storm sewers is prohibited.

Title V Air Permit Information:

PVSC's Title V Air Permit regulates the site-wide air pollution emissions. Its regulations are applicable to stationary RICE containing equipment, particularly, but not limited to, engines, pumps, compressors, generators (both emergency¹ and non-emergency use) etc., as well as other equipment such as package boilers, surface coating equipment, chemical storage tanks, etc. The PVSC facility may have the occasion to bring such equipment onsite on a short term or temporary basis. **PVSC's Title V permit defines "temporary equipment" as portable equipment used to conduct Construction, Repair, or Maintenance (CRM), that may emit air pollutants above certain thresholds and/or is capable of burning fuel with a maximum heat input equal to or greater than 1 million BTU per hour (1 MMBTU/hr), which is brought and used onsite for 24 hours and up to one (1) year.** This temporary equipment may be owned, rented, leased, and/or operated by PVSC or outside contractors contracted to perform work on PVSC facilities and may be separate from or integral to the equipment.

¹ In order for an event to be classified as an actual emergency (see definition of "emergency generator" at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.

Note:

- Portable CRM equipment that may emit air pollutants below certain thresholds and/or can burn fuel with a maximum heat input less than 1 million BTU per hour (1 MMBTU/hr) – **equipment can be on site indefinitely**
- Portable CRM equipment that may emit air pollutants above certain thresholds and/or can burn fuel with a maximum heat input equal to or greater than 1 million BTU per hour (1 MMBTU/hr) – **may be on site for up to one year**. The equipment can be on site longer than one year **only** after PVSC's Title V operating permit has been modified and approved by NJDEP.

If the temporary equipment will be used on site for longer than one (1) year, it is considered a **permanent installation** and requires PVSC to submit an application to the NJDEP to modify its Title V Operating Permit. This process can take several months and NJDEP approval must be received before the one-year period expires. Based on the forecasted project schedule, PVSC will determine if permit modification is likely to be required for a specific piece of equipment. If requested, the Contractor must provide all the information needed to submit a permit modification at least 90 days before the one-year period is complete.

Emergency Generators¹

Per PVSC's Title V Permit, generators that classified as "emergency generators¹," and are used to supply electricity during an event classified as an actual emergency, do not have any limitations regarding hours of operation. PVSC's recordkeeping requirements still apply. Generators that are permitted strictly as emergency generators¹ (e.g. GOP-005A/B) have 100 hours of non-emergency use per year, such as for normal testing and maintenance. **Note:** Generators that supply electricity outside of an emergency are considered normal RICE equipment, not emergency generators.

¹ In order for an event to be classified as an actual emergency (see definition of "emergency generator" at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.

TO BE COMPLETED BY THE CONTRACTOR

**ATTACHMENT A
TEMPORARY EQUIPMENT NOTIFICATION FORM**

DATE: _____ PROJECT NAME: 564564 CONTRACT #: _____

INSTRUCTIONS ARE ON PAGE 5.

Please note, no regulated equipment shall be brought onsite without prior approval by the Resident Engineer or PVSC Project Manager. Any violations, fines or fees resulting from failure to meet the notification requirements will be the responsibility of the Contractor. If you have any questions or require additional information on the Temporary Equipment Notification requirements, contact the Resident Project Representative or PVSC Project Manager.

PROJECT INFORMATION	
PROJECT NAME:	_____
CONTRACTOR COMPANY NAME:	_____
PROJECT FACILITY LOCATION:	_____
CONTRACTOR NAME:	_____
CONTRACTOR CONTACT PERSON:	_____
RESIDENT PROJECT REPRESENTATIVE:	_____
PVSC ENGINEERING PROJECT MANAGER:	_____
PVSC PROCESS CONTROL ENGINEER:	_____

SECTION A: GENERAL EQUIPMENT DESCRIPTION

EQUIPMENT: _____	
ARRIVAL DATE: _____	ESTIMATED DEPARTURE DATE: _____
DURATION ONSITE: _____ Calendar Days	DATE OF MANUFACTURE: _____
EQUIPMENT SERIAL NUMBER: _____	
EQUIPMENT SIZE, MAKE, MODEL, AND MATERIAL OF CONSTRUCTION:	

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

Equipment Type (check type below)		
☐ Chemical Drum	☐ Chemical Storage Tank	☐ Chemical Tanker Truck
☐ Compressor (belly tank)	☐ Compressor (separate tank)	☐ Concrete Mixer
☐ Fuel Drum	☐ Fuel Storage Tank (single walled)	☐ Fuel Storage Tank (double walled)
☐ Fuel Storage Tank (dispenser)	☐ Fuel Tanker Truck	☐ Generator (belly tank)
☐ Generator (separate tank)	☐ Fuel Cell	☐ Other (_____)
SECONDARY CONTAINMENT TO BE PROVIDED FOR TANK, EQUIPMENT, AND/OR PIPING (Attach sketch or specifications): ☐ YES; Capacity _____ gallons ☐ NO ☐ N/A		
DOES EQUIPMENT FIT WITHIN THE SECONDARY CONTAINMENT? ☐ YES ☐ NO		
ALARM DESCRIPTION FOR LEAKS, SPILLS, OR MAJOR MALFUNCTIONS:		
ALARM TYPE: ☐ Audible ☐ Visual ☐ Local ☐ Remote ☐ None		
ATTACHED SKETCH OF PVSC FACILITY LOCATION OF EQUIPMENT? ☐ Yes ☐ No		
FILL/EMPTYING METHODOLOGY:		
EMERGENCY CONTACT:	24 HR. PHONE NUMBER:	
_____	(_____)_____	

SECTION B: CHEMICAL OR SUBSTANCE STORAGE ☐ Not Applicable

TANK 1	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	
TANK 2	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	
TANK 3	CHEMICAL NAME: _____	SDS ATTACHED? ☐ Yes ☐ No
	STORAGE VOLUME: _____ (GAL)	

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

DESCRIPTION THE USE OF THE TEMPORARY STORAGE TANK & STORED SUBSTANCE:

ALARM DESCRIPTION FOR OVERFILL FOR TANKS IN EXCESS OF 2,000 GALLONS:

ALARM TYPE: ☐ Audible ☐ Visual ☐ Local ☐ Remote ☐ None

SECTION C: GENERAL EQUIPMENT EMISSIONS

☐ Not Applicable

TYPE OF FUEL: _____	VOLUME OF FUEL TANK: _____ (GAL)
MAXIMUM FUEL CONSUMPTION: _____	☐ Gal/Hr (liquid fuels) ☐ CFM (gaseous fuels)
MAXIMUM HEAT INPUT: _____ MMBTU/HR (million BTU/hr)	
For reference: 1 million BTU/hr = 7.2 gal/hr of No. 2 diesel fuel (ULSD), or 8.0 gal/hr of unleaded gasoline, or 10.8 gal/hr of liquefied propane, or 980 scf/hr of natural gas	

SECTION D: EMERGENCY GENERATOR EMISSIONS

☐ Not Applicable

KILOWATT RATING: _____ KW	EPA TIER RATING: _____
ATTACHED COPY OF CUT SHEETS WITH EPA TIER CERTIFICATION? ☐ Yes ☐ No	

SECTION E: SURFACE COATING EQUIPMENT EMISSIONS

☐ Not Applicable

COATING MATERIAL: _____	DOES THE MATERIAL COMPLY WITH N.J.A.C. 7:27-23.3?? ☐ Yes ☐ No
COATING MATERIAL SDS ATTACHED?	☐ YES ☐ NO
SELECT COATING TYPE:	☐ ARCHITECTURAL COATING ☐ PAINT ☐ SEALANT ☐ OTHER (_____)
VOC CONTENT: _____	☐ % WEIGHT ☐ % VOLUME

DATE: _____ PROJECT NAME: _____ CONTRACT #: _____

SECTION F: RCRA INFORMATION

☐ Not Applicable

CONTACTED RESIDENT PROJECT REPRESENTATIVE OR PVSC PROJECT MANAGER IF EQUIPMENT OR ACTIVITY MAY POTENTIALLY GENERATE > 10 KG OF HAZARDOUS WASTE?

☐ YES ☐ NO

SECTION G: DISCHARGE OF WASTEWATER OR GROUNDWATER FROM DEWATERING OPERATIONS

☐ Not Applicable

PRIOR TO DISCHARGE, HAS CONTRACTOR SUBMITTED APPLICATION? ☐ YES ☐ NO

https://www.nj.gov/pvsc/home/forms/pdf/Application_GROUNDWATER_2019.pdf

CONTACTED RESIDENT PROJECT REPRESENTATIVE OR PVSC PROJECT MANAGER?

☐ YES ☐ NO

¹ In order for an event to be classified as an actual emergency (see definition of “emergency generator” at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.

INSTRUCTIONS:

Please complete the following checklist for each piece of temporary equipment. Provide, at minimum, the information requested, and transmit to the listed addressees using PMWeb. Provide a separate form for each item.

1. Complete **Section A** for each piece of equipment that can potentially store 5 gallons or more of a hazardous substance, fuel, or is equipped with a combustion source (e.g. RICE, boiler). **This section is to be completed for all equipment.**
2. Complete **Section B** if the equipment is meant to provide storage for hazardous substances, or fuel storage to be dispensed into other equipment. **This section is to be completed for all storage tanks.**
3. Complete **Section C** for all equipment with a Reciprocating Internal Combustion Engine (RICE), such as non-emergency generators, trailer-mounted pumps, and other combustion sources. **This section is to be completed for all Reciprocating Internal Combustion Engines (RICE) and other combustion sources.**
4. Complete **Section D** only if the equipment is an emergency generator¹ used to provide power during power outages.
5. Complete **Section E** only for surface coating equipment.
6. Complete **Section F** only if the temporary equipment or process will potentially generate 10+ kg of RCRA Hazardous Waste (as defined in federal regulations 40 CFR Part 261).
7. Complete **Section G** only if there will be discharge of wastewater or groundwater from dewatering operations into PVSC sanitary sewers or treatment plant.
8. Attach all additional data, cut sheets, or shop drawings as needed. All equipment which stores hazardous substances or fuel must be protected by secondary containment, and secondary containment must have overfill protection such as high-level alarms, visual inspections, spill alarms, leak detection, etc.

NOTIFICATION INFORMATION

The following shall be notified by the Contractor of any temporary equipment. Notifications shall be sent via PMWeb, or via mail/email for projects that do not utilize PMWeb.

- Beth Engelbert, P.E., Senior Engineer: BEengelbert@pvsc.com
- Resident Project Representative
- PVSC Project Manager
- PVSC Process Control Project Representative

ATTACHMENT B
TEMPORARY EQUIPMENT SCHEDULE

Project Name:

Contractor Number:

Project Facility Location:

Contractor Name:

Contractor Contact Person:

Resident Project Representative:

PVSC Engineering Project Manager:

PVSC Process Control Engineer:

DATE:

Instructions:

1. Complete the "Temporary Equipment Schedule" once monthly and for every project meeting.
2. Enter information in the "General Equipment Description", "Equipment Arrival Date" and "Equipment Departure Date" columns. The other dates are calculated automatically.
3. Return completed schedule to Resident Project Representative via PMWeb, or via mail/email if the project does not use PMWeb. The PVSC Project Manager is responsible for maintaining all records.
4. Schedule shall be attached to the construction meeting agenda for all project meetings.

ITEM #	General Equipment Description	Equipment Arrival Date	DPCC Submit request to PVSC if >180 Days Date	DPCC NIDEP 60 Day Notification Date	DPCC 180 Day Max Date	Title V Submit Request to PVSC if > 1 year Date	Title V Equipment Limit Date	Equipment Departure Date
1			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
2			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
3			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
4			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
5			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
6			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
7			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
8			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
9			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
10			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
11			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
12			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
13			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
14			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
15			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
16			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
17			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
18			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
19			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	
20			23-Apr-00	29-Apr-00	27-Jun-00	2-Oct-00	30-Dec-00	

Equipment Arrival Date:

DPCC Submit request to PVSC if >180 Days Date:

DPCC NIDEP 60 Day Notification Date:

DPCC 180 Day Max Date:

Title V Submit Request to PVSC if > 1 year Date:

Title V Equipment Limit Date:

Equipment Departure Date:

This is the date the equipment will arrive at the PVSC facility; this date is independent of the date of initial use.

This is the deadline for PVSC to receive contractor DPCC submittals for equipment that will be onsite for more than 180 days.

As per N.J.A.C. 7:1E-4.8(a) NIDEP requires that PVSC provide a written 60 day notice for permanently installed equipment/storage tanks on its property.

As per N.J.A.C. 7:1E-4.8(a), temporary equipment is defined as being onsite for one (1) night and up to 180 consecutive calendar days; more than 180 days it is considered a permanent installation.

As per N.J.A.C. 7:27-8.2(d)15 and 7:27-22.1, NIDEP requires that PVSC submit a request to modify its air permit for permanently installed equipment/storage tanks on its property.

As per N.J.A.C. 7:27-8.2(d)15 and 7:27-22.1, temporary equipment is defined as being onsite for one (1) night and up to one (1) year; more than one year it is considered a permanent installation.

This is the date the equipment left the PVSC facility.

ATTACHMENT C

TEMPORARY EQUIPMENT VISUAL INSPECTION AND MONITORING CHECKLIST PROCEDURE

SCOPE AND APPLICATION:

The scope of this procedure is to provide instructions to conduct and document the visual inspection and monitoring of Temporary Equipment brought to the facility by contractors and PVSC personnel.

PERSONAL PROTECTIVE EQUIPMENT:

All personnel conducting inspections are required to use personal protective equipment (PPE) and follow PVSC's Safety Policies and Procedures.

INSPECTION PROCEDURES:

Conduct and document Temporary Equipment General Information, Integrity and Leak Inspection, Alarm System Inspection, Stormwater Containment Inspection, Hazardous Substance Transfer Inspection, Emergency Generator Information and complete the "Attachment D - Temporary Equipment Visual Inspection and Monitoring Checklist" once weekly and during the transfer of substances.

Temporary Equipment General Information

Record the temporary equipment details in the Temporary Equipment General Information section of the "Attachment D - Temporary Equipment Visual Inspection and Monitoring Checklist".

- Record the temporary equipment size/type.
- Record the temporary equipment Make.
- Record the temporary equipment Model and/or Serial Number.
- Record the PVSC facility location of the temporary equipment.

Integrity and Leak Inspection

Inspect all items and areas listed in the Integrity and Leak Inspection section of the "Attachment D - Temporary Equipment Visual Inspection and Monitoring Checklist".

- A checked box indicates an item was inspected.
- Checking "OK" indicates no problems were found.
- Check for cracks, broken connections or joints, chipping, corrosion, drips, puddles, staining, sheens, wet areas that should be dry, discoloration, peeling paint, damaged coatings, concrete spalls, potholes, holes, debris, dents, etc.
- In the Notes section, document damages, leaks, repairs, and corrective actions recommended and notify the Resident Project Representative immediately. Record corrective action completion date and name in the appropriate section of the checklist.

Alarm System Inspection

Inspect for any temporary equipment alarms.

- Checking “NO” indicates no alarm was observed.
- Checking “YES” indicates alarm activation. Contractor must notify Resident Project Representative or PVSC Project Manager.

Stormwater Containment Inspection

Inspect all secondary containment areas for accumulated stormwater and check appropriate box.

- Check “no containment area” if there is no secondary containment area present.
- Stormwater accumulated within secondary containment may be discharged to the wastewater treatment process, surface and/or groundwater if the Contractor can document the stormwater has not been exposed to the materials stored or by the activities conducted within the containment area.
- If the containment area has accumulated stormwater, check the stormwater for discoloration, turbidity, sheens and odors.
- If the accumulated stormwater does not appear contaminated, discharge to nearby grassy area.
- If the accumulated stormwater appears unusual, DO NOT DISCHARGE.
- In the Notes section, document corrective actions recommended and notify the Resident Project Representative or PVSC Project Manager immediately. Record corrective action completion date and name in the appropriate section of the checklist.

Hazardous Substance Transfer Inspection

- If no material is transferred (delivered or removed), check the “**N/A – No hazardous substance transferred**” box and skip this section.
- If material is transferred (delivered or removed) check “**Delivery**” or “**Removal**” boxes and complete this section. Confirm each item is complete by checking the respective box.
- Record: Hazardous Substance Name and Volume Transferred.
- Inspect Transfer Area and make a note of any problems.
- In the Notes section, document corrective actions recommended and notify the Resident Project Representative immediately. Record corrective action completion date and name in the appropriate section of the checklist.

Emergency Generator¹ Information

- If no emergency generator is present, check the “**N/A – No emergency generator present**” box and skip this section.
- If an emergency generator is operated record the “**Run Hours**” for each emergency generator.

¹ In order for an event to be classified as an actual emergency (see definition of “emergency generator” at N.J.A.C. 7:27-19.1), there must be a voltage reduction issued by PJM and posted on the PJM internet website (www.pjm.com) under the "emergency procedures" menu.

Notes

- Record comments, damages, leaks, repairs, missing items, alarms and corrective actions recommended in appropriate sections and notify the Resident Project Representative immediately.
- Record corrective action completion date and name in the appropriate section of the checklist.

REGULATORY REQUIREMENTS & RECORDKEEPING:

- Complete inspection as per the “Attachment D - Temporary Equipment Visual Inspection and Monitoring Checklist” once weekly and during the transfer of material.
- Records shall be maintained by the PVSC Project Project Representative in an accessible and organized fashion and available for review at any time.

