DUKE ENERGY CORPORATION
139 East Fourth Street
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Cincinnati, OH 45201-0960
John J. Finnigan Jr.
Senior Counsell
513.287.3601
513.287.3810 fax

VIA OVERNIGHT DELIVERY

May 3, 2006

Ms. Elizabeth O'Donnell
Executive Director
Kentucky Public Service Commission
211 Sower Boulevard
P.O. Box 615
Frankfort, Kentucky 40602-0615

Re: Application of the Union Light, Heat and Power Company For a Certificate of Public Convenience and Necessity To Construct Gas Distribution Facilities Within Its Service Territory
Case No. 2006-00101

Dear Ms. O'Donnell:

Enclosed please find an original and six copies of the responses of The Union Light, Heat and Power Company d/b/a Duke Energy Kentucky to the Kentucky Public Service Commission Staff's first set of data requests in the above-referenced case. Please note that we included three copies of the attachment binders to KyPSC-DR-01-004 as specified in the data request instead of the original and six copies as specified in the *First Data Request of Commission Staff to The Union Light, Heat and Power Company.*

Please file-stamp and return the two extra copies of this letter in the enclosed over-night envelope.

If you have any questions, please call me at (513) 287-3601.

Sincerely,

John J. Finnigan, Jr.
Senior Counsel

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-001

REQUEST:

1. Provide, for each module, the length, the type of material, and the diameter of the pipes that will be replaced, the costs of replacement, and the name of the contractor.

RESPONSE:

Please see Attachment KyPSC-DR-01-001.

Original

WITNESS RESPONSIBLE: Gary Hebbeler

Duke Energy Kentucky
Response Data Request--KPSC-01-001

Job Name	Projection Cost (1)	Contractor	Total Footage	Material Used For Replacement: 2 Inch Plastic	3 Inch Plastic	4 Inch Plastic	6 Inch Plastic	8 Inch Plastic	2 Inch Steel	4 Inch Steel	6 Inch Steel	8 Inch Steel	12 Inch Steel
Module 311 (2)	2,159,083	KS	14,070	748		5,678	6,403	1,241					
Module 312 (2)	1,425,970	AMS	11,970	93	8	5,993	4,210			228	836	31	571
Module 319 (2)	699,899	KS	6,757	1,999		2,039	2,719						
Module 341 (2)	224,736	Infrasource	2,345	1,020	23	1,302							
Module 348 (2)	1,873,351	Brewer	14,839	5,302		7,358	1,372	749	58				
Module 351 (2)	297,869	Brewer	1,965	1,037		523				405			
Module 352 (2)	1,104,425	Infrasource	10,876	4,576		5,901	356			43			
Module 371 (2)	1,485,381	Brewer	10,866	123	3,709	5,666	1,368						
	9,270,714		73,688	14,898	3,740	34,460	16,428	1,990	58	676	836	31	571

Notes:
(1) Includes contractor labor, materials, company labor, other and loadings.
(2) Contracts have been awarded.

ULH&P Case No. 2006-00191
Attachment-KyPSC-DR-01-001
Page 1 of 1

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-002

REQUEST:

2. Provide the estimated line lengths and costs for the proposed CIMOS replacements, BSMOS replacements, and service line replacements.

RESPONSE:

Projections for CIMOS and Street Improvement jobs that were included in the CPCN filing in March 2006 have changed. Duke Energy Kentucky has received several requests by governmental bodies for Street Improvement jobs that were received after the estimates were calculated for the March 2006 filing. Duke Energy Kentucky expects to install approximately 3,700 feet of main at an estimated cost of about $740,000 for these new Street Improvement requests received to date.

WITNESS RESPONSIBLE: Gary Hebbeler

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-003

REQUEST:

3. Did ULH&P conduct a competitive bid process to select the contractors for its proposed construction? Explain the response.

RESPONSE:

Yes. Duke Energy Kentucky competitively bid all jobs awarded to date and expects to competitively bid the remaining jobs.

WITNESS RESPONSIBLE: Gary Hebbeler

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-004

REQUEST:

4. Provide three copies of the latest ULH&P construction manual that was provided to the construction contractors and inspectors.

RESPONSE:

Please see Attachment KyPSC-DR-01-004. Attachment KyPSC-DR-01-004 is made up of two binders: Gas Department-150, which is the Gas Department's Construction Procedures and Standards and the AMRP 2006 Bid Specifications.

WITNESS RESPONSIBLE: Gary Hebbeler

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-004

REQUEST:

4. Provide three copies of the latest ULH&P construction manual that was provided to the construction contractors and inspectors.

RESPONSE:

Please see Attachment KyPSC-DR-01-004. Attachment KyPSC-DR-01-004 is made up of two binders: Gas Department-150, which is the Gas Department's Construction Procedures and Standards, and the AMRP 2006 Bid Specifications.

WITNESS RESPONSIBLE: Gary Hebbeler

KyPSC Staff First Set Data Requests
ULH&P Case No. 2006-00101
Date Received: April 26, 2006
Response Due Date: May 04, 2006

KyPSC-DR-01-005

REQUEST:

5. Refer to the Supplemental Application, page 2. Provide an estimated cost of operation and maintenance for the proposed facilities. This estimated cost should be ULH&P's best estimate of operations and maintenance costs based on previous AMRP construction modules or projects or other projections that the company determines to be reasonable.

RESPONSE:

Duke Energy Kentucky estimates spending $804,322 for 2006 in Account 887 "Maintenance of Mains." This estimated amount is approximately $24,000 less than Duke Energy Kentucky spent in 2005.

WITNESS RESPONSIBLE: Gary Hebbeler

ULH&P Case No. 2006-00101

Attachment KyPSC-DR-01-004

AMRP 2006 Bid Specifications

Specifications for the 2006 Gas Main Replacement, Relocation, and Extension Projects

The Cincinnati Gas & Electric Co.
The Union Light, Heat, & Power Co.

September 21, 2006

Instructions to Bidders
Standard Terms and Conditions
Technical Specifications
List of Units
Hourly Labor and Equipment
Welding Specifications
GD-150 Construction Specifications
Gas Standards

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1.0 GENERAL

1.1 Scope of Work

The Cincinnati Gas & Electric Company and The Union Light, Heat & Power Company (hereafter "CG&E") both initiated a program in 2001 to replace cast iron and bare steel natural gas mains and residential service lines. The projected completion year for the program is 2010 in Kentucky and 2015 in Ohio.

The total project will consist of the replacement of approximately 1457 miles of cast iron and bare steel natural gas mains with plastic or coated steel pipe, and the renewal and updating of the associated gas services. Work will be required in most communities within the service territory and will be more specifically identified with each years work. Service areas will be broken into modules consisting of approximately 3 to 5 miles of main replacement work using plastic pipe. Most 12-inch diameter or larger pipe replacement work will be let as individual projects and not as a module.

In addition to the replacement work, there are approximately 30 miles of relocation and gas main extensions which are constructed by CG&E each year. These specifications will be used for all Cinergy gas projects except joint trench projects.

Cinergy reverses the right to remove any portion of a project as deemed necessary. This will mainly occur on AMRP modules if a pending street improvement is known or due to budget constraints.

As necessary, Cinergy reserves the option to impose a 10% retainer to all invoices. If the retainer is imposed, the Gas Contractor will be notified prior processing the invoice.

1.2 Standards

All facilities must be installed in accordance with this specification, The Cincinnati Gas & Electric Company's Gas Division specification GD–150 composite, CFR part 192, and all other applicable specifications. Welding shall be completed in accordance with the enclosed specifications.

1.3 Video Taping

Cinergy recommends that the Contractor videotape every project prior to starting. The video is extremely important in settling disputes with governing agencies. If the project is not videoed and there is a dispute between the contractor and the customer, Cinergy will side with the customer.

When videoing, addresses must be indicated verbally or pictorially.

1.4 Construction Drawings

Construction drawings are done by both CG&E employees and by outside design firms (Novak Engineering of Jackson, Michigan; and Energy Management Services of Lexington, Kentucky). Each drawing will provide the name and telephone number of the designing engineer on the prints so the engineer can be contacted for any questions during the replacement work.

1.5 Permits

All permits for the replacement work will be obtained by CG&E, and will be provided to the Contractor prior to the start of work. CG&E will pay all permit fees except cut/fill fees. Cut/fill fees required for dumpsites will not be paid by Cinergy except for material dumped for Tie Ins where the contractor is paid on a time and material (T&M) basis. The Contractor will be responsible for all tree and landscaping damage unless the damage was a result of a direct order by a CG&E employee. Additional compensation will not be paid for any restricted hours identified prior to the bid submittal, whether in the permit book or posted on street signs.

1.6 Meetings

The Contractor will be required to hold weekly on site meetings with the community representatives and the Cinergy inspector to insure immediate handling of all customer concerns. The Contractor will be required to provide the inspector with a proposed schedule prior to the start of work as well as weekly progress reports. Various communities also require a final walk through at the completion of the project.

1.7 Training

CG&E will require polyethylene qualification on all fusion and mechanical connections. Renewal of fusion cards are the responsibility of the contractor. Adequate time must be given by the contractor to CG&E so classes can be scheduled. CG&E will provide training to the Contractor on the renewal of services by insertion and mechanical, installation of meter sets, turn off, turn on and appliance light up. Contractors will be trained for free on Cinergy policies associated with spotting unacceptable meter locations and the identification of tin meters and mercury regulators. Only CG&E personnel shall handle mercury regulators. Safety procedures, grounding procedures and a review for sizing services will also be covered in the training.

1.8 Site Safety

The Contractor will be required to provide emergency numbers to the dispatcher to assure 24/7 coverage. The Contractor will also be required to leave door hangers with business cards, sewer tags and phone numbers for customer contact during and after working hours. A customer notification log must be filled out and returned to the on site inspector prior to the start of any construction.

Picture ID's are required for all Contractor employees. Contract personnel are required to show their ID when asked by customers or CG&E Personnel.

If a block of sidewalk is to be open for more than 48 hours, class 53 temporary asphalt must be used. All tripping hazards are to be avoided in sidewalk areas and where necessary foot traffic will be re-routed when blocking any sidewalk.

2.0 MATERIALS

2.1 Cinergy Supplied Materials

CG&E will provide all piping and associated pipe materials required for the replacement work. All 2", 4", 6" and 8", and some 12" mains shall be yellow medium density polyethylene (MDPE) or epoxy coated steel Grade B or stronger. 12" and 16" coated steel pipe will typically have a wall thickness of 0.219" and 0.250", respectively. Cinergy shall specify the grade and wall thickness of all steel pipes on the construction drawings.

2.1.1 Material Delivery and Tracking

The contractor will be responsible for requesting material as it is needed. The contractor must allow 21 days for material deliveries. It will be the responsibility of the Contractor to meet the truck and to track material received and to provide weekly reports showing material received, material used and material remaining. The material assigned to a module is to be used on that module only. At the end of the project, all surplus materials are to be returned to the storeroom or a credit requisition completed allocating the material to another job. The material must be returned or requisitioned to another job in the same condition that it was received. A 10 % overrun in the quantity of pipe will be allowed for waste. All other unaccounted, damaged or material left unprotected will be the responsibility of the Contractor.

Service Material will be delivered to each Contractor yard. Each Contractor will be required to provide an adequate shelter area with shelves to organize all the service material. The Contractor will provide a person to receive material, organize and reorder material as needed. The Contractor will accept responsibility to ensure reorder is completed as necessary and faxed to 513 287-5434. At the end of each year the Contractor will be required to inventory all service related material including job sites and truck inventory. The material will then be charge credited to the following year service work codes.

2.2 Contractor Supplied Materials

The Gas Contractor is required to provide all materials and equipment other than as indicated on the construction drawings, which is necessary to construct the project. Spray paint used by the contractor for markings must be water soluble and capable of being removed if needed. CDF, CLSM or Flashfill must meet the specifications of the appropriate governing agency (Hamilton Co./Cincinnati, ODOT or KDOT specifications). All welding materials such as welding rods, grinding wheels, clamps, etc is to be provided by the Contractor.