CONTACT INFORMATION:

- Beth Engelbert, P.E., Senior Engineer: BEengelbert@pvsc.com
- Resident Project Representative
- PVSC Project Manager
- PVSC Process Control Project Representative

TO BE COMPLETED BY THE CONTRACTOR

ATTACHMENT D
TEMPORARY EQUIPMENT VISUAL INSPECTION
AND MONITORING CHECKLIST

CONTRACTOR: _____ PROJECT NAME: _____ CONTRACT #: _____

DATE: _____ TIME: _____ INSPECTOR'S NAME (Print): _____

Instructions:

1. Complete inspection as per the "Attachment C - Temporary Equipment Visual Inspection and Monitoring Checklist Procedure" once weekly and during the transfer of hazardous substances.
2. Checking "OK" indicates no problems were found.
3. Record all comments, damages, leaks, repairs, missing items, alarms and corrective actions recommended, and notify the Resident Project Representative immediately. If none are required, check "Not Applicable".
4. Return completed checklist to Resident Project Representative via PMWeb, or via mail/email if the project does not use PMWeb. The PVSC Project Representative is responsible for maintaining all records.

Temporary Equipment General Information

Temporary Equipment being inspected: (size/type)	_____
Temporary Equipment MAKE:	_____
Temporary Equipment MODEL/SERIAL NUMBER:	_____
Temporary Equipment Location:	_____

Integrity and Leak Inspection

Inspect tank piping and valving	☐ Leaks ☐ OK
Inspect temporary equipment	☐ Leaks ☐ OK
Inspect surface below and around temporary equipment	☐ Leaks ☐ OK

Alarm System Inspection

Audio or Visual alarms observed? (if Yes, notify Resident Project Representative or PVSC Project Manager)	☐ YES ☐ NO
---	--

DATE: _____ TIME: _____ LOCATION: _____ NAME (Print): _____

Stormwater Containment Inspection

Accumulated stormwater in containment areas?	☐ No containment area for this tank or equipment ☐ No accumulated stormwater ☐ Stormwater appears contaminated and Resident Project Representative contacted (DO NOT DISCHARGE) ☐ Stormwater appears uncontaminated and it was drained with approval from Resident Project Representative. Estimated Discharge Volume: _____ gallons
--	---

Hazardous Substance Transfer Inspection

☐ Delivery ☐ Removal ☐ N/A – No hazardous substance transferred	
Hazardous Substance Name: _____ Volume Transferred: _____ Gallons	
Inspect Transfer Area: ☐ No Problems Found ☐ Problems Noted	

Emergency Generator Information

☐ N/A – No emergency generator present

Emergency Generator RUN HOURS:	_____ Hours
--------------------------------	-------------

Notes

Record all comments, including all damage items, leaks, repairs, alarm failures and missing damage.

☐ Not Applicable

Record any corrective action recommended.

☐ Not Applicable

Corrective Action Completion Date: _____ Name: _____

EXECUTIVE ORDER 189**State of New Jersey
Executive Order #189****Governor Thomas H. Kean**[Return to EO Index](#)

WHEREAS, it is essential that all persons supplying goods or services to the State of New Jersey, or performing contracts or otherwise executing public works with the assistance of and subject to the approval of the State, must meet a standard of responsibility which assures the State and its citizens that such persons will both compete and perform honestly in their dealings with the State and avoid conflicts of interest; and

WHEREAS, the New Jersey Conflicts of Interest Law prohibits State officers or employees and special State officers or employees from having any interest or engaging in any activity that is in substantial conflict with the proper discharge of their duties in the public interest or from undertaking any employment or service which might reasonably be expected to impair their objectivity or independence of judgment; and

WHEREAS, the New Jersey Conflicts of Interest Law prohibits State officers or employees and special State officers or employees from acting in their official capacity in any matter wherein they have a direct or indirect personal financial interest which might reasonably be expected to impair their objectivity or independence of judgment; and

WHEREAS, N.J.S.A. 52:34-19 provides that it shall be a misdemeanor to pay any fee, commission, compensation, gift or gratuity of any kind, directly or indirectly, to any person employed by the Department of the Treasury or to any other person in the employ of the State having any duties or responsibilities in connection with the purchase or acquisition of any property or services by the State or any agency or instrumentality thereof by or on behalf of any seller or supplier of such goods or services or other party to a contract with the State; and

WHEREAS, it is essential that persons providing goods or services to, or performing contracts for, the State be fully informed of the policies of the State concerning their relationships with State officers or employees and special State officers or employees and that these policies be uniformly applied by the various agencies of the Executive Branch; and

WHEREAS, it is therefore necessary to supplement Executive Order No. 34 (1976), which provides the grounds and procedures applicable to the debarment, suspension and disqualification of State vendors, to encompass appropriate standards prohibiting conflicts of interest on the part of present and prospective State vendors;

NOW, THEREFORE, I, THOMAS H. KEAN, Governor of the State of New Jersey, by virtue of the authority vested in me by the Constitution and by the Statutes of this State, do hereby ORDER and DIRECT:

1. As used in this Order, "vendor" means any person, firm, corporation, or other entity which provides or offers or proposes to provide goods or services to or perform any contract for any State agency.
2. The executive head of each department or agency in the Executive Branch with the lawful authority to engage in State contracting shall, in accordance with the provisions of the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., promulgate regulations supplementing those heretofore established pursuant to Executive Order No. 34 (1976) governing the causes, conditions and procedures applicable to determinations of debarment, suspension and disqualification by the department or agency to include the minimum standards hereinafter set forth. In addition to any other filing required by law to be made, each executive head shall file with the Attorney General and Treasurer a copy of such rules and regulations as may be promulgated.
3. The rules and regulations referred to in Paragraph 2 shall include the following prohibitions on vendor activities, the violation of which shall render said vendor liable to debarment in the public interest, pursuant to the procedures established by Executive Order No. 34 (1976), by any Executive department or agency:
 - a. No vendor shall pay, offer to pay, or agree to pay, either directly or indirectly, any fee, commission, compensation, gift, gratuity, or other thing of value of any kind to any State officer or employee or special State officer or employee, as defined by N.J.S.A. 52:13D-13b. and e., in the Department of the Treasury or any other agency with which such vendor transacts or offers or proposes to transact business, or to any member of the immediate family, as defined by N.J.S.A. 52:13D-13i., of any such officer or employee, or any partnership, firm, or corporation with which they are employed or associated, or in which such officer or employee has an interest within the meaning of N.J.S.A. 52:13D-13g.
 - b. The solicitation of any fee, commission, compensation, gift, gratuity or other thing of value by any State officer or employee or special State officer or employee from any State vendor shall be reported in writing forthwith by the vendor to the Attorney General and the Executive Commission on Ethical Standards, now known as the State Ethics Commission.
 - c. No vendor may, directly or indirectly, undertake any private business, commercial or entrepreneurial relationship with, whether or not pursuant to employment, contract or other agreement, express or implied, or sell any interest in such vendor to, any State officer or employee or special State officer or employee having any duties or responsibilities in connection with the purchase, acquisition or sale of any property or services by or to any State agency or any instrumentality thereof, or with any person, firm or entity with which he/she is employed or associated or in which he/she has an interest within the meaning of N.J.S.A. 52:13D-13g. Any relationships subject to this provision shall be reported in writing forthwith to the Executive Commission on Ethical Standards, now known as the State Ethics Commission, which may grant a waiver of this restriction upon application of the State officer or employee or special State officer or employee upon a finding that the present or proposed relationship does not present the potential, actuality or appearance of a conflict of interest.

d. No vendor shall influence, or attempt to influence or cause to be influenced, any State officer or employee or special State officer or employee in his/her official capacity in any manner which might tend to impair the objectivity or independence of judgment of said officer or employee.

e. No vendor shall cause or influence, or attempt to cause or influence, any State officer or employee or special State officer or employee to use, or attempt to use, his/her official position to secure unwarranted privileges or advantages for the vendor or any other person.

f. The provisions cited above in paragraph 3a. through 3e. shall not be construed to prohibit a State officer or employee or special State officer or employee from receiving gifts from or contracting with vendors under the same terms and conditions as are offered or made available to members of the general public subject to any guidelines the Executive Commission on Ethical Standards, now known as the State Ethics Commission. may promulgate under paragraph 3c of Executive Order No. 189.

4. The rules and regulations referred to in Paragraph 2, supra, shall require that the prohibitions set forth Paragraph 3, supra, shall be included in all requests for proposals issued by any State department or agency and in all contracts executed on behalf of a State department or agency, other than those of an interstate agency to which New Jersey is a party and contracts entered into on behalf of the interstate agency.

5. Nothing required by this Order shall be construed to limit the authority of any State department or agency to refrain from contracting within the discretion allowed by law, or to limit N.J.S.A. 52:34-19 or any other applicable statute or regulation.

6. This Order shall take effect on the ninetieth day following its execution.

GIVEN, under my hand and seal,
this 20th day of July in the Year
of Our Lord, one thousand nine
hundred and eighty-eight, and of the
Independence of the United States,
the two hundred and thirteenth.

/s/Thomas H. Kean
GOVERNOR

(seal)

Attest:

/s/ Michael R. Cole

Chief Counsel

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

DISC-IR

Bidder/Offeror: _____

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract with the Passaic Valley Sewerage Commission must complete the certification below to attest, under penalty of perjury, that the person or entity's parents, subsidiaries, or affiliates is not identified on a list created and maintained by the N.J. Department of the Treasury as a person or entity engaging in investment activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List") The Chapter 25 list is found on the Division's website at

<http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf>

Bidders must review this list prior to completing the below certification. Failure to complete the certification will render a bidder's proposal non-responsive.

If PVSC finds a person or entity to be in violation of the principles which are the subject of this law, it shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the person or entity.

PLEASE CHECK THE APPROPRIATE BOX:

☐ I certify that I am the person listed above, or I am an officer or representative of the entity listed above and am authorized to make this certification on its behalf. I will skip Part 2 and sign and complete the Certification below.

☐ I am unable to certify as above because the bidder and/or one or more of its parents, subsidiaries, or affiliates *is* listed on the New Jersey Department of Treasury Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such will result in the proposal being rendered as nonresponsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2: PLEASE

PROVIDE FURTHER INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

You must provide a detailed, accurate and precise description of the activities of the bidding person/entity, or one of its parents, subsidiaries or affiliates, engaging in the investment activities in Iran outlined above by completing the boxes below.

Name: _____

Relationship to Bidder/Offeror: _____

Description of Activities: _____

—

Duration of Engagement: _____ Anticipated Cessation Date: _____

Proposer Contact Name: _____ Contact Phone Number: _____

Certification: I, being duly sworn upon my oath, hereby represent and state that the foregoing information and any attachments thereto to the best of my knowledge are true and complete. I attest that I am authorized to execute this certification on behalf of the above-referenced person or entity. I acknowledge that the State of New Jersey is relying on the information contained herein and thereby acknowledge that I am under a continuing obligation from the date of this certification through the completion of any contracts with the State to notify the State in writing of any changes to the answers of information contained herein. I acknowledge that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification, and if I do so, I recognize that I am subject to criminal prosecution under the law and that it will also constitute a material breach of my agreement(s) with the State of New Jersey and that the State at its option may declare any contract(s) resulting from this certification void and unenforceable.

Full Name (Print) _____ Signature _____

Title _____

Date: _____

NOTES:
 1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

**PASSAIC VALLEY
 SEWERAGE COMMISSION**
 600 WILSON AVE.
 NEWARK, NJ 07105

STRAIGHT PIPING - CELLULAR
 FIGURE 1

INSULATION OF CRYOGENIC
 & LOW TEMPERATURE OXYGEN
 PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cad Control No. FIGURE 1			
A Plot Scale			
DWG No.	FIGURE 1		
REV.			

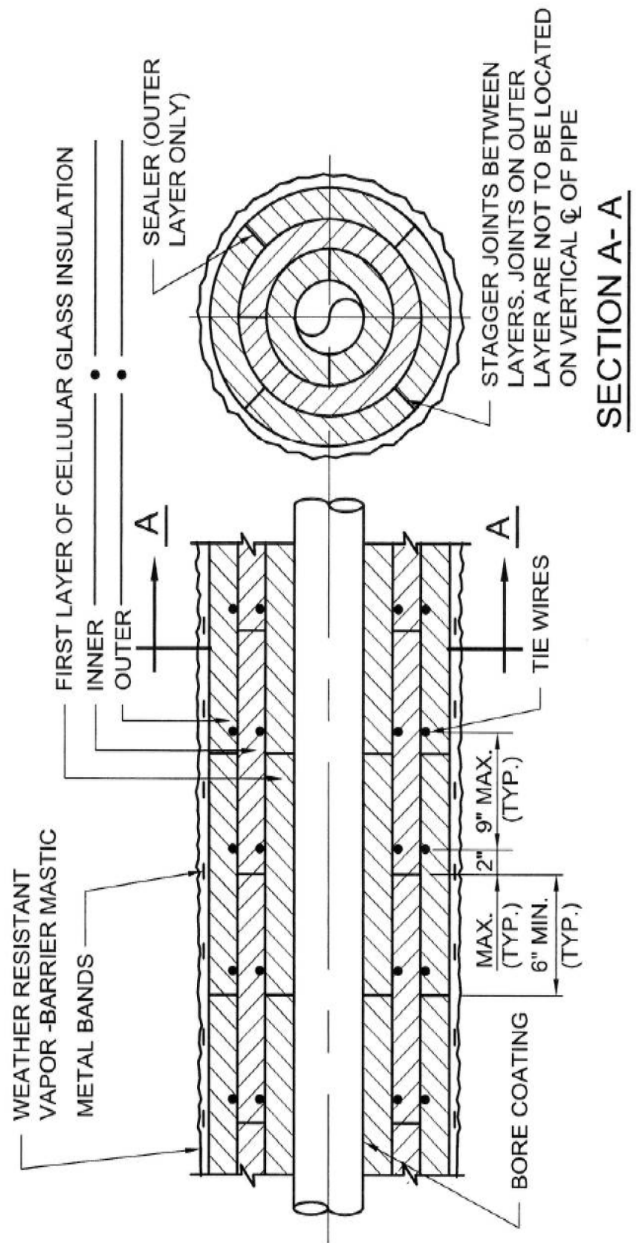
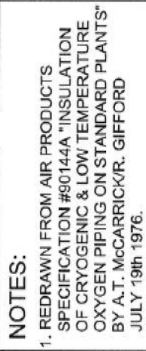


FIGURE 1
STRAIGHT PIPING
MULTI-LAYER CELLULAR GLASS INSULATION



**PASSAIC VALLEY
SEWERAGE COMMISSION**

600 WILSON AVE.
NEWARK, NJ 07105

SUPPORT RING - CELLULAR

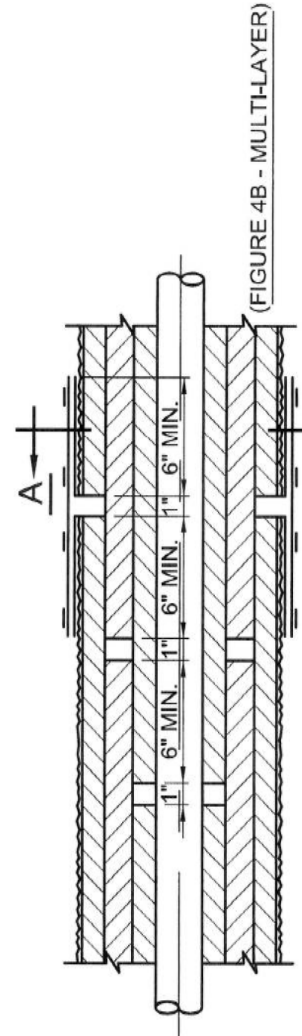
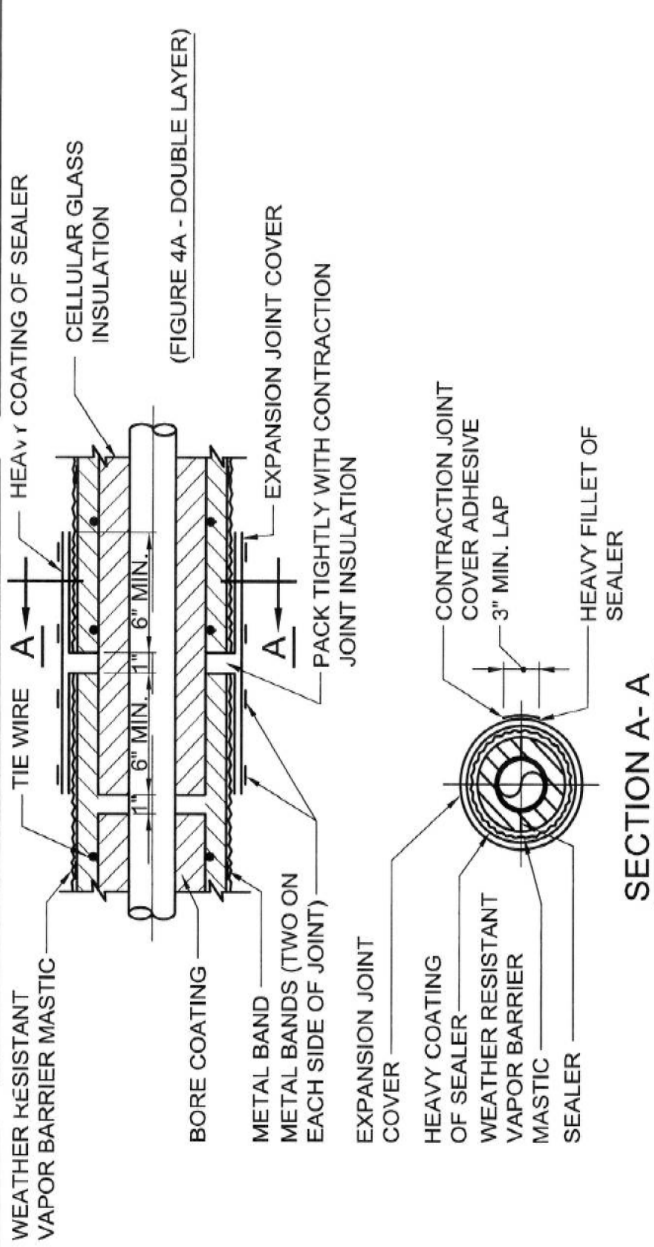
**INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS**

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KEL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cord Control No: FIGURE 3			
A Plot Scale:			
DWG No:			REV:
FIGURE 3			

NOTES:

1. ALL MATERIALS AND METHOD OF INSTALLATION ARE TYPICAL ON BOTH SIDES OF CENTERLINE WHERE APPLICABLE.
2. FOR TRIPLE LAYER CONSTRUCTION THE MIDDLE LAYER IS TO BE APPLIED IN THE SAME MANNER AS THE INNER LAYER EXCEPT THAT BORE COATING MATERIAL IS NOT REQUIRED.