2.3 Contractor Requirements for Coiled MDPE Pipe Delivery & Handling

Pipe trailers will be a requirement for handling coiled pipe. Brecon, Cinergy's material storage facility, does not have the equipment necessary to deliver 6 inch coiled pipe to the job site. CG&E will make every effort to have the large diameter coils delivered to the Contractors'

material holding area at the start of each project. If CG&E is unable to make these arrangements, it will be necessary for the large diameter coils to be picked up at Brecon. Cinergy will pay the Contractor for pick up and delivery in these cases.

2.3.1 Coil Pipe Trailer Capacity Specifications

The coil dimensions of the current Performance Pipe (Driscopipe/Plexco) product that the trailer will need to be able to accommodate is:

Pipe Size	Coil Footage	Wt. Per Coil	Min. Coil ID	Max. Coil OD	Width
2"	500'	315 lbs.	51"	78"	13"
4"	500'	1110 lbs.	68"	94"	41"
6"	500'	2040 lbs.	84"	120"	50"

The capacity of the trailer must be able to accept all current known coil sizes from all major manufacturers of 2", 4" and 6" PE pipe.

2.3.2 Loading System

The trailer will need to have some form of loading mechanism in which the trailer can be field loaded from a Brecon material truck at the job site or loaded at the pipe yard, at the Brecon facility. If the trailer does not have a loading mechanism then the Contractor should make provisions to have the necessary equipment available to safely load the coils without damaging the pipe.

2.3.3 Rerounding/Taming equipment

The Trailer shall be equipped with the necessary equipment to re-round the coiled pipe and remove the curvature conditions created in the pipe by the coiling process. There are no definable parameters to the approved straightness. However, pipe should be able to lie flat in a trench when straightening is complete, as well as not cause additional stress to the pipe when inserting.

3.0 JOINING PIPE

3.1 Welding Steel Pipe

All welds will be made in accordance with CG&E's Gas Division welding specifications:

Specification No. 501-2	Standard Welding Procedure SA-II-A-II: For Steel Pipe with O.D. from 2 3/8" to, and including 12 ¾ " and wall thickness 0.188", up to, but not including 0.250"
Specification No. 501-3	Standard Welding Procedure SA-III-A-III: For Steel Pipe with O.D. greater than 12 ¾ " and wall thickness 0.250", up to, but not including 0.344"
Specification No 501-20	Standard welding Procedure SA-F1-A-V: for fillet welds on steel pipe for socket –weld couplings, slip-on flanges, and full encirclement welding sleeves.

All welders must be pre qualified in accordance with CG&E's Gas Division specifications prior to the start of construction. All testing for welders will be in accordance with API Standard 1104, Section 6.3, at the Contractor's cost.

The contractor must have a copy of the welding specifications for all steel pipeline projects, if not they should request one. F/L projects will have the welding specifications noted on the cover sheet of projects. Contractor can question the specification if they are not in agreement with the required process.

3.2 Joining Plastic Pipe

Butt fusion will be considered the primary method of joining longitudinal sections of plastic main. Rotary scrapers will be required when joining 4" and larger pipe in the ditch. Electro-fusion may be used at the discretion of the on site inspector. Electro-fusion couplings have been ordered for joining insertion or directional bored mains at intervals of 500 feet. Bar clamps should be used to secure 2" coiled pipe when joined by electro-fusion. Vice-grip clamps can not be used when joining runs of plastic mains together.

Two couplings are required per Cinergy Gas Standards when joining directionally drilled pipe. Personnel found joining pipe without the proper line up clamps and fusion equipment will lose their fusion cards., NO SECOND CHANCES WILL BE GIVEN FOR SHORT CUTS WHEN JOINING PIPE.

4.0 MAIN INSTALLATION

4.1 Inspection

CG&E will provide a Gas Inspector on all projects. The inspector will have multiple assignments.

4.2 Depth and Location of Main

All mains are to be installed at a minimum of 30 inches of cover in the sod, 36 inches under hard paving, or additional depths where permits or drawings specify. The State of Ohio Department of Transportation requires 48-inch of cover if the main is within 12-foot of the pavement, The State of Kentucky requires 42 inches of cover when in the road right-of-way and street improvement projects will set the depth or elevation of the main to be installed. Refer to attached letter (Appendix A).

4.3 Installation Methods

Acceptable methods of gas main installation are direct bury, insertion, pipe bursting or splitting, and directional drill.

4.3.1 Direct Bury

Spoil is to be used as backfill whenever practical.

4.3.2 Insertion

Pipelines installed by the insertion method shall include all costs associated with installation including mobilization, stringing, saw cutting of pavement, excavation at the service and tie in connections, removal of spoil, backfill, fusion, compaction, test wires and connections, pipe supports, foam sealing, squeezing off, excavation for utility location, temporary restoration and all final grass restoration, (which includes seed). Also included in the installation cost will be the air testing and the removal of segments of pipe associated with insertion and service reconnection activities. These segments must be removed from the job site and disposed of in an approved landfill. Pipelines will be leak surveyed by the on site inspector in accordance with CG&E standards. Insertion projects will require all customers to be back in service the same day. Crew hours will be paid for main line tie-ins only.

4.3.3 Directional Drilling

Directional drilling is an accepted method for pipe installation and must comply with all the guidelines set forth in this specification. The Gas Engineering Sponsor must approve all directional drilling of standard pressure pipe, pipe that will be drilled in rocky conditions, pipe placed within 3 feet of a paralleling a 3rd party utility, within 3-ft of a City of Cincinnati curb or within 5-ft of any Metropolitan Sewer or Clermont County water or sewer line.

The location and depth of all sewer laterals shall be determined and documented prior to directional drilling gas main to insure there is no conflict between the proposed gas main and the existing sewer. A plan for locating sewer laterals must be submitted to CG&E and approved prior to the Contractor performing any directional drill work; this cost is to be included in the installation price. Acceptable methods for locating the laterals are using a camera or physically uncovering the lateral. The contractor must install a sewer tag on every clean out if the main is directional drilled. Cinergy will provide the tags.

The Contractor must record the location and depth of the directional-drilled gas main at an interval of not less than every fifty (50) feet. The contractor shall excavate two test holes for every 300-500 foot bore to verify the location and depth of the gas main.

Spot holes or locate holes for 3rd party utilities, under hard pavement for directional drill bores should be done with a vacuum truck to eliminate 4 ft. x 2 ft. restoration holes. The City of Cincinnati does require a 1-foot cut back for small restoration areas.

4.4 Damage to Gas Facilities

The Contractor is not to repair any active services or mains that may be damaged during construction. If the Contractor encounters any leaks or anything questionable the inspector is to be notified.

4.5 Strength Testing

The Contractor must supply all test gauges and test recorders (minimum chart size no less than 8 inches) with the appropriate certification sent to CG&E Gas Engineering prior to performing any air test on piping facilities. The testing equipment must be certified annually and the certification sent to Gas Engineering. The Contractor will also be required to have certified purging equipment.

4.6 Restoration

Clean up and restoration on all projects must be in compliance with the local governmental agencies and must be approved by the CG&E inspector. If the permitting agency requires restoration other than Cinergy's standards, a written request must be submitted to the job sponsor prior to the final restoration being preformed.

All final restoration of longitudinal cuts should be rolled even if grind and pave is a requirement of the permit. Cinergy will require all uneven restorations to be redone.

Permits requiring grind and pave will be done at Cinergy's expense, unless it is do to poor workmanship. In some cases the grind and pave would have been waived if the final restoration was smooth.

5.0 GAS MAIN TIE INS

CG&E intends to do all tie-ins with CG&E crews, but the Contractor might be required to redirect contractor crews to complete tie ins in certain situations. Tie-ins will require the installation and tapping of TD Williamson fittings, squeezing polyethylene mains and installing the appropriate saddles and making appropriate taps for connecting to cast iron mains. The Contractor will be required to have the following equipment:

- T D Williamson equipment up to 4-inch. The Contractors are not required to purchase 6 thru 12 inch T D Williamson and other pertinent equipment; however, Cinergy would like the Contractor to own this equipment.
- guillotine saws
- Pressure gages
- Squeeze-off equipment for 2-inch through 8-inch polyethylene
- Stopper bags for 2-inch through 12- inch cast iron
- Pertinent equipment necessary to tie in 2-inch through 6-inch mains steel and polyethylene.

If the contractor assists CG&E crews with tie-ins, the Contractor will be compensated at an hourly rate for the use of tie in equipment. The Contractor will be compensated one additional hour, over and above the tie in time for the transportation and cleaning of the T D Williamson equipment. It will be the responsibility of the Contractor to meet with the Cinergy inspector, prior to scheduling any tie in work, to discuss the equipment and personnel necessary to perform the work. Cinergy will provide pressure crews to assist on tie in and purging activities.

Wipe tests are required when performing tie-ins over 4" in diameter, however, should the Contractor see any liquid condensate, the on site inspector must be notified. Cinergy will provide roll off containers to the contractor. The Contractor is responsible to provide a space for a roll off container to collect possible PCB contaminated pipe. The contract personnel are responsible to keep the roll off container covered at all times.

6.0 GAS SERVICES

The Gas Contractor will be required to renew costumer services from the gas main to the customer's service meter, as needed. Customer service lines are broken into two portions: the main to curb cock portion (M-C) and the curb cock to service meter portion (C-M). The Gas Contractor is required to complete all associated Job Completion Forms (JCF's) with the service work. The completion of the JCF's is required within one day of the completion of the service work. JCF's which are not filled out correctly will be returned to the contractor for correction.

6.1 Main to Curb (M-C) Service

Main to Curb services will be classified as either short-side M-C or long-side M-C. M-C short side services are less than 15 feet in length, regardless of the installation conditions. M-C long side services are 15 feet or longer in length and usually cross under roadways. It is possible to have all long side (crossover) services on a project. The main to curb portion of the service lines must be installed at the depth of 36 inches unless otherwise indicated. Street improvement plans typically contain cross section sheets which should be used to determine the depth of services.

In some insertion projects, it may be possible to reconnect the existing polyethylene main to curb service, should it pass the required pressure test, to the new gas main. This item will be paid on a lump sum basis as a M-C short side service.

When encountering a gas street lamp, the service to this will be considered M-C only and the actual connection to the lamp will be done by the Cincinnati Gas Light Company.

6.2 Curb to Meter (C-M) Service

Within the Cinergy natural gas service territory, the customer currently owns the C-M portion of the service line. Curb to meter services that do not pass the required pressure test or services that are metallic (steel or copper) will be renewed. The renewal work shall include turning on and off the services, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set, setting a new meter bracket, replacing the meter as required, and re-lighting the customer appliances. One extra hole will be paid to dig and separate the existing C-M when needed. Renewed C-M service lines shall be installed at a minimum depth of 18 inches on customer owned property. Gas Contractors are to gas track their own service work and it must be done by someone other than the installer. Every C-M service renewal or meter replacement must be gas tracked the same day it is installed. No leaks will be tolerated on inside meter sets, cards will be pulled.

Existing polyethylene services shall be reconnected to the new mains if it passes testing. The Gas Contractor will be required to turn off and to re-light customer appliances in accordance with the planned service replacement work and the Contractor must notify the Cinergy Inspector of any damaged or faulty appliances. The inspector will then call for a Service Mechanic who will then red tag the appliance if necessary.

Conversion projects where gas services must be converted from standard pressure to intermediate or high pressure will require the installation of regulators and vent piping.

The Gas Contractor will be required to replace tin meters and regulators associated with the renewal of curb to meter services. This replacement cost must be included in the curb to meter renewal unit price. CG&E will train Gas Contractors for free on the policies associated with spotting unacceptable meter and house service line locations and the identification of tin meters and mercury regulators. Only Cinergy personnel shall handle mercury regulators. If the household service lines or meters are found in an unacceptable location, the meters may be relocated to the outside.

7.0 BID ITEMS

CG&E is willing to review Contractor proposed alternatives to the bid items listed in the proposal. CG&E will require the Contractor to provide hourly rates for all labor and equipment such that payment can be made for work not anticipated on the contract.