FIGURE 3
INSULATION SUPPORT RING



**FIGURE 4
CONTRACTION JOINT**

NOTE:
ALL MATERIAL AND METHOD OF APPLICATION FOR DOUBLE AND TRIPLE LAYERS ARE SIMILAR TO THAT SHOWN FOR SINGLE LAYER.

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

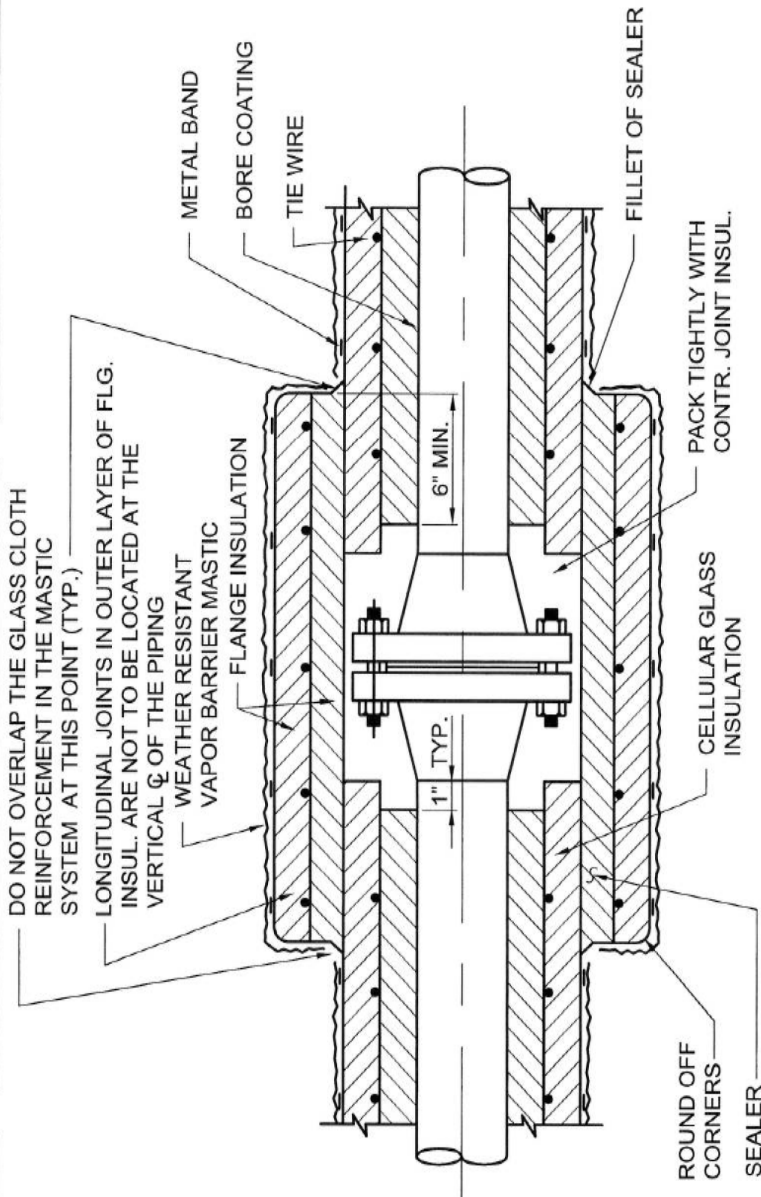


**PASSAIC VALLEY
SEWERAGE COMMISSION**
600 WILSON AVE.
NEWARK, NJ 07105

CONTRACTION JOINT - CELLULAR
FIGURE 4

INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS

DRWN BY: JT/DMD	DATE: 7/12/13	CHKD BY: KBL	DATE: 7/12/13
SCALE: NONE	SHEET 1 OF 1	Cadd Control No: FIGURE 4	
A Plot Scale			
DWG No: FIGURE 4			REV.



NOTES:

1. THE INSULATION ON THE PIPING ADJACENT TO FLANGES IS TO BE STOPPED SHORT OF THE FLANGE BOLTS IN ORDER THAT THE BOLTS MAY BE REMOVED WITHOUT DAMAGE TO THE ADJACENT INSULATION.
2. FOR TRIPLE LAYER CONSTRUCTION THE SAME METHODS OF APPLICATION ARE TO BE USED AS IS SHOWN FOR DOUBLE LAYER CONSTRUCTION.

FIGURE 5
FLANGES

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICKR. GIFFORD JULY 19th 1976.



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FLANGES - CELLULAR
FIGURE 5

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cust Control No: FIGURE 5			
A	Plot Scale:		
DWG No:	FIGURE 5		
REV:			

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICKR. GIFFORD JULY 19th 1976.

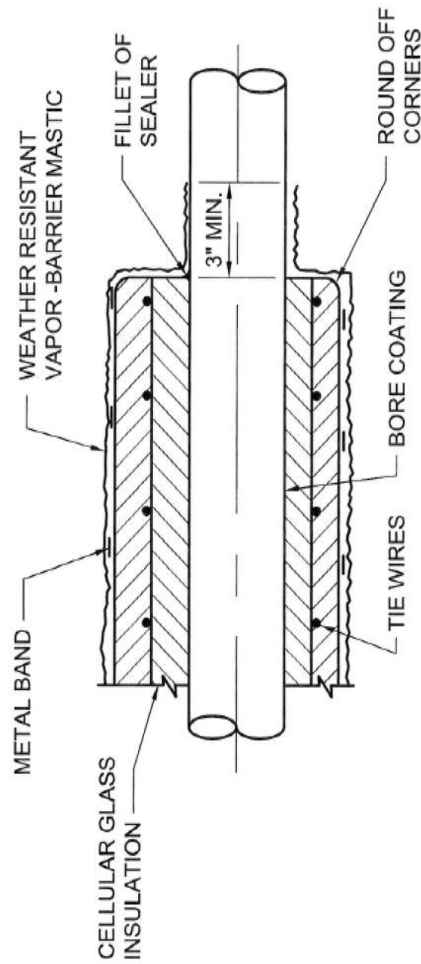


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TERMINATIONS - CELLULAR
FIGURE 6

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KEL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cadd Control No: FIGURE 6			
A	Plot Scale		
DWG No:	FIGURE 6		
REV.			



**FIGURE 6
TERMINATION OF INSULATION**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

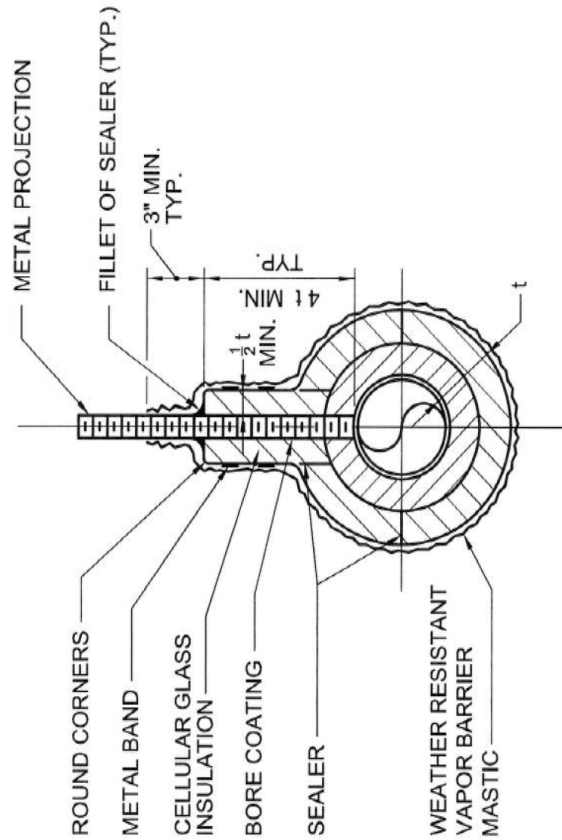


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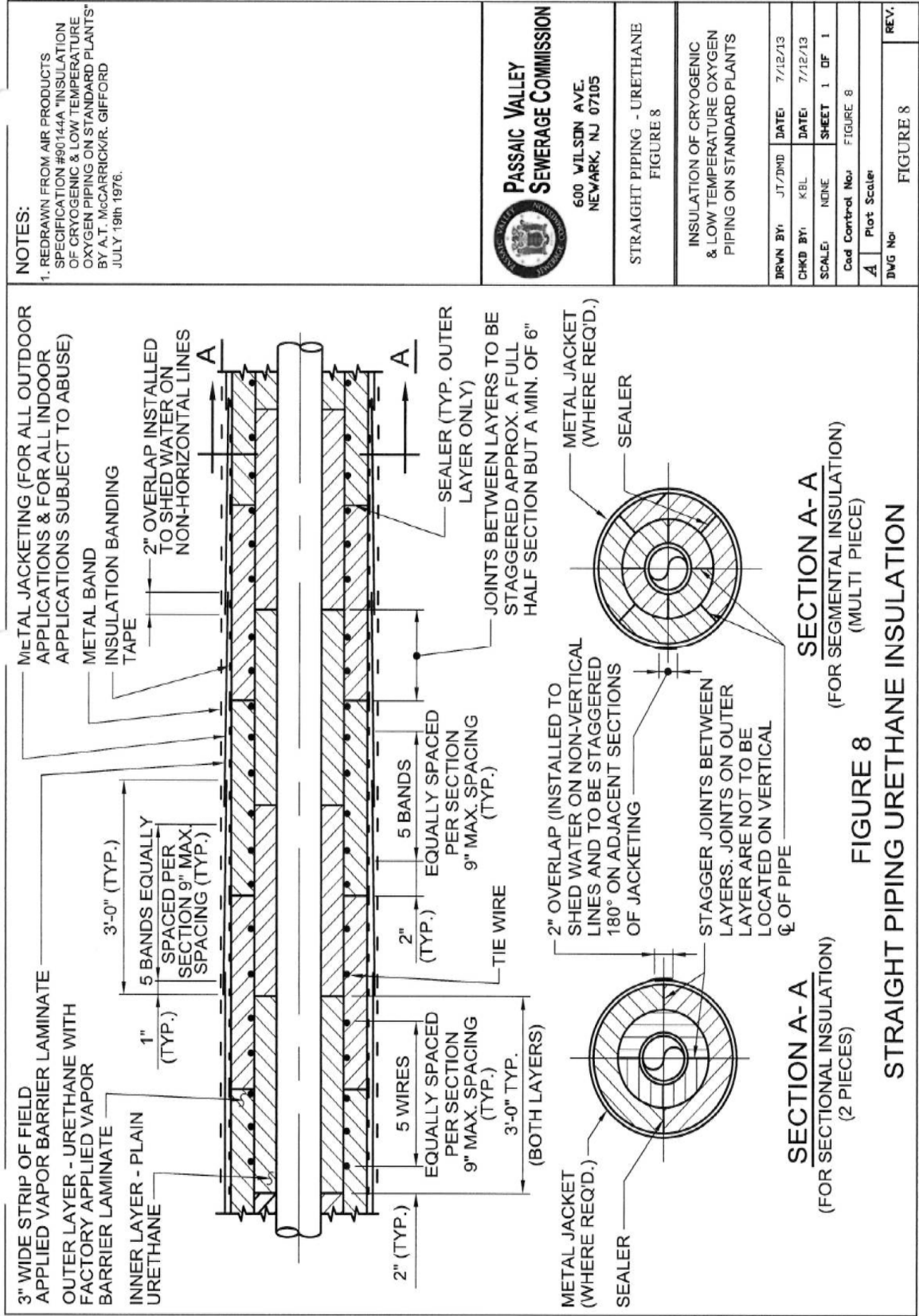
SMALL METAL PROJECTIONS
CELLULAR - FIGURE 7

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KEL	DATE:	7/12/13
SCALE:	NONE	SHEET	OF 1
Cust Control No: FIGURE 7			
A		Plot Scale:	
DWG No:		FIGURE 7	
REV.			



**FIGURE 7
SMALL METAL PROJECTIONS**



NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

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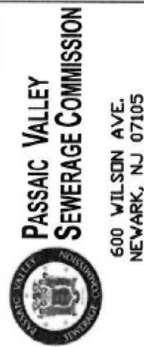
STRAIGHT PIPING - URETHANE
FIGURE 8

INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Coord Control No:		FIGURE 8	
4	Plot Scale:	FIGURE 8	
DWG No:			
REV:			

NOTES:

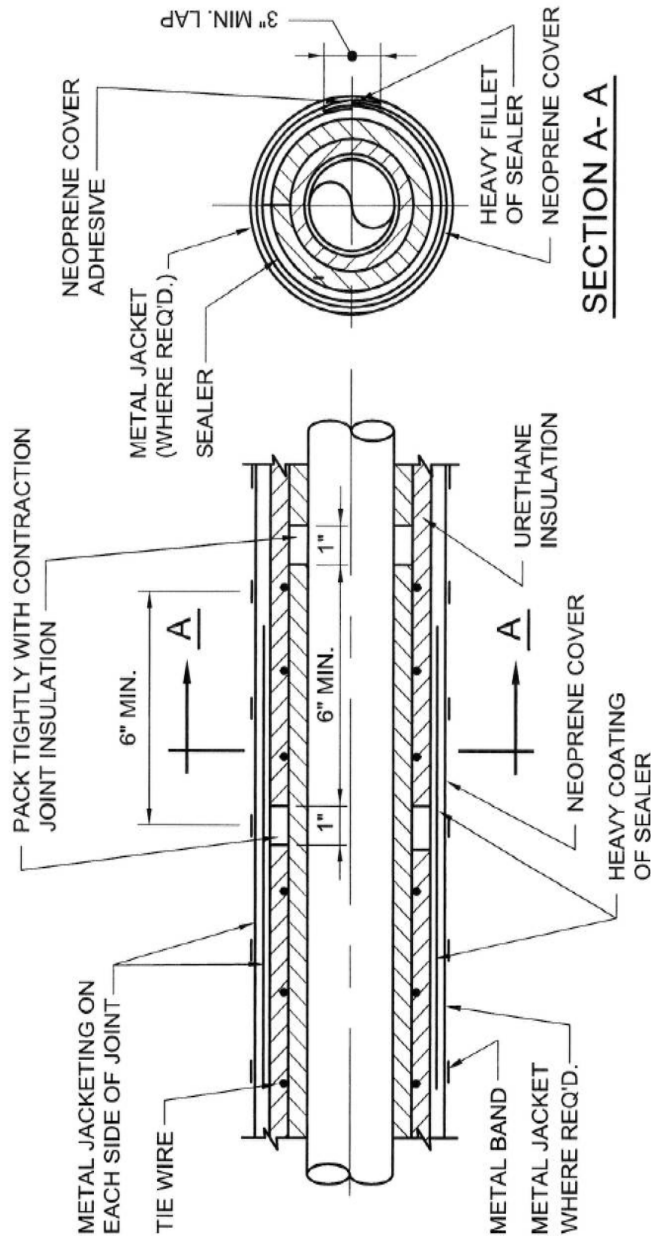
1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.