7.1 Length of Gas Main

The length of gas main will be **paid on a linear foot basis** based on the type and size of pipe and method of installation. Payment will only be made for main that has been placed into service. The bid will specify direct bury or directional drill for 2, 4 or 6 inch main installations. The unit price received for 8 inch and larger mains will be accepted on the basis of direct bury unless otherwise specified by the Contractor. The designer must approve all changes.

Each size pipe shall be measured along the centerline of the pipe through fittings and casements from end to end. Where the pipe changes size, the particular size pipe shall be measured to the center of the transition fitting. The length of gas main installed by the Contractor shall be reported for payment under the units of gas main construction on the Units Work Completed Report. Each unit length of gas main installed shall include costs for:

- Mobilization
- Flag-persons or any arrow-boards
- Incidental items such as landscaping, trees and traffic loops
- Hydroseeding or seed and straw
  - Hydroseeding or seed and straw for tie-in holes should be included in the pipe price.
- Stringing
- Saw cutting of pavement
- Excavating & excavation for utility location
- Removal of spoil
- Joining pipe
- Placing backfill
- Compaction
- Anode installation
- Test connections
- Couplings
- Coating welds and couplings
- Temporary Restoration will be required for sidewalk installation and will consist of Class 53
- Air testing & purge point installation at ends of main (including installation of 8" valve box if backfilled
- Installing a 1 ¼ inch high volume tee to assist in the purging process of SP mains
- Blowing pigs through the new main
  - Two pigs are required for pigging with each lined up nose to nose
- Performing "Gas and Goes"

7.2 Boring – No Casing

This unit will apply to 8 inch and larger facilities. The installation price for 2, 4 or 6-inch bores shall be included in the main installation unit price. This unit is to be reported for payment by size groups of the pipe installed in the bore regardless of the size of the bore and shall include all costs associated with completing the bore as well as setting up the bore machine. The cost of installing the gas main in the bore is in addition to the cost of the actual bore and should be reported for payment under length of gas main installed. Payment for driveway bores will be calculated on the basis of edge to edge, for trees drip line to drip line and landscaped areas from edge to edge.

7.3 Boring – With Casing

This unit is to be reported for payment by the size of the casing that is installed in the bore regardless of the size of the bore and shall include joining, excavation, installation of all insulators, seals and vents in accordance with Engineering Standard 2.12.1. The cost of installing the gas main in the casing is in addition and shall be reported as length of gas main installed. Boring through rock shall not be included in this unit but should be negotiated by the Contractor and the Purchaser at the time such rock is encountered.

Where boring has been specified on the construction plans, boring will be the expected method of installation. The contractor must receive prior written approval from Gas Engineering if directional drilling is to be used in place of boring.

7.4 Valve Assembly Complete

Each valve must be reported for payment on the basis of the size of the valve installed. The unit price for each valve installation includes setting the valve box to proper grade and the installation of pressure stems in accordance with the appropriate standard. For steel valves, the cost of welding the companion flanges, bolting the valve to the companion flange or welding the valve directly onto the line is included in the valve installation unit.

On plastic valve installations, electro fusion couplings will no longer be allowed to be used on the in line portion of a plastic valve. A 3 ft. pup piece must be butt fused on each side of the valve.

7.5 Satisfactory Test Welds / Fusions

Each satisfactory test weld / fusion must be designated by the size of pipe before reporting for payment. The cost of removing the weld / fusion from the line and re-welding / reconnecting the line shall be included in this payment. This unit will not be paid should the weld or fusion fail.

7.6 Services

Main to curb and curb to meter service renewal shall be paid on a lump sum basis. Included in the lump sum payment for main to curb or curb to meter is the associated paperwork, soft

restoration, and traffic control. The Contractor will be required to complete all associated JCF's. Any hard surface restoration required for main to curb or curb to meter service installations will be paid as a separate item. The number of services installed must be reported for payment. The inspector must be notified after a failed service line has been repaired so a record of the event can be logged and the inspector can verify that the repair was adequate.

7.6.1 Main to Curb (M-C) Service Line

The main to curb service will be paid on a lump sum basis by service size (1", 1-1/4", 2" or larger) and method of installation (direct bury, drill or insertion). The lump sum unit cost shall include excavating at the curb valve for reconnecting to the curb to meter portion of the service, and installing weld-o-let, service tee, service piping, curb cock, cap, setting of the curb box to grade, air test, soft restoration, and C-M tie-in. Curb cocks should not be installed in the sidewalk without the inspectors' approval prior to installation. Payment will be made on main to curb services when they are tested with the main.

7.6.2 Curb to Meter (C-M) Service Line

Curb to Meter service renewal will be paid on a lump sum basis for 1" or 1-1/4" service lines based on the type of installation (direct bury, drill, or insertion). The curb to meter price shall include turning on and off appliances, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set (including setting a new meter bracket and replacement of the meter as required), and re-lighting the customer appliances. This lump sum price will apply to a C-M service up to 70 feet in length. Any footage required over 70 feet will be paid at the price of $7.00 per foot (excluding insertions). Payment for curb to meter services will be made when they are placed into service and the restoration and appropriate paperwork is complete on a street. Any additional holes excavated for an outside meter set or changes in elevation, required for renewal of C-M by insertion only, will be paid at a set price of $ 75 per hole.

Large Service Reconnection – The reconnection of polyethylene or coated steel services 2" and larger to the main to curb will be paid on and hourly basis.

Large Service Renewal – The renewal of services 2" and larger will be paid as a bid item. This price shall include turning on and off appliances, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set (including setting a new meter bracket and replacement of the meter as directed by the Gas Inspector), and re-lighting the customer appliances. This price will apply to a C-M service up to 70 feet in length. Any footage required over 70 feet will be paid at the price of $15.00 per foot. Payment for curb to meter services will be made when they are placed into service and the restoration and appropriate paperwork is complete on a street.

7.6.3 Test & Relight

Curb to Meter services that are polyethylene and pass the required pressure test will not be renewed. Test & Re-Light work will be paid on a lump sum basis for polyethylene C-M service lines that pass the required pressure test. The Test & Re-Light work includes turning on and off

the gas service, separating existing facilities for testing, air testing, re-connecting the meter set, and re-lighting the customer appliances according to CG&E approved procedures.

If flexible risers are encountered, they will be replaced at the time of the test and relight unit price plus $75.00 for each additional hole excavated. See attached (Appendix B) sketches for pay item clarification.

If old style regulators with 3/4" vents are encountered, they will be replaced with a new regulator (1" vent). **The new 1" vent pipe shall not be reduced to 3/4".**

Where dwellings with multiple meters are encountered, the contractor will be paid a test & relight price for the first meter and $50 for each additional meter.

7.6.4 Meter Relocation

The cost to move meters from an unacceptable location shall be included in the C-M service unit cost; no additional payment will be made. Any house-line piping that must be relocated will be paid for on a time and material basis. In the case where the meter is in an acceptable location, and the customer asks the Gas Contractor to relocate the meter outside, the Gas Contractor must negotiate a price with the customer for any house line piping that must be relocated. When moving remote meters to the outside, the Contractor must reuse the existing meter and reattach the remote reader and verify that reads of the meter and the remote are the same. When moving meters outside make sure to replace a non-temp compensated meter with a temp compensated meter.

7.6.5 Pressure Conversion Projects

Replacement projects where gas services must be converted from standard pressure to intermediate or high pressure will require the installation of regulators and vent piping. The installation of regulator vent piping will be paid on a pre-set lump sum basis for piping up to 10-feet in length ($55.00) and be paid on a pre-set linear footage basis for lengths over ten feet ($2.50 per foot). Any additional excavation holes will be paid at pre-set price of $75.00 each.

Bid Unit ID 55A-RPR, "Replace Plastic Riser Less Than 2", includes the excavation, installation, soap test, backfill, soft restoration and the relight.

7.7 Main Tie Ins

The time associated with separating the existing facilities and reconnecting to the new main will be paid on an hourly basis. Flag-persons, arrow-boards, and plates required for tie in work will be paid on a time and material basis. Cinergy reserves the right to allocate work to company personnel at any time to provide assistance with the tie-ins, to insure completion in a timely manner.

Tie-in costs shall include the preparation of any and all by-pass requirements, the installation of fittings, such as TD Williamson, excavation, preparing cast iron mains by installing appropriate

saddles and making appropriate taps in accordance with standards, and the abandonment of the existing facilities to include purge and sealing the ends, in accordance with standards.

7.8 Rock Excavation

Refer to specification GD-150 section 10, 10.9.1 to 10.9.5 (GD-147, Contractor's schedule of unit cost) included in this specification.

7.9 Extra Depth

Refer to specification GD-150 section 10, 10.10.1 (GD-147, Contractor's schedule of unit cost) included in this specification.

7.10 Backfill – Bankrun Gravel or Sand in Open Trench (Tons)

The Contractor must provide the number of tons of bankrun gravel or sand installed in an open trench to receive payment under this bid item. The cost of hauling excavated material will not be paid as an extra and must be included in this bid.

7.11 CDF, CLSM or Flashfill

CLSM must be used as required by the appropriate governmental agency or as directed by CG&E. Within the hard surface areas, payment will be made to within 11 inches of final grade. The Contractor must provide the number of cubic yards installed in an open trench to receive payment under this item. The cost of hauling excavated material will not be paid as an extra and must be included in this bid item.

7.12 Restoration

Restoration shall be reported for payment under the appropriate unit cost item. The restoration will be bid on a class basis and must be completed in accordance with CG&E Standard 2.14, Specification GD-161 and the appropriate governmental agency requirements. Common restoration units not identified on the bid will be paid at the pre-set price shown on the attached list (Appendix C).

7.12.1 Soft Restoration

All final soft restoration, seed and straw, shall be included in the length of main installed. Twelve (12) inches of topsoil will be required if granular material is used as a backfill. The Contractor will be required to hydro-seed all soft areas, except when a Cinergy or community Inspector instructs you to seed and straw based on drought conditions. A seed mixture Spec is included. Topsoil is a separate bid item. All service holes outside the pavement area are to be covered with ¾" plywood and flasher barricade or snow fencing.

Soft restoration of tie-in holes should be included in the pipe installation cost regardless of whether CG&E crews or contractor crews perform the tie-in.

7.12.2 Hard Surface Restoration

Restoration for asphalt pavement (street or driveway) will be paid in lineal feet in accordance with the unit price received. This price will apply to restoration completed in conjunction with the lineal feet of excavation required for installing the main and will be based on 2 feet of width. Equivalent footage two feet wide will be calculated for payment for service cuts and bell holes. Any sidewalk removal must be temporarily restored in accordance with local governmental requirements.

Curb ramps may be required at the intersections of streets. All restoration must be in compliance with the municipalities. Cost associtiated with this activity should be included in the integral curb with sidewalk pay item.

Bores under driveways and walkways are not considered hard paving when they are crossed. The entire bore is paid as sod. If the bore crosses a roadway it will be paid at the hard paving rate. Payment for restoration and backfill for directional-drilled facilities will only be made for necessary cuts and not for the entire length of main. Should the Contractor choose to directional drill and pop a driveway, payment will be made for the driveway restoration only and no payment will be made for boring without casing. Should the Contractor pop a street, payment will only be made for a 2 foot wide restoration strip, as would be required for open cut.

7.12.3 Tie-In Restoration

Restoration associated with tie-ins or other areas will be paid on a square yard basis.

7.12.4 Service Renewal Restoration

Any hard surface restoration required for main to curb or curb to meter service installations will be paid as a separate item.

7.12.5 Restoration Not Included on Bid

An addendum letter must be submitted prior to performing the work to the Job Sponsor. Prices on the pre-set small restoration unit price list should be used, refer to (Appendix C). Small restoration units will be paid cumulatively if completed in the same week.

7.12.6 Warranty of Restoration

The Contractor shall warrant materials and workmanship for a minimum period of one year from the final acceptance date of the project. All necessary repairs or replacements shall be made at

the Contractor's expense. If after a period of one year, the surrounding area does not deteriorate and the repaired area does, the Contractor will be partially responsible for making a new repair.

7.13 Miscellaneous

1- Consideration will be made to pay a welder to cut streetcar tracks. There will be no down time for the crew. The concrete removal will be paid in accordance with the rock unit after the first 11-inches from the street.