CONTRACTION JOINT - URETHANE
FIGURE 9

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cad Control No. FIGURE 9			
A	Plot Scale:		
DWG No:		FIGURE 9	
		REV:	



SECTION A-A

**FIGURE 9
CONTRACTION JOINT**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #60144A, "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

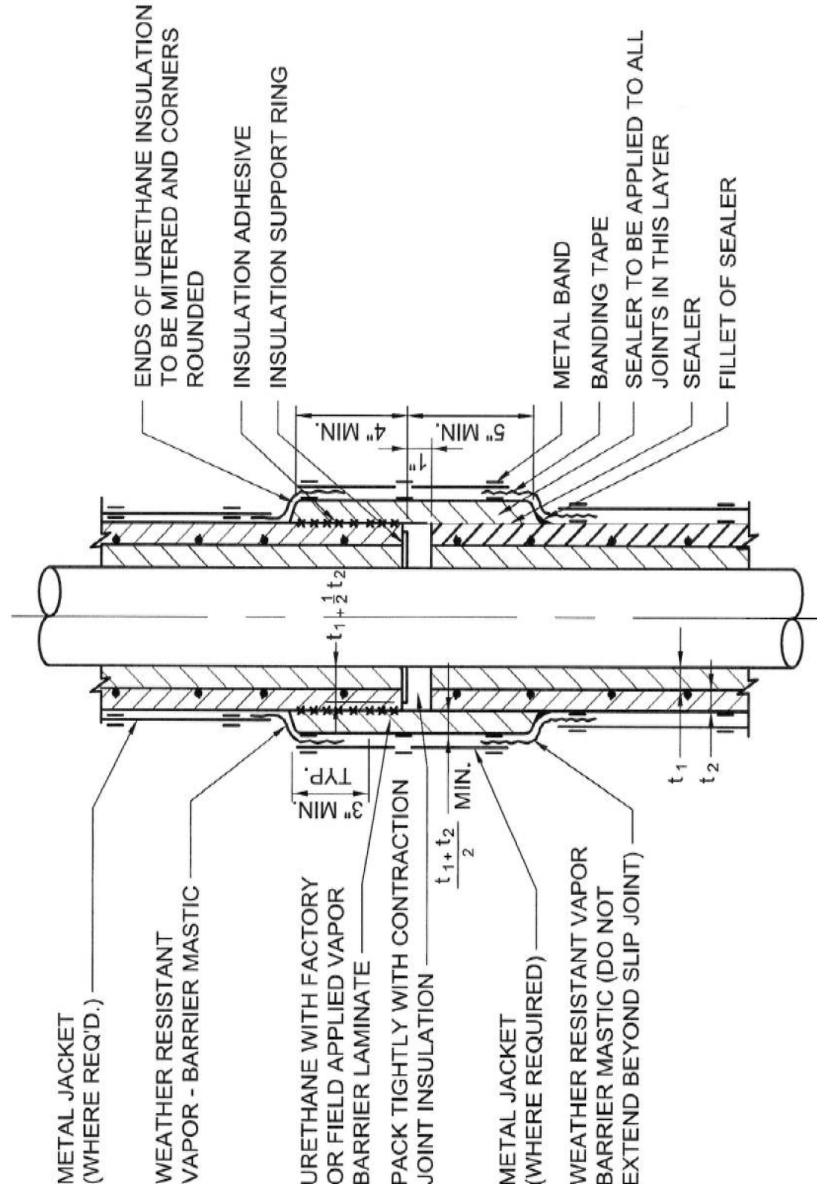


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SUPPORT RING - URETHANE
FIGURE 10

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cod Control No: FIGURE 10			
A Plot Scale:			
DWG No:		FIGURE 10	
REV:			



**FIGURE 10
INSULATION SUPPORT RING**

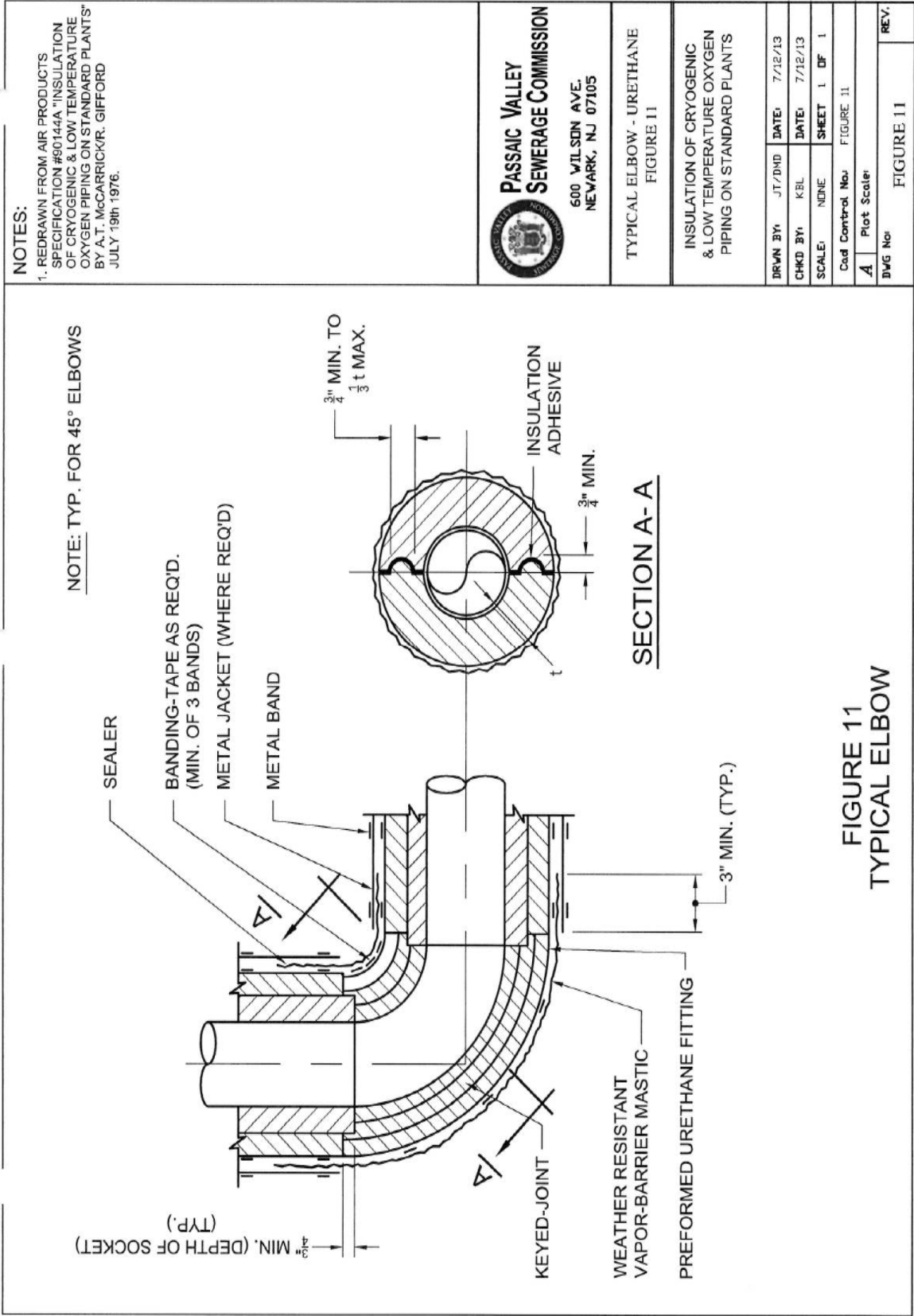


FIGURE 11
TYPICAL ELBOW

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.



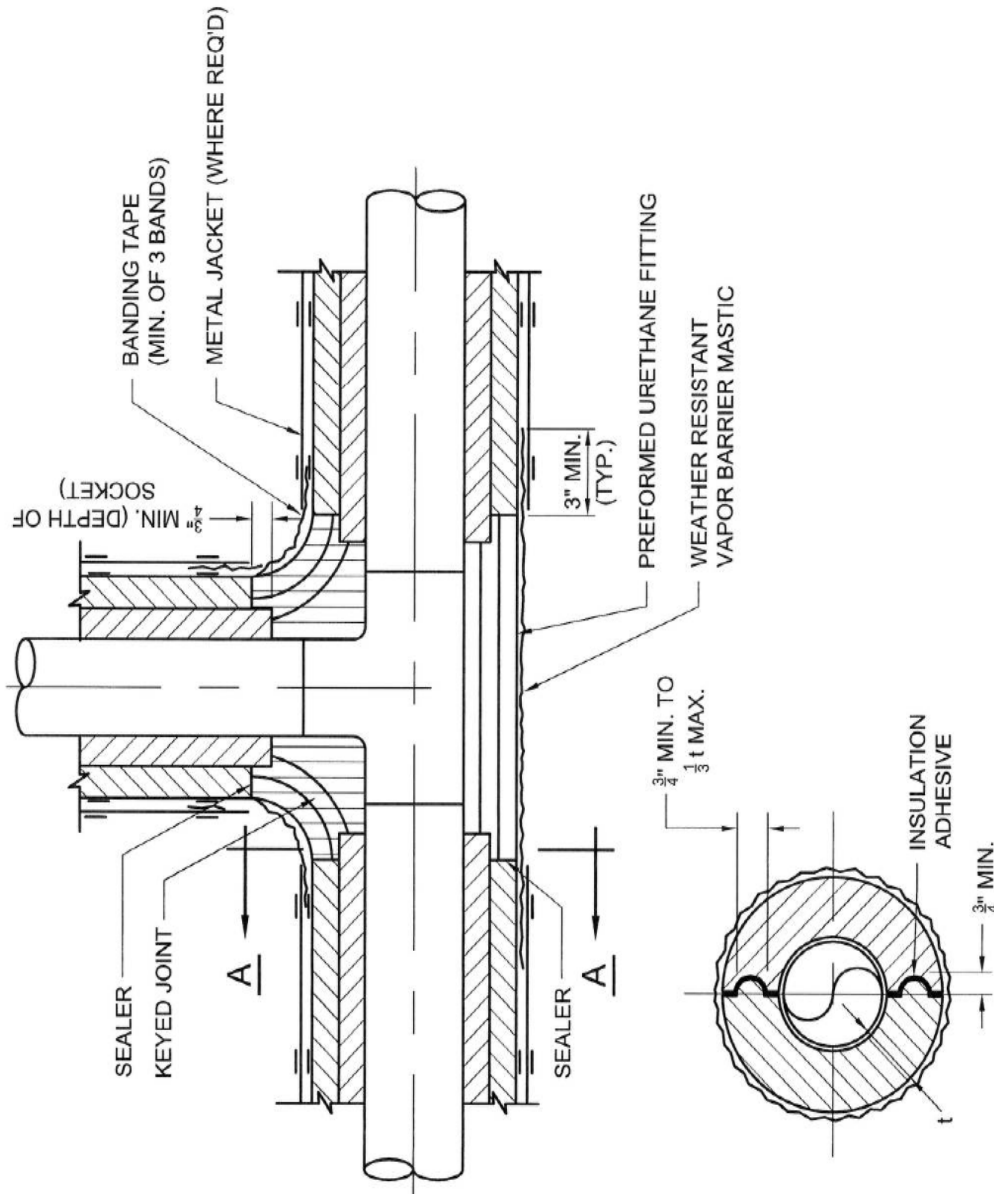
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TYPICAL TEE - URETHANE
FIGURE 12

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DND	DATE:	7/12/13
CHKD BY:	KEL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cod Control No: FIGURE 12			
A Plot Scale:			
DWG No:		FIGURE 12	
		REV:	



**FIGURE 12
TYPICAL TEE**

SECTION A-A

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.



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EXTENDED STEM VALVE
FIGURE 13

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Doc Control No:	FIGURE 13		
A	Plot Scale		
DWG No:	FIGURE 13		REV.

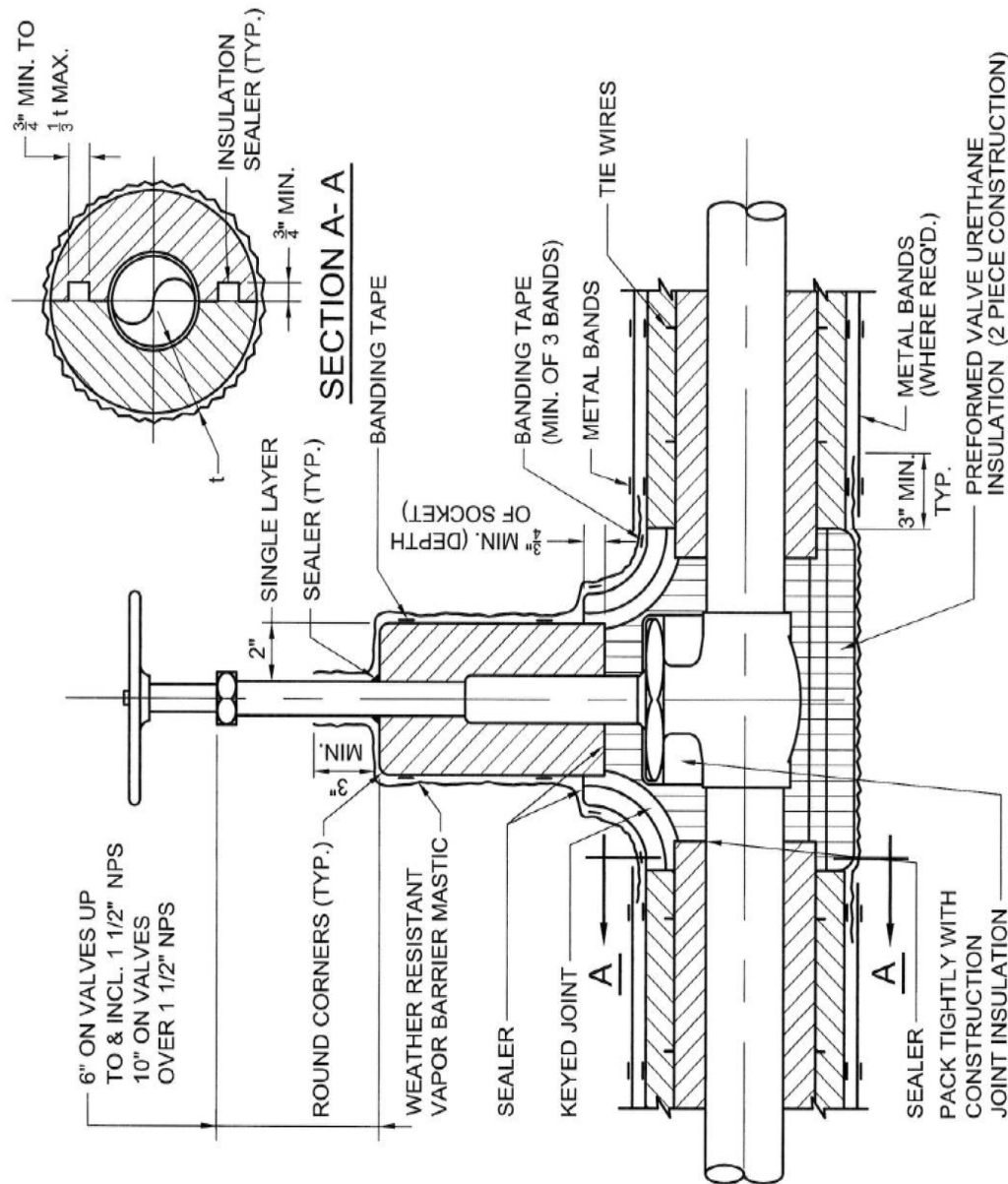
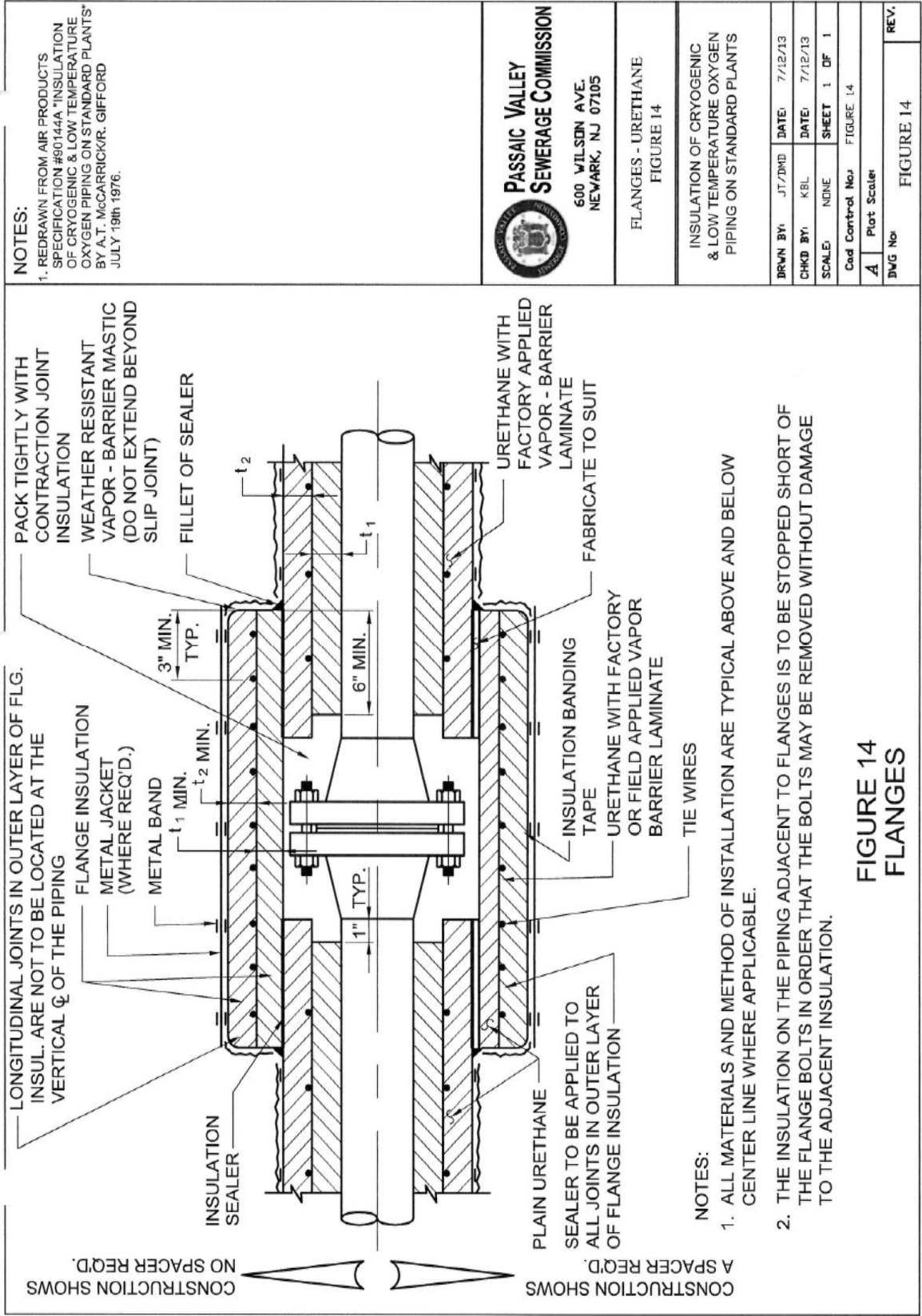


FIGURE 13

EXTENDED STEM VALVE



NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

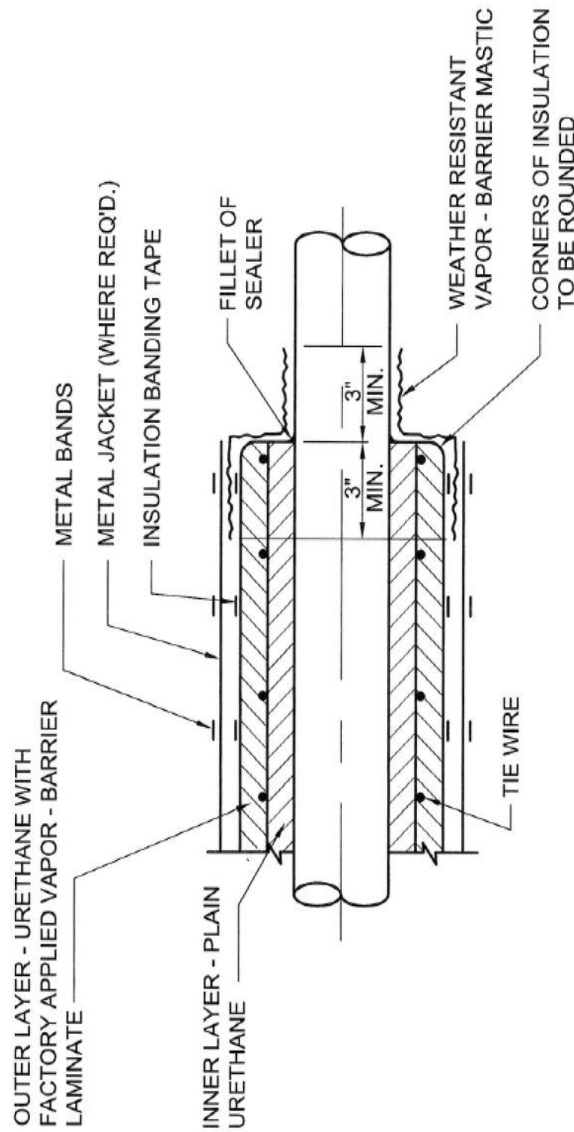


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TERMINATIONS - URETHANE
FIGURE 15

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cad Control No: FIGURE 15			
A Plot Scale:		FIGURE 15	
DWG No:			
REV:			



**FIGURE 15
TERMINATION OF INSULATION**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. MCCARRICK/R. GIFFORD JULY 19th 1976.

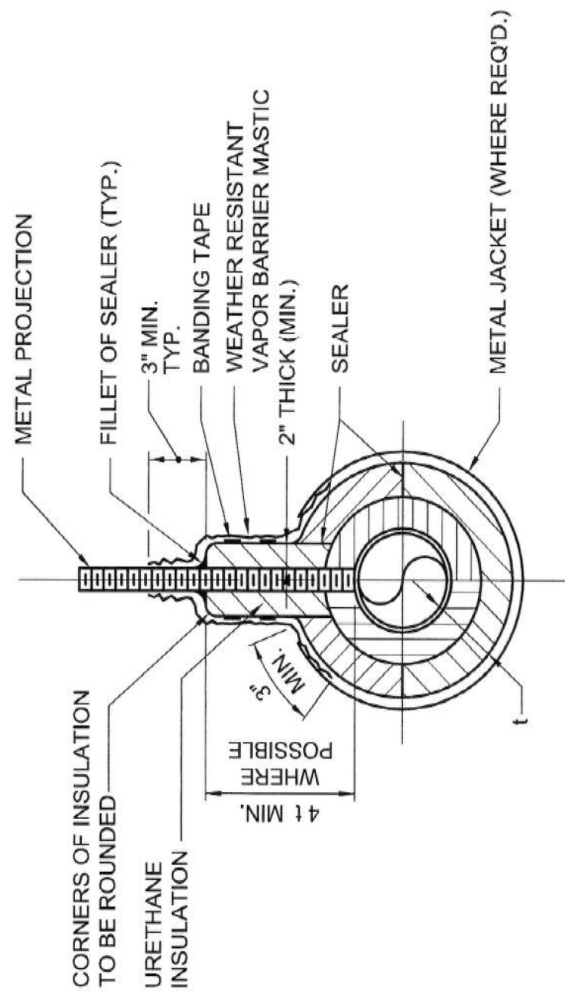


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SMALL METAL PROJECTIONS
FIGURE 16

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY:	JT/DMD	DATE:	7/12/13
CHKD BY:	KBL	DATE:	7/12/13
SCALE:	NONE	SHEET	1 OF 1
Cod Control No: FIGURE 16			
A	Plot Scale:		
DWG No:	FIGURE 16		
REV.			



**FIGURE 16
SMALL METAL PROJECTIONS**

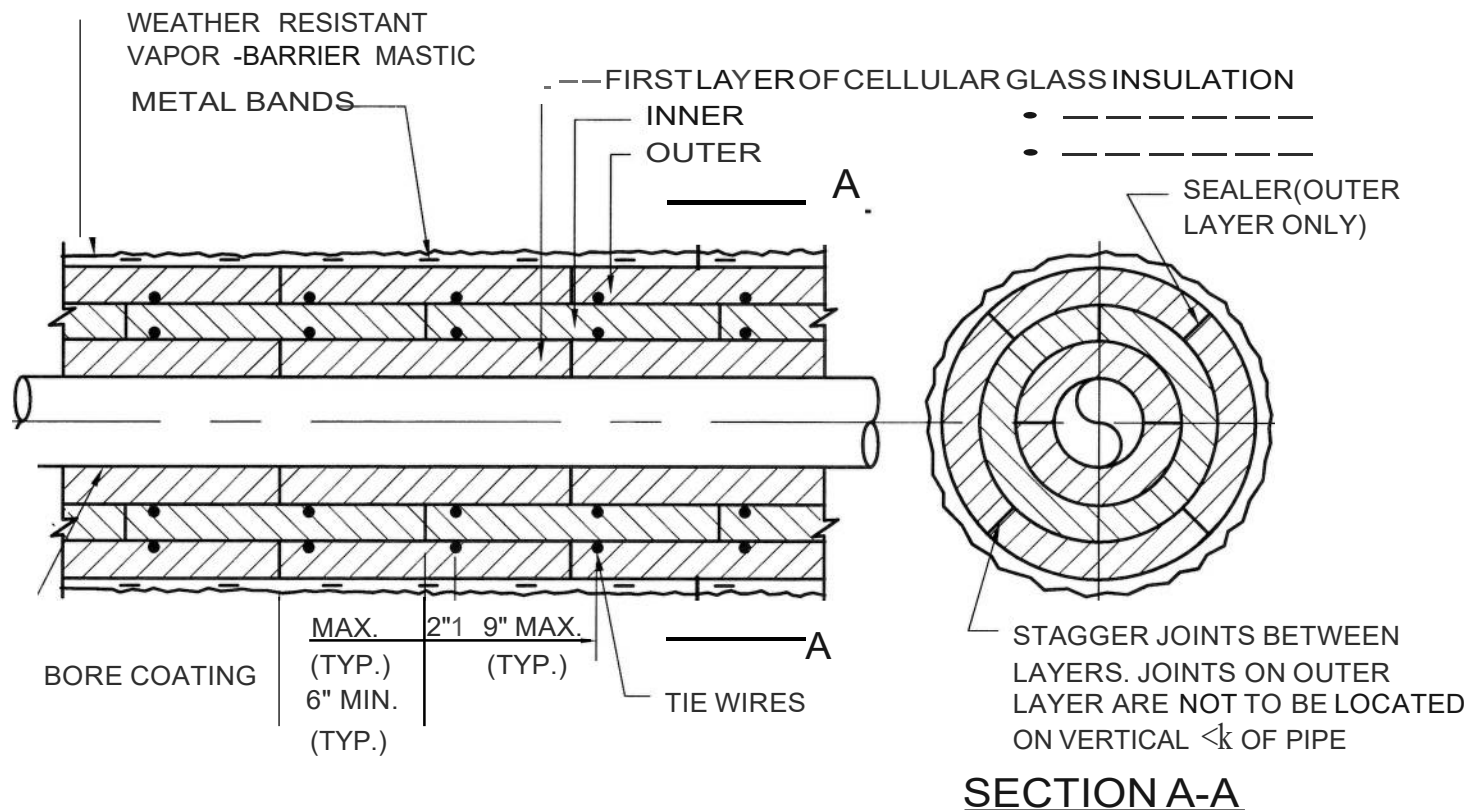


FIGURE 1
STRAIGHT PIPING
MULTI-LAYER CELLULAR GLASS INSULATION

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.

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STRAIGHT PIPING - CELLULAR
FIGURE 1

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY•	JT/DMD	DATEo	7/12/13
CHK'D BY•	KBL	DATEo	7/12/13
SCALE•	NONE	SHEET	1 OF 1

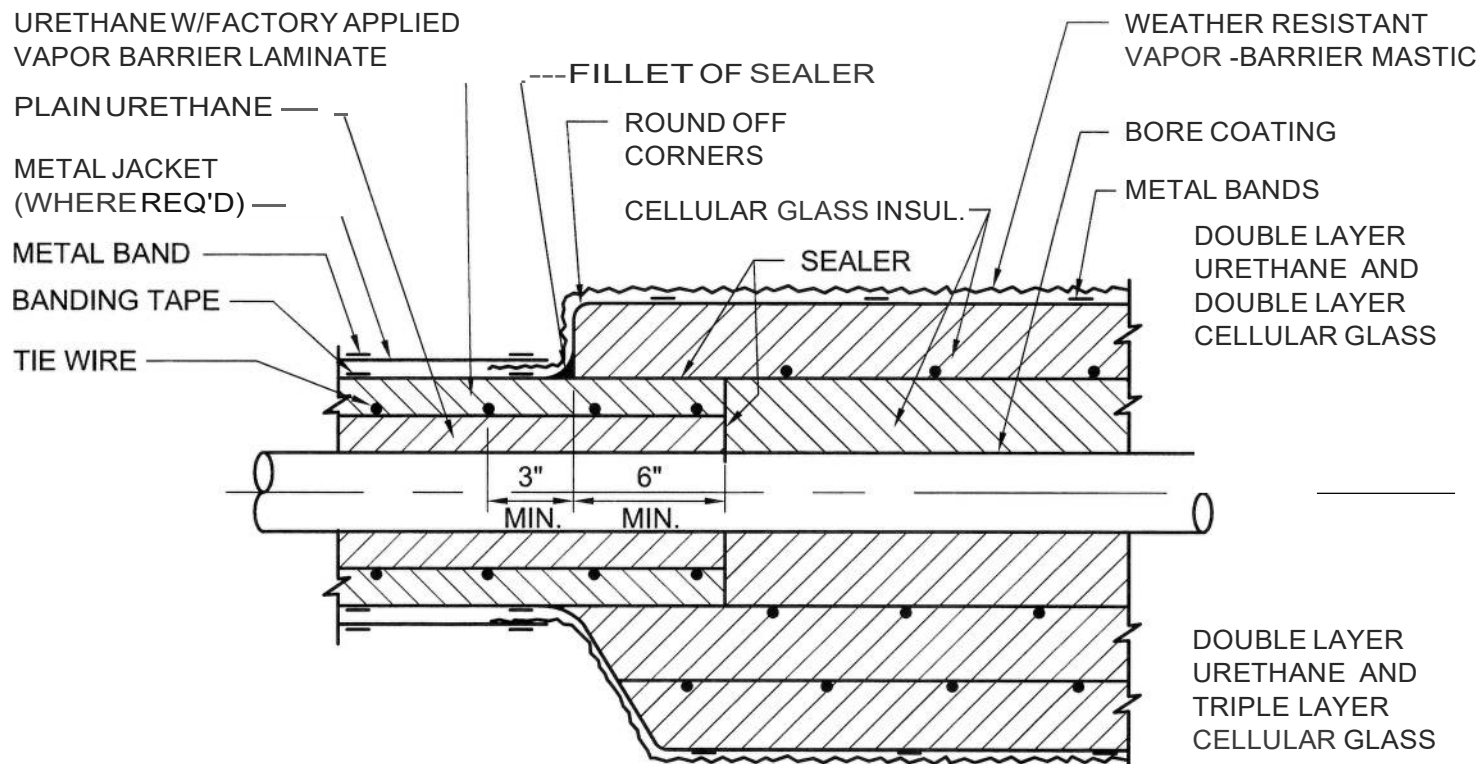
Co.d Control No FIGURE 1

AI Plot Sco.lvo

D"G Noo

FIGURE 1

1 REV.



NOTE: ALL MATERIALS AND METHOD OF INSTALLATION ARE TYPICAL
ABOVE AND BELOW CENTERLINE WHERE APPLICABLE.

FIGURE 2
TYPICAL METHOD OF JOINING URETHANE
AND CELLULAR GLASS INSULATION

NOTES:

1. REDRAWN FROM AIR PRODUCTS
SPECIFICATION #90144A "INSULATION
OF CRYOGENIC & LOW TEMPERATURE
OXYGEN PIPING ON STANDARD PLANTS"
BY A.T. McCARRICK/R. GIFFORD
JULY 19th 1976.

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JOINTS URETHANE/CELLULAR
FTGURE2

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRJN BY• JT/IMD DATE• 7/12/13

CHKD BY• KBL DATE• 7/12/13

SCALE• NONE SIEET 1 OF 1

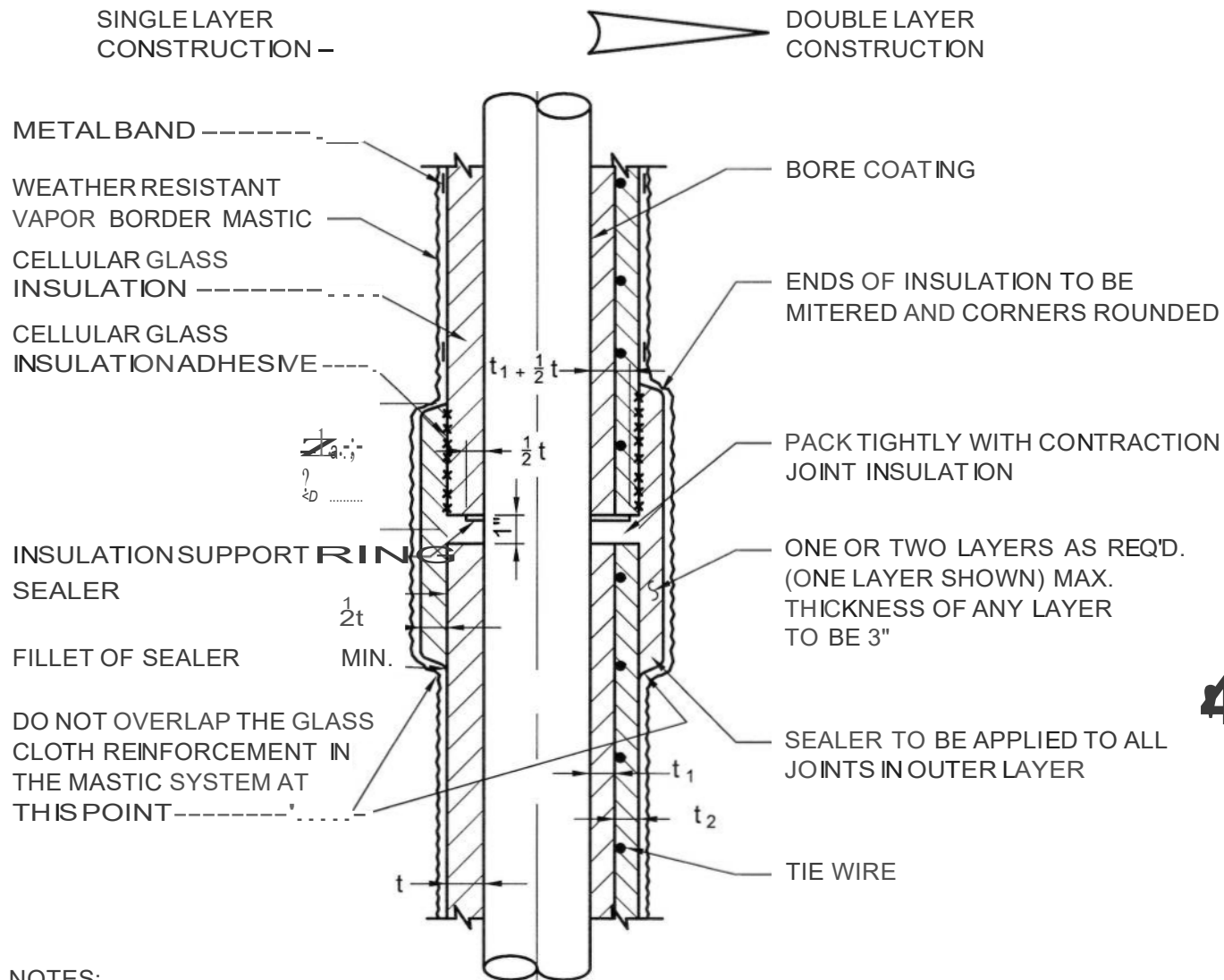
Co.d Control No FIGURE2

AI Plot Sco.I••

DWG Noo

1 REV.

FIGURE 2



NOTES:

1. ALL MATERIALS AND METHOD OF INSTALLATION ARE TYPICAL ON BOTH SIDES OF CENTER LINE WHERE APPLICABLE.
2. FOR TRIPLE LAYER CONSTRUCTION THE MIDDLE LAYER IS TO BE APPLIED IN THE SAME MANNER AS THE INNER LAYER EXCEPT THAT BORE COATING MATERIAL IS NOT REQUIRED.