2- Northern Kentucky Sanitation District has requested that they be contacted when their facilities are damage. Refer to attached letter (Appendix D).

3- Test Holes will be paid as follows:

In Sod	$75, includes seed restoration
In Pavement	$150, restoration will be paid as a separate item

Any test hole required to spot utility crossings and to verify depth on directional drills will not be paid.

4- Traffic loops will be the responsibility of the contractor and should be included in the pipe price.

5- All railroad crossing permits were applied for by CG&E assuming that the crossings will take place with cased pipe bored at minimum 5.5' of cover below tracks. If the Contractor want to directional drill the crossing, the main has to be 10 below the tracks. If the change to directional drilling creates a problem with the original permit the Contractor will not be reimbursed for any down time. It is the contractor's responsibility to notify CG&E of their intention to directional drill the crossing and to allow adequate time to obtain a change in the railroad permit. If time does not allow for a change in the permit the contractor is expected to bore the crossing.

6- The City of Covington has submitted a restoration requirement for brick streets. Refer to attached letter (Appendix E).

7- The City of Cincinnati has submitted a general guideline of their traffic control requirements and usage of LSM and concrete. Refer to attached notes (Appendixes F).

8.0 COMPLETION OF WORK

No work shall be completed unless it is accepted by the authorized agent of the Contractor and the authorized agent of CG&E. Work must comply with the proposal and any written negotiations associated therewith. The completion report is a listing of units installed or total number of hours of worked to complete the job.

The purchaser will track units of work completed as well as the associated hours such that productivity data can be collected for future cast iron and bare steel modules.

All work must be completed in the field by December 1, 2005 and all invoices received by December 15, 2005. However, all 12-inch main work must be completed in the field by October 27, 2005.

9.0 INVOICING

Contractors must meet with Inspectors on a weekly basis to complete sign off sheets on all projects (preferably Friday evening or Monday morning). The Inspector's copy is immediately forwarded to the invoice desk. The Contractor's copy is forwarded with the invoice to the invoice desk. Only one project can be billed on an invoice. Do not send two or more projects on one invoice or the invoice will be rejected. Do not add any items after the document has been signed. If there are additional items, sign out an additional sheet with the inspector. If the restoration is not completed when an invoice is payable, the payment will be held until the Supervisor accepts the completed work.

Items which were not bid (addendums) should not be invoiced with items that were bid. Also, any time and material (T&M) requests should be invoiced separate of bid items. T&M invoices should be accompanied by the daily sheets for each date that T&M was requested. The daily sheets should clearly identify the start and stop times for the T&M on each date along with the inspector's signature for approval on that date.

All invoices must be submitted such that the units to be invoiced, previous units invoiced and total units invoiced are shown. All invoicing must be submitted in this manner. A sample invoice is enclosed. Send all invoices to:

Cast Iron / Bare Steel Invoice Desk,
139 East 4th Street, Room 405-A
Cincinnati, Ohio 45202

RFQ DOCUMENT

MAIN RFQ

ATTACHED DOCUMENTS

REVIEW FILES

EXHIBIT A – Certification Of Bidder Regarding Collective Bargaining

EXHIBIT B - The Cincinnati Gas & Electric Company Contractor Corporate Safety Assessment Form

EXHIBIT C - Certified Minority & Women Business Enterprises Contracting Report

EXHIBIT D – CPE-10- Cinergy Contractor Labor Rate and Evaluation Form

EXHIBIT E -The Cincinnati Gas & Electric Company Standard Terms and Conditions Construction of Gas Facilities.

EXHIBIT F – Specifications for the 2006 Gas Main Replacement,Relocation, and Extension Projects

EXHIBIT G – Welding Specifications (See Specifications for 2006 Gas Main Replacement, Relocation, and Extension Projects Note Book Dated September 21, 2005)

EXHIBIT H – Gas Standards – Separate Note Book

EXHIBIT I – Gas Operations' Specification GD 150

PACKAGE FILES

CinergyGasBid.exe

GasBid.hlp

G-4934.zip

I. INTRODUCTION

A. Request for Quotation Terminology

Throughout this Request for Information, terminology is used as follows:

"Supplier" refers to all companies that are invited to participate in the RFQ

"Bidder" refers to all companies that participate in the RFQ

"Company" or "Contractor" means the firm or corporation to whom the RFQ originator has awarded the contract, the selected vendor

B. Purpose

The purpose of this Request for Quotation (RFQ) is to invite potential suppliers to participate in an Online Bid for The Cincinnati Gas & Electric Company Gas Installation Project:

Job Number	Job Name	Engineer	Start Date
Module 312	05-8312-0	Dan Schuler	1/1/2006
Module 362	05-8362-5	Dan Schuler	1/1/2006
Module 353	05-8353-4	Dan Schuler	1/1/2006
Module 319	04-8319-8	Dan Schuler	1/1/2006
Module 331	05-8331-0	Dan Schuler	1/1/2006
Module 354	05-8354-2	Dan Schuler	1/1/2006
Module 311	05-8311-2	Dan Schuler	1/1/2006
Plainfield Rd.	02-7338-3	Dan Schuler	1/1/2006
Wm. H. Taft	04-1019-1	Dan Schuler	1/1/2006
E. Mitchell	04-1005-0	Dan Schuler	1/1/2006
Hamilton Ave	04-1069-6	Dan Schuler	1/1/2006

Each Job will be awarded as a separate project.

All facilities must be installed in accordance with The Cincinnati Gas & Electric Company's Gas Operations' Specification GD-150 composite, CFR Part 192, The Cincinnati Gas & Electric Company Standard Terms and Conditions Construction of Gas Facilities, and all applicable specifications.

The Contractor shall comply with all Federal, State, and local laws, rules, orders, ordinances, regulations, and other requirements applicable to the Work and the performance thereof, including the Operator Qualification (OQ) rule (49 CFR 192 & 195).

Any contract performing pipeline construction for The Cincinnati Gas & Electric Company must submit a copy of their drug and Alcohol Testing Program in accordance with 49A C.F.R. Parts 199 and 40 to:

Coordinator, DOT

Energy Delivery Safety & Techincal Traininng CSC

139 East Fourth Street Room M77 Main

Cincinnati, Ohio 45202

All excavation work must be done in compliance with OSHA Construction Standards for Excavations, Subpart P.