**FIGURE 3
INSULATION SUPPORT RING**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK/R. GIFFORD JULY 19th 1976.

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**SUPPORT RING- CELLULAR
FIGURE 3**

**INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS**

DRWN BY•	JT/DMD	DATE•	7/12/13
CHKD BY•	KBL	DATE•	7/12/13
SCALE•	NONE	SHEET	1 OF 1

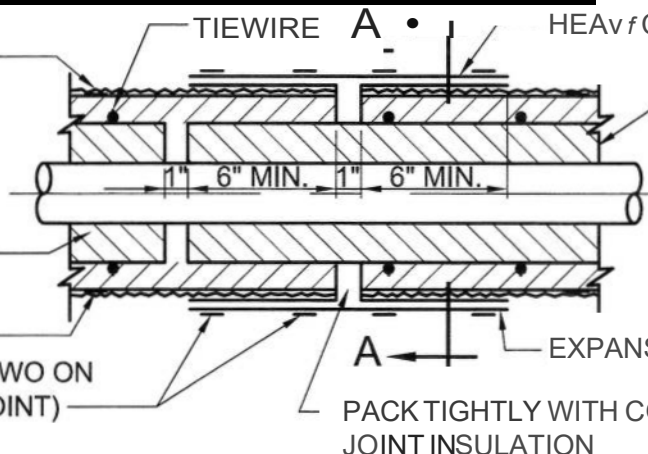
Code Control NoJ FIGURE 3

AI Plot Seal••
D/JG tb

REV.

FIGURE 3

WEATHER RESISTANT
VAPOR BARRIER MASTIC

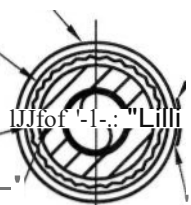


(FIGURE 4A-DOUBLE LAYER)

EXPANSION JOINT
COVER -----

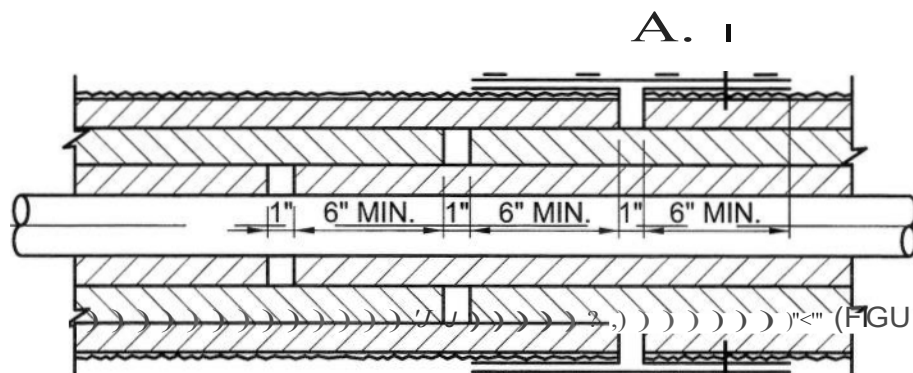
HEAVY COATING
OF SEALER -----
WEATHER RESISTANT
VAPOR BARRIER
MASTIC -----
SEALER -----

SECTION A-A



CONTRACTION JOINT
COVER ADHESIVE
3" MIN. LAP

HEAVY FILLET OF
SEALER



(FIGURE 4B - MULTI-LAYER)

FIGURE 4 A • 1
CONTRACTION JOINT

NOTE:

ALL MATERIAL AND METHOD OF APPLICATION FOR DOUBLE AND TRIPLE LAYERS ARE SIMILAR TO THAT SHOWN FOR SINGLE LAYER.

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.

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CONTRACTION JOINT- CELLULAR
FIGURE 4

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

JIRIUN BY• JT/DHD DATE• 7/12/13

CHKD BY• KBL DATE• 7/12/13

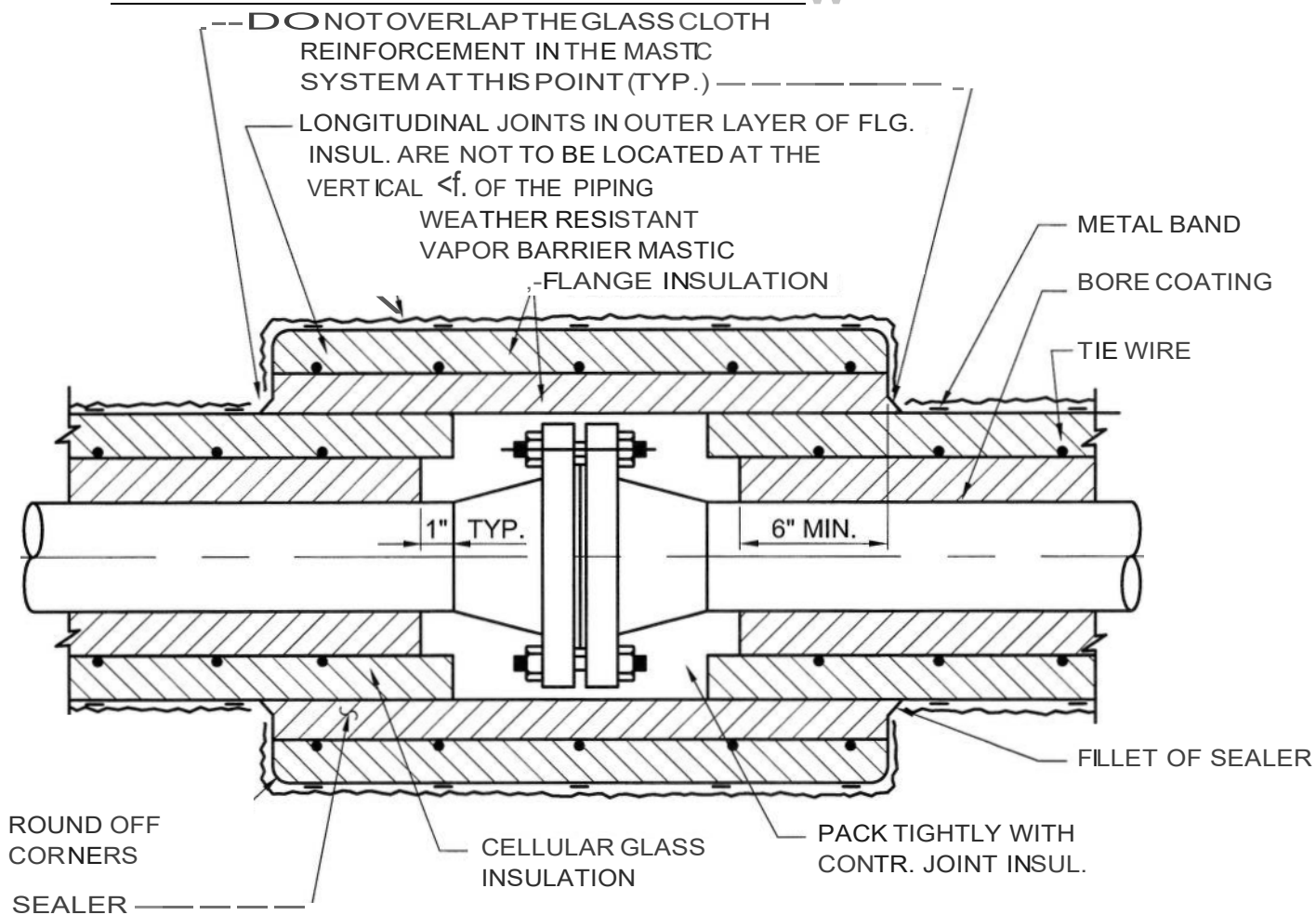
SCALE• NONE SHEET 1 OF 1

Co.d Control No. • FIGURE 4

AI Plot Sco. •
DIJG Hoi

FIGURE 4

REV.



NOTES:

1. THE INSULATION ON THE PIPING ADJACENT TO FLANGES IS TO BE STOPPED SHORT OF THE FLANGE BOLTS IN ORDER THAT THE BOLTS MAY BE REMOVED WITHOUT DAMAGE TO THE ADJACENT INSULATION.
2. FOR TRIPLE LAYER CONSTRUCTION THE SAME METHODS OF APPLICATION ARE TO BE USED AS IS SHOWN FOR DOUBLE LAYER CONSTRUCTION.

**FIGURE 5
FLANGES**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK JR. GIFFORD JULY 19th 1976.

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FLANGES -CELLULAR
FIGURES

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY•	JT/DMD	DATE•	7/12/13
CH&D BY•	KBL	DATE•	7/12/13
SCALE•	NONE:	SHEET	1 OF 1
Cod Control No.>		FIGURE: 5	
Plat Scll..			
DVG Not			REV.

FIGURE S

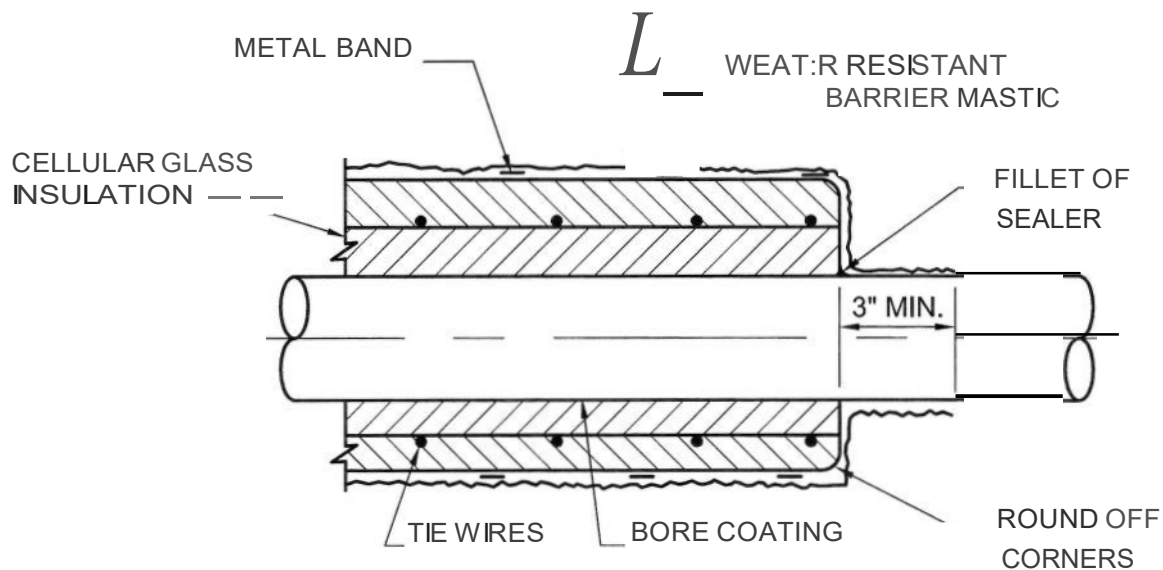


FIGURE 6
TERMINATION OF INSULATION

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.

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TERMINATIONS - CELLULAR
FIGURE6

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY• JT/DMD DATE• 7/12/13

CHKD BY• KBL DATE• 7/ 12/13

SCALE• NONE SHEET 1 OF 1

Code Control NoJ FIGURE 6

AI Plot Scale..

DIJG Not REV.

FIGURE6

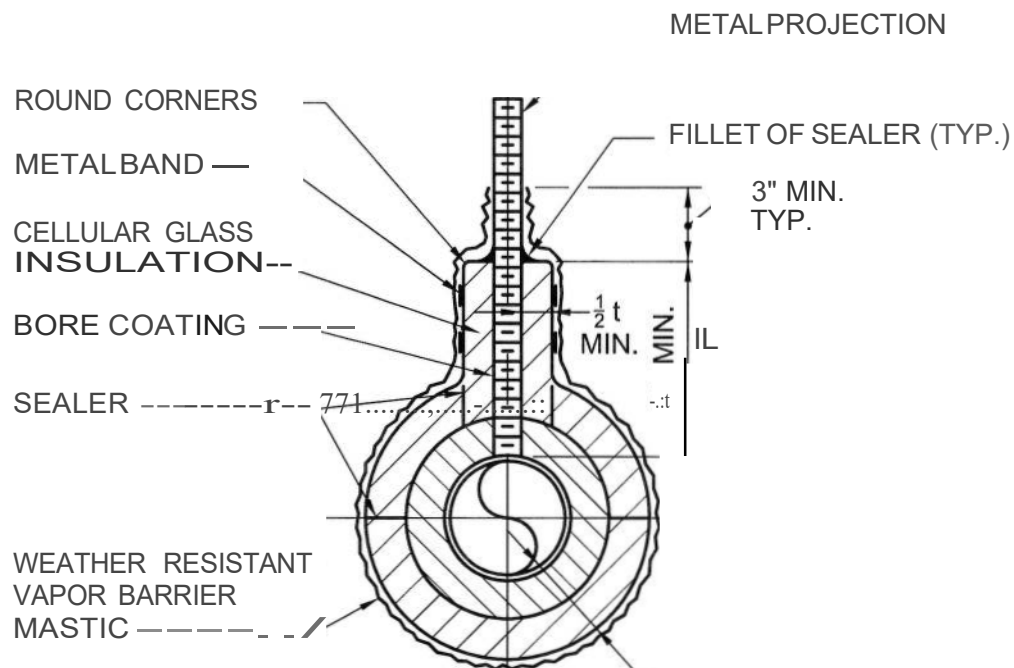


FIGURE 7
SMALL METAL PROJECTIONS

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK JR. GIFFORD JULY 19th 1976.

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SMALL METAL PROJECTIONS
CELLULAR - FIGURE 7

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DESIGNED BY	JT/OMO	DATE	7/12/13
-------------	--------	------	---------

CHECKED BY	KBL	DATE	7/12/13
------------	-----	------	---------

SCALE	NONE	SHEET	OF 1
-------	------	-------	------

Cad Control No	FIGURE 7
----------------	----------

Plot Seal	
-----------	--

DWG Not	REV.
---------	------

FIGURE 7

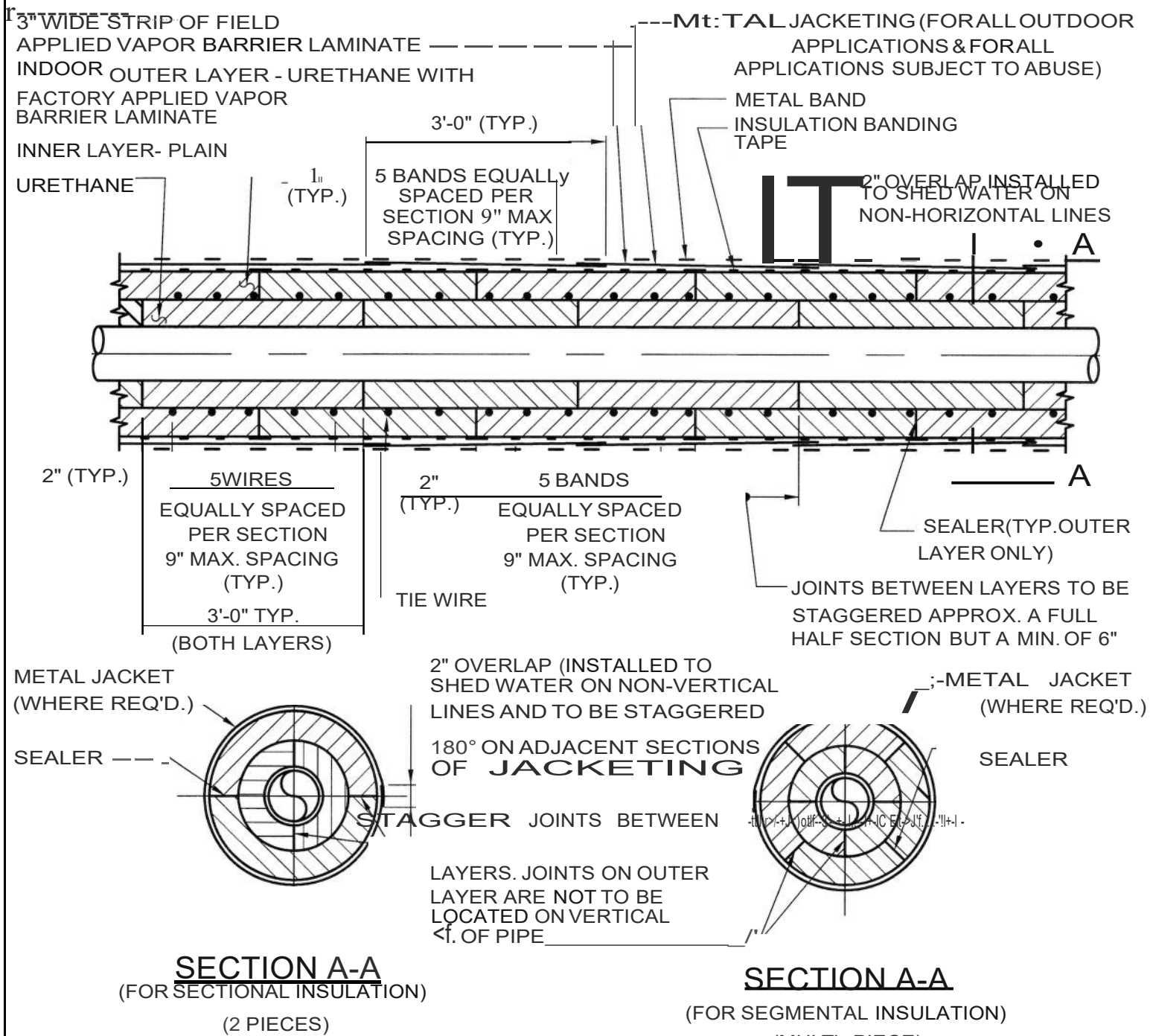


FIGURE 8
STRAIGHT PIPING URETHANE INSULATION

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK/R. GIFFORD JULY 19th 1976.

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STRAIGHT PIPING - URETHANE
 FIGURES

INSULATION OF CRYOGENIC
 & LOW TEMPERATURE OXYGEN
 PIPING ON STANDARD PLANTS

DR/JN BY• JT/DMD DATE• 7/12/13

CHK'D BY• KBL DATE• 7/12/13

SCALE• NONE SHEET 1 OF 1

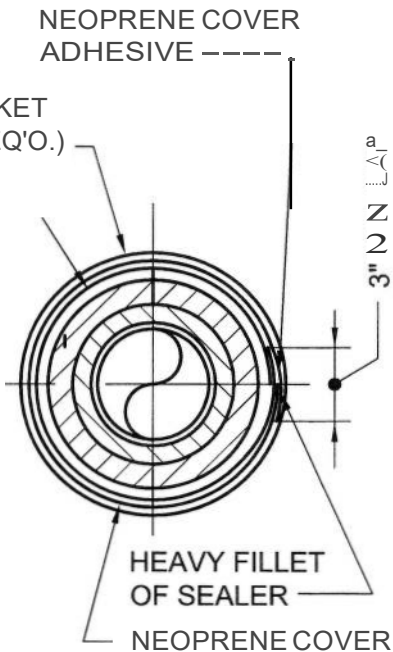
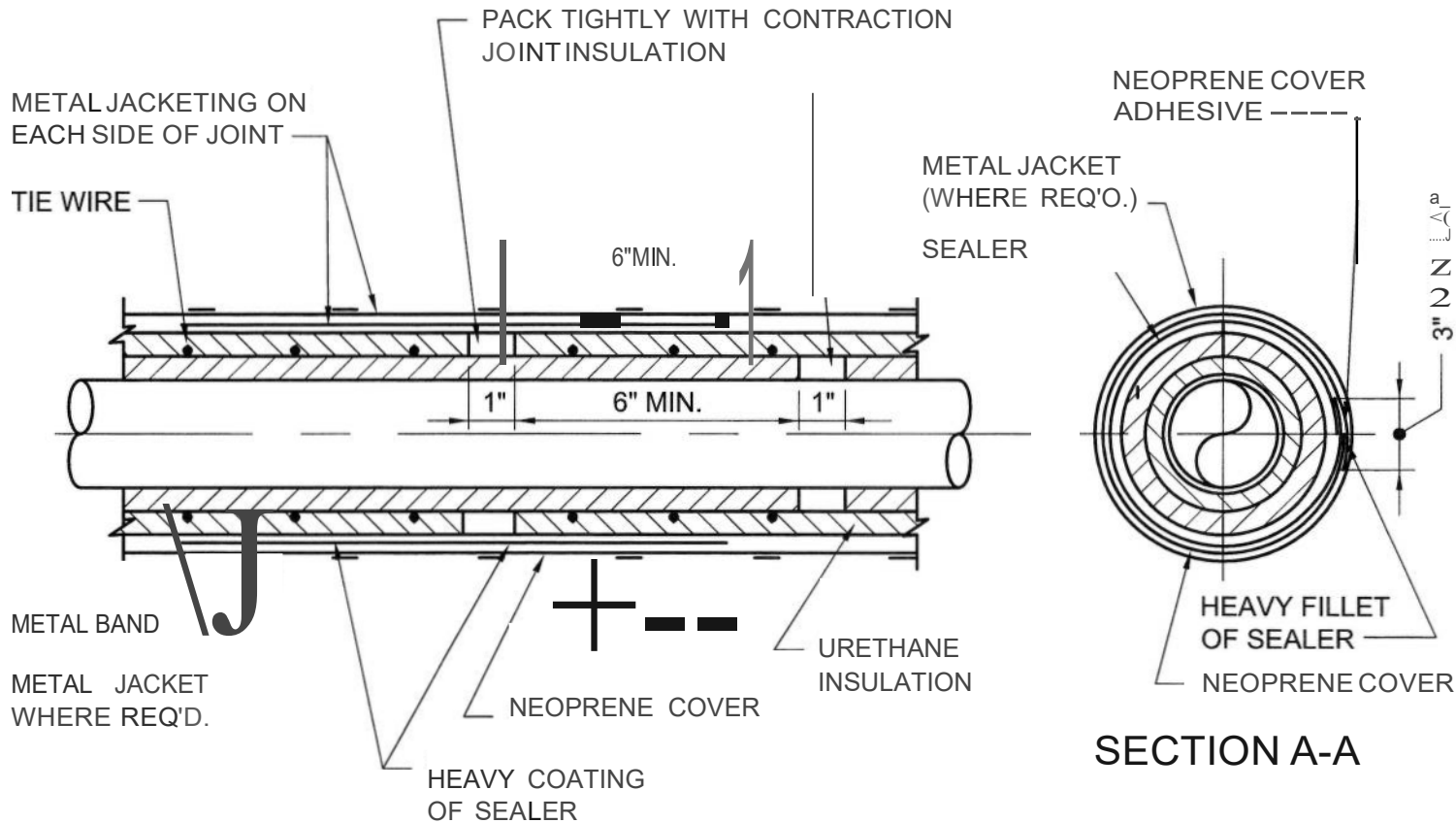
Co.d Control NoJ FIGURE 8

AI Plot Scar••

D/JG Noo

FIGURES

1 REV.



SECTION A-A

FIGURE 9
CONTRACTION JOINT

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.



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CONTRACTION JOINT - URETHANE
FIGURE 9

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRAWN BY: JT/DMD DATE: 7/12/13

CHKD BY: KBL DATE: 7/12/13

SCALE: NONE SHEET 1 OF 1

Control No. FIGURE 9

Plot Seal

FIGURE 9

METAL JACKET
(WHERE REQ'D.)-----

WEATHER RESISTANT
VAPOR- BARRIER MASTIC-----

URETHANE WITH FACTORY
OR FIELD APPLIED VAPOR
BARRIER LAMINATE--

PACK TIGHTLY WITH CONTRACTION
JOINT INSULATION

METAL JACKET
(WHERE REQUIRED)--
WEATHER RESISTANT VAPOR

BARRIER MASTIC (DO NOT
EXTEND BEYOND SLIP JOINT)

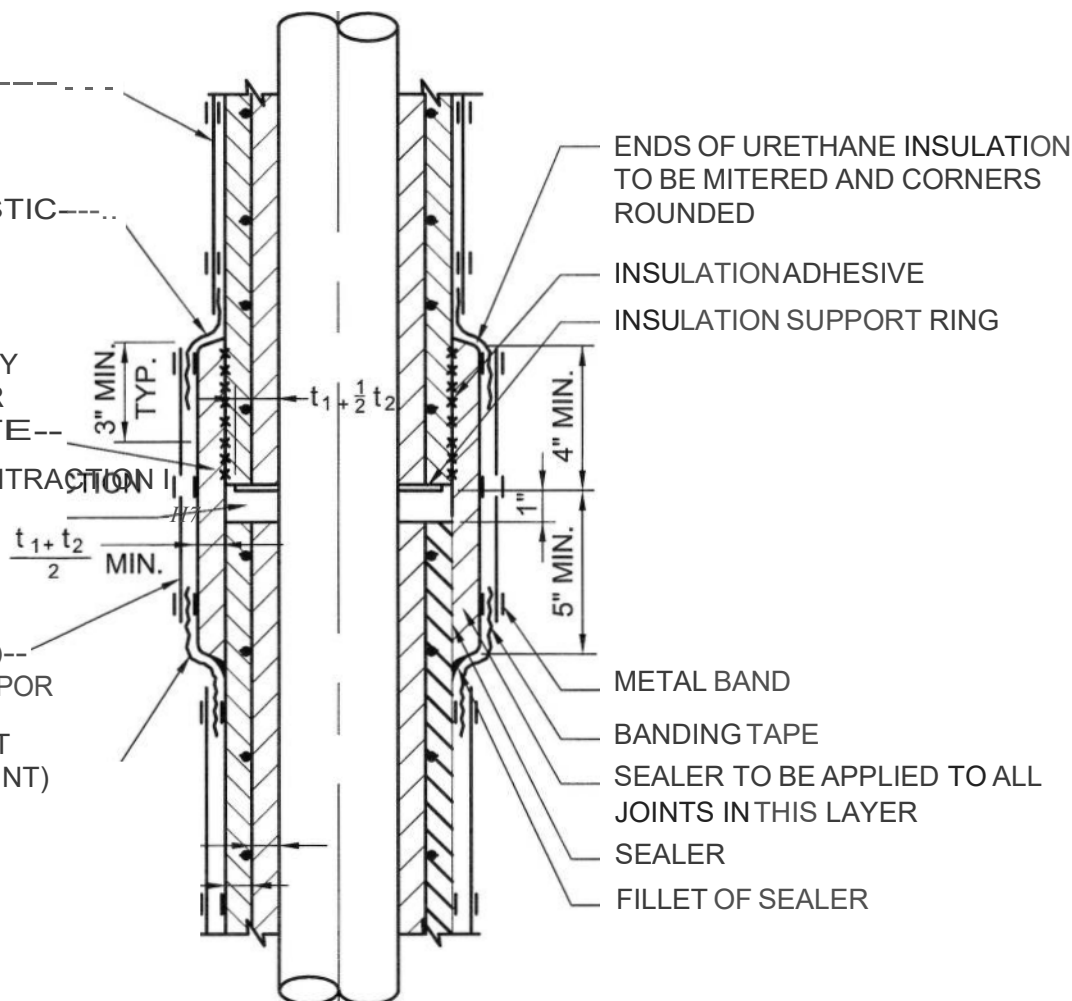


FIGURE 10

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK JR. GIFFORD JULY 19th 1976.

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FIGURE 11

SUPPORT RING

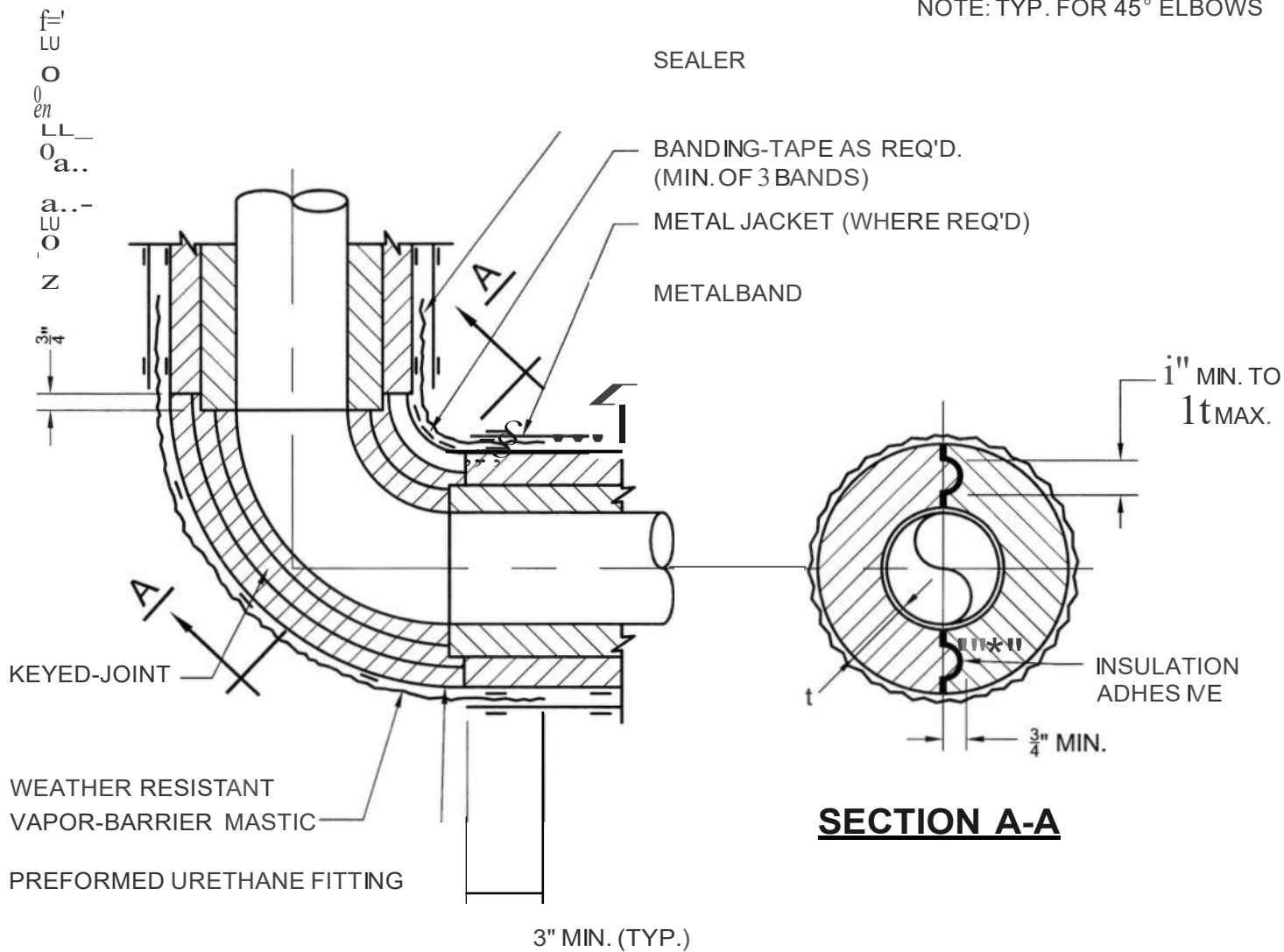
600 JILSrt-I AVE.
NEJARK, NJ 07105

SUPPORT RING- URETHANE
FIGURE 10

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DR'wN BY•	JT/DMD	DATE•	7/12/13
CHI<D BY•	KBL	DATE•	7/12/13
SCALE•	NONE	SHEET	1 Of" 1
Co.d	Con?ol	NoJ	FIGURE 10
A I	Plot:	Sca.le	
DVG N01			REV.

FIGURE 12



**FIGURE 11
TYPICAL ELBOW**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK/R. GIFFORD JULY 19th 1976.

**4 PASSAIC VALLEY
SEWERAGE COMMISSION**

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NEIJARK, NJ 07105

TYPICAL ELBOW- URETHANE
FTGURE II

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRJN BY• JT/DM D DATE• 7/12/13

CHICD BY• KBL DATE• 7/12/13

SCALE• NONE SHEET 1 OF 1

Co.d Control No FIGURE 11

Plot Sco.le•

D'WG No I REV.

FIGURE II

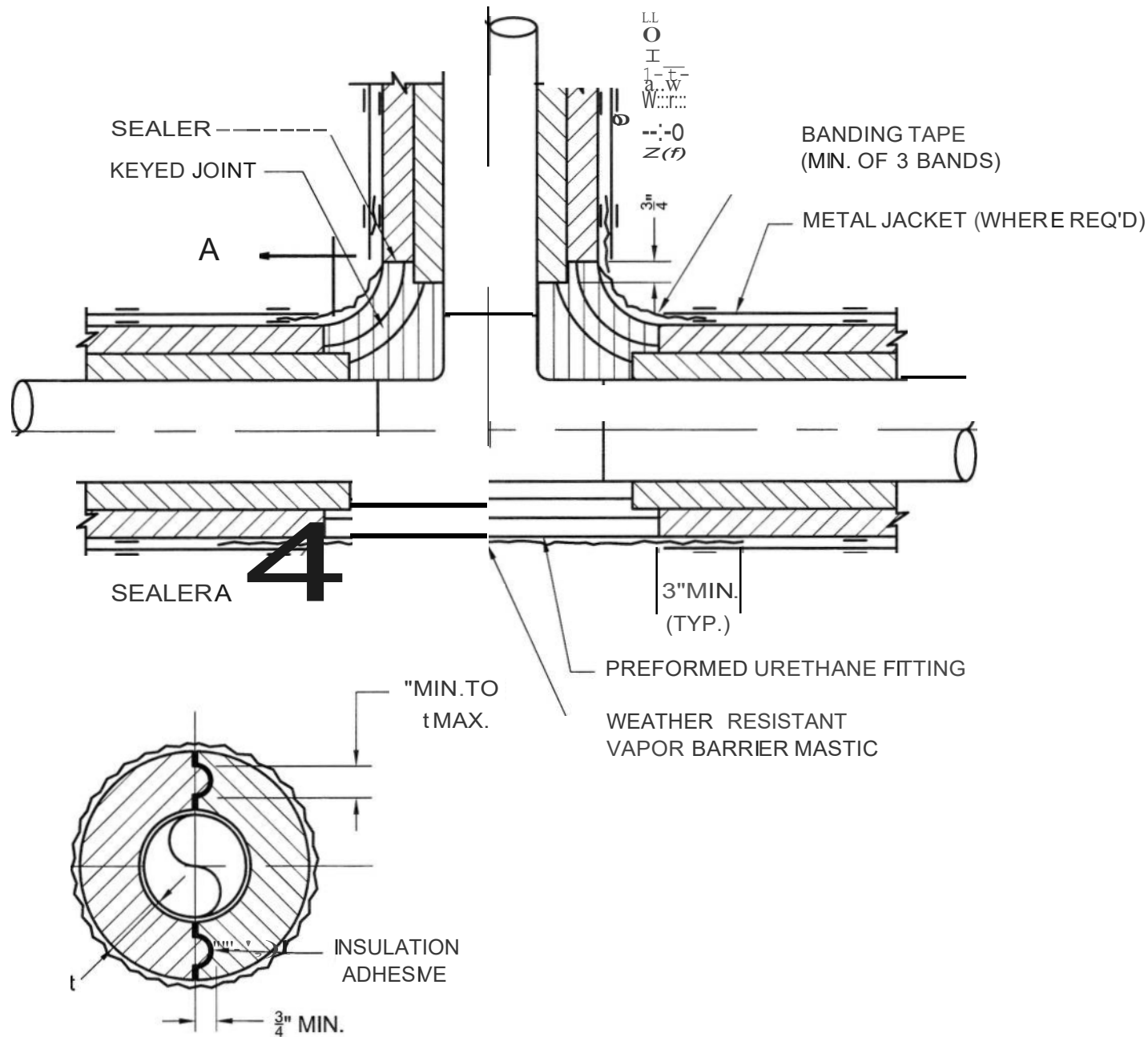


FIGURE 12
TYPICAL TEE

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.

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TYPICAL TEE- URETHANE
FIGURE 12

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRotN BY•	JT/DMD	DATE•	7/12/13
CHI<D BY•	KBL	DATE•	7/12/13
SCALE•	NONE	St&ET	1 IF 1
Cod Control No.<		FIGURE 12	
A I Plot Sco.l.,			
DVG Not		REV.	

FIGURE 12

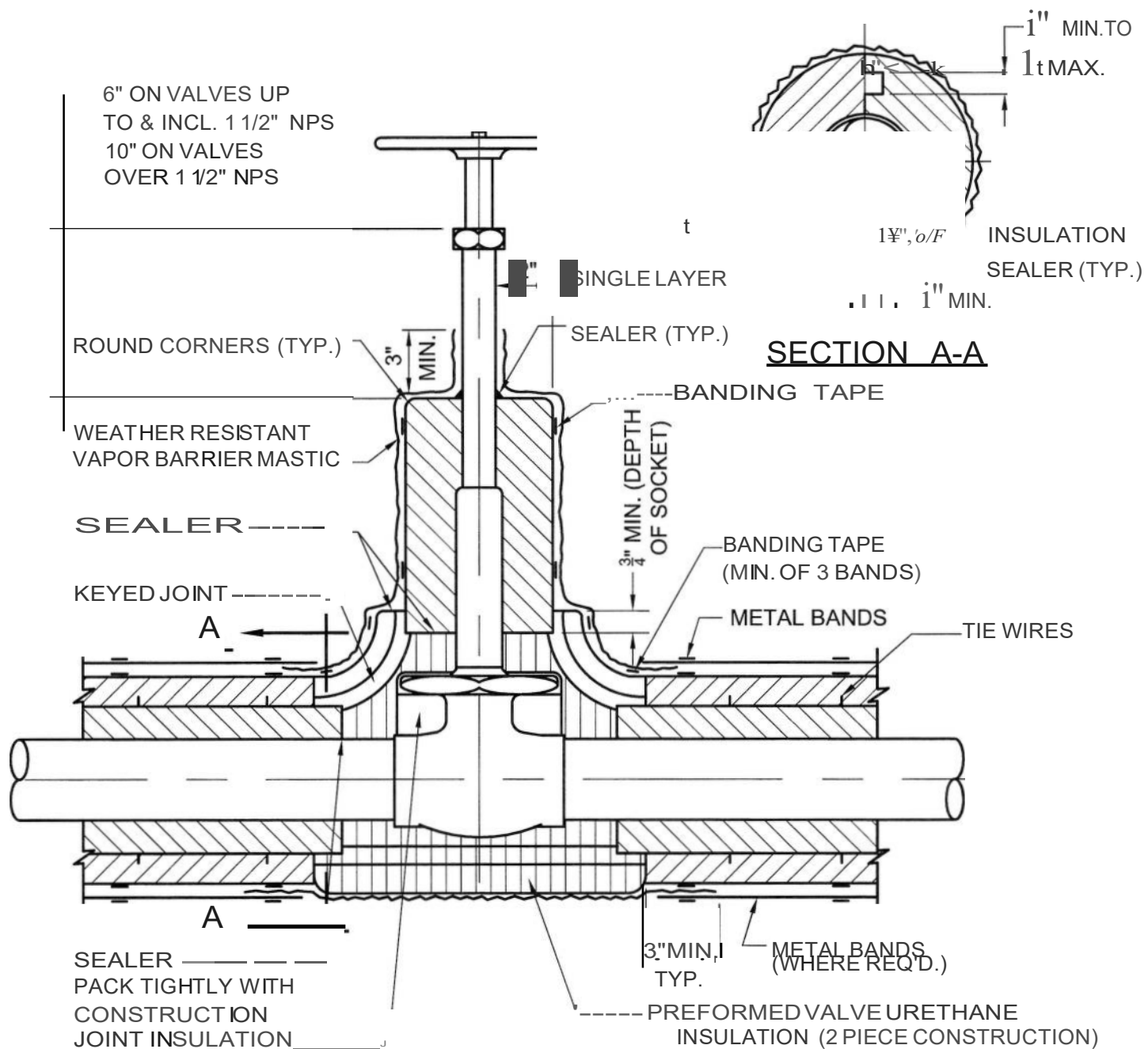


FIGURE 13
EXTENDED STEM VALVE

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICKIR. GIFFORD JULY 19th 1976.

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SEWERAGE COMMISSION

600 JILSCN AVE.
NEJARK, NJ 07105

EXTENDED STEM VALVE
FIGURE 13

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY• JT/DMD DATE• 7/12/13

CH&D BY• KBL DATE• 7/12/13

SCALE• NONE SHEET I D" I

Co.d Control No.I FIGURE 13

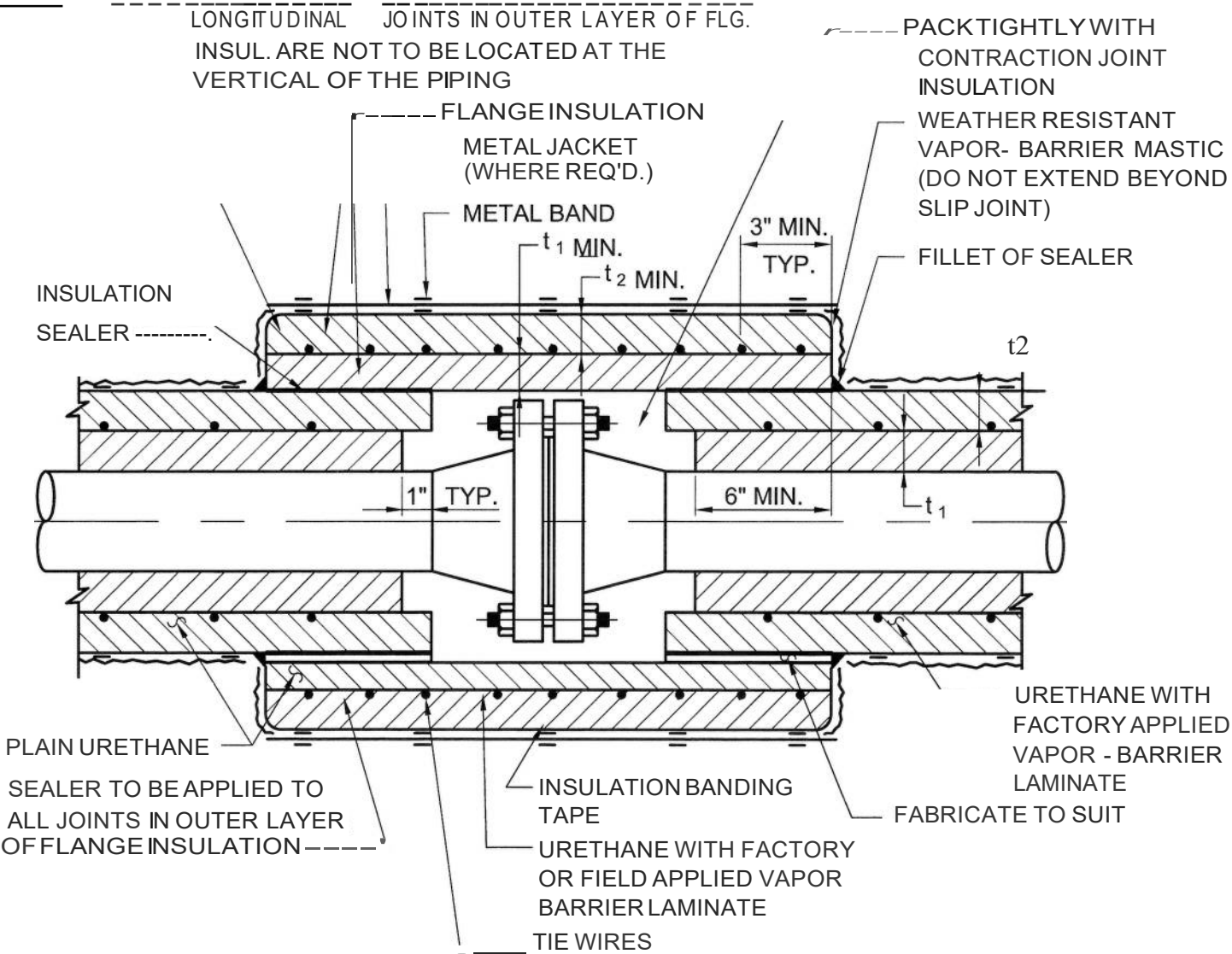
A I Plot Sccte•

DlclG Nco

REV.

FIGURE 13

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NOTES:

1. ALL MATERIALS AND METHOD OF INSTALLATION ARE TYPICAL ABOVE AND BELOW CENTER LINE WHERE APPLICABLE.
2. THE INSULATION ON THE PIPING ADJACENT TO FLANGES IS TO BE STOPPED SHORT OF THE FLANGE BOLTS IN ORDER THAT THE BOLTS MAY BE REMOVED WITHOUT DAMAGE TO THE ADJACENT INSULATION.

**FIGURE 14
FLANGES**

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK JR. GIFFORD JULY 19th 1976.

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FLANGES - URETHANE
 FIGURE 14

INSULATION OF CRYOGENIC
 & LOW TEMPERATURE OXYGEN
 PIPING ON STANDARD PLANTS

DRJN BY•	JT/DMD	IDATE•	7/12/13
CHKD BY•	KBL	IDATE•	7/12/13
SCALE•	NONE	ISIZET	1 IF 1
Ccd Control NoJ FIGURE 14			
A 1 Plot: Sccl•			
DVG Noa	REV.		

FIGURE 14

OUTER LAYER- URETHANE WITH
FACTORY APPLIED VAPOR- BARRIER
LAMINATE

INNER LAYER - PLAIN
URETHANE

METAL BANDS

METAL JACKET (WHERE REQ'D.)

INSULATION BANDING TAPE

FILLET OF
SEALER

3"
MIN.

3"
MIN.

TIE WIRE

WEATHER RESISTANT
VAPOR- BARRIER MASTIC

CORNERS OF INSULATION
TO BE ROUNDED

FIGURE 15
TERMINATION OF INSULATION

NOTES:

1. REDRAWN FROM AIR PRODUCTS
SPECIFICATION #90144A "INSULATION
OF CRYOGENIC & LOW TEMPERATURE
OXYGEN PIPING ON STANDARD PLANTS"
BY A.T. McCARRICK JR. GIFFORD
JULY 19th 1976.

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TERMINATIONS- URETHANE
FIGURE 15

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRIJN BY•	JT/DMD	DATE•	7/12/13
CH-D BYo	KBL	DATEo	7/12/13
SCALEo	NONE	SK:ET	1 OF 1
Co.d Con-trol No.l		FIGURE IS	
A I Plot Sco. eo			
Dit'G Noo		REV.	
FIGURE 15			

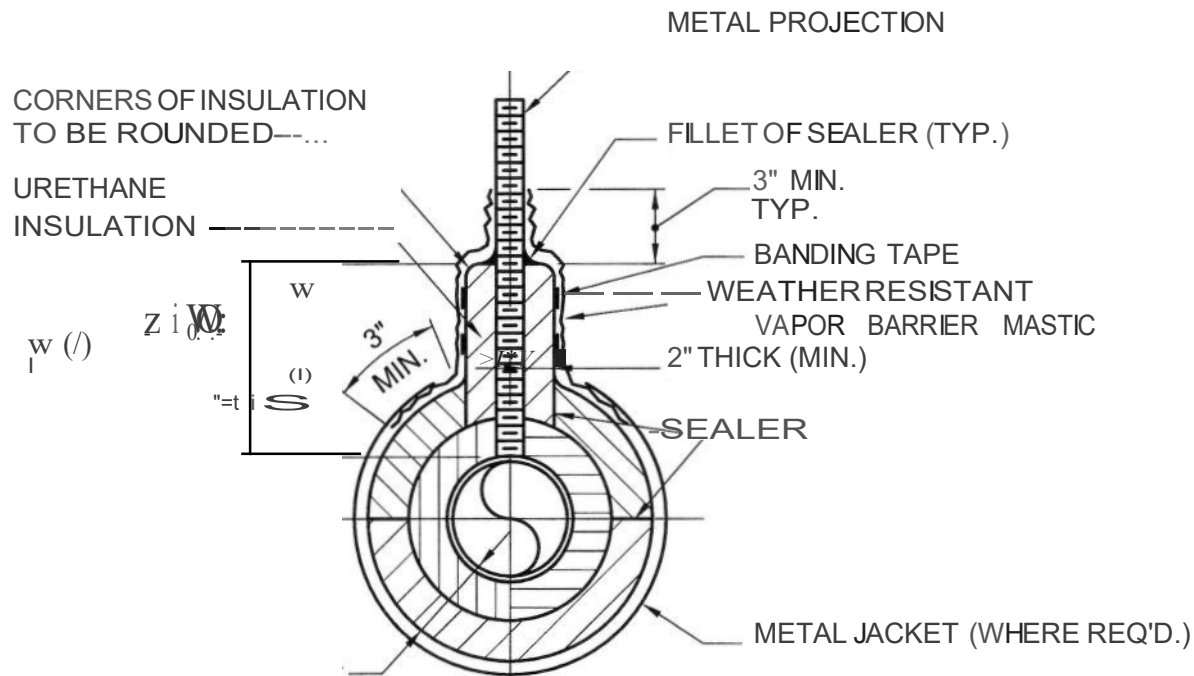


FIGURE 16
SMALL METAL PROJECTIONS

NOTES:

1. REDRAWN FROM AIR PRODUCTS SPECIFICATION #90144A "INSULATION OF CRYOGENIC & LOW TEMPERATURE OXYGEN PIPING ON STANDARD PLANTS" BY A.T. McCARRICK/R. GIFFORD JULY 19th 1976.

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SMALL METAL PROJECTIONS
FIGURE 16

INSULATION OF CRYOGENIC
& LOW TEMPERATURE OXYGEN
PIPING ON STANDARD PLANTS

DRWN BY• JT/DMD DATE• 7/12/13

CHKD BY• LBL DATE• 7/12/13

SCALE• NONE SHEET 1 of 1

Cod Control No.1 FIGURE 16

A I Ptot Scot••

DVG Noo REV.

FIGURE 16