The Standard Terms and Conditions, and Technical Specifications are attached.

C. Confidentiality

Suppliers who participate in this Pantellos RFx must keep all information provided by The Cincinnati Gas & Electric Company and Pantellos confidential. All information provided by The Cincinnati Gas & Electric Company or Pantellos, whether written, oral, observed, or in electronic form, should be considered confidential. This includes all bidding information submitted and witnessed in the online marketplace.

Any supplier who does not honor these confidentiality provisions may be excluded from participating in any The Cincinnati Gas & Electric Company and Pantellos supply opportunities as well as be liable for other remedies provided The Cincinnati Gas & Electric Company by law. In addition, if a supplier observes practices that are unethical or counterproductive to the fair operation of the online marketplace, they should notify The Cincinnati Gas & Electric Company or Pantellos immediately. Unless directed otherwise by The Cincinnati Gas & Electric Company and Pantellos, all RFQ documentation, including all copies thereof in whatsoever form or medium, should be destroyed at the conclusion of this bidding process.

D. Submitting Your Bids

a. The Cincinnati Gas & Electric Company intends to bid using this RFx tool and award only to suppliers who participate using this RFQ mechanism, and will not award this business to any non-participating supplier.

b. Suppliers who participate in this Pantellos RFx agree to:

i. Furnish Supervision, Labor, and Equipment for the hauling of material and the complete installation of gas mains and services in accordance with The Cincinnati Gas & Electric Company drawings and specifications listed in this bid proposal.

ii. All Work shall be performed in accordance with the Company's Standard Terms and Conditions Construction of Gas Facilities, Cinergy Gas Standards, Welding Specifications, Specification GD-150, Technical Specifications, Bid Document, Construction Drawings, and any other documents, drawings, specifications or other instruments ("Documents"), which are to be used and considered by Contractor, as applicable, for the performance of the Work herein. The Terms and Conditions and the

Specifications GD 150 shall be attached hereto and incorporated herein. All other Documents shall be obtained by Contractor and/or provided to Contractor by Company or other party upon request, and all such Documents shall be incorporated herein by reference. Contractor shall ensure that it has any and all such Documents for the performance of the Work prior to the commencement of such Work.

iii. Test(s); 90 to 100 psig Air, 24 hours.

iv. The expense of incidental hauling material will be included with the rest of the bid package and not paid as an item.

v. The unit cost prices shall include all cost incidental to quantities itemized above. Any other unit work not included shall be submitted by the Contractor in advance of performing the work. Extra work beyond the scope of the project will be allowed upon approval of the Superintendent, Contractor Construction Management or Project Engineer, or both, at the bid prices.

vi. Invoices rendered for any work done on orders resulting from this proposal shall distinguish between materials, and labor.

vii. Note: If a copy of current insurance coverage has not been submitted, please submit a copy of your certificate of insurance to our Purchasing Department before completing your bid.

viii. The Cincinnati Gas & Electric Company Contractor Corporate Safety Assessment Form must be completed and submitted.

ix. A specific contract will be issued to the awarded contractor for this project.

x. In the future, electronic invoice settlement will be implemented at The Cincinnati Gas & Electric Company. Notice is given that it shall be necessary for the Contractor to have the capabilities to transmit invoices and/or receive payment in electronic form. Electronic invoice and receipt settlements will assist both Parties in reducing transaction cost

E. Cinergy Contact Information

Please direct all questions relating to this RFQ must be submitted using the Question Function in the Pantellos RFx Tool.

II. SCHEDULE

The schedule for this Event is as follows:

RFQ distribution	September 21, 2005
Bids due	**October 10, 2005 at 2 PM EST**

The above dates are subject to change by The Cincinnati Gas & Electric Company or Pantellos at any time.

III. RFQ INSTRUCTIONS AND RULES

Review the attached instructions in **Preview Files** and **Package Files** use the **Gas Bid Application.**

Please complete the Gas Units Bid amounts with some practice numbers using CinergyGasBid.exe and then uploading the below file to the RFx Management tool;

G-4934Return"yourname".zip

Please also summit a filled out; **"The Cincinnati Gas & Electric Company Contractor Corporate Safety Assessment Form", "Certified Minority & Women Business Enterprises Contracting Report", "CPE-10- Cinergy Contractor Labor Rate and Evaluation Form", and "Certification Of Bidder Regarding Collective Bargaining"** along with the **"G-4934 Return"yourname".zip."**

VI. RIGHTS OF BUYER AND SELLER

A. The Cincinnati Gas & Electric Company reserves the right to award all or none of the volume via this RFQ process.

B. The Supplier's bid is binding for 120 days following the RFQ per the terms of this contract. Should The Cincinnati Gas & Electric Company decide to accept the Supplier's bid, the Supplier is obligated to sign a contract that meets its lowest bid price with the same terms and conditions as this RFQ. Each contract will be binding for the period of performance associated with the terms of the lot..

C. Subbidders

a. It is the Bidder's responsibility to gather, copy, and dispense all information to its subbidders regarding provisions of this specification and any other information the subbidder may require preparing its proposal. However, no specification, drawing or other bid document shall be reproduced or disclosed to third parties for purposes other than stated herein without The Cincinnati Gas & Electric Company consent.

b. Contact between subbidders and The Cincinnati Gas & Electric Company shall be only through the Bidder, and the Bidder shall so inform its subbidders to that effect.

c. The Cincinnati Gas & Electric Company will not enter into a contract with Bidder's subbidders, and Bidder will so inform its subbidders to that effect.

d. Bidder shall list subbidders, if any, to be used during the project in the proposal. Subbidders shall be listed in the pricing section or on separate sheets attached to the proposal.

D. The Cincinnati Gas & Electric Company reserves the right to accept or reject any and all bids.

E. Although price is the significant driver, The Cincinnati Gas & Electric Company reserves the right to consider other factors in making its final decision to award the contract.

VI. Women and Minority Business Enterprises

As a member of the National Minority Supplier Development Council and its affiliate councils, Cinergy has made a strong commitment to assist in the development of minority and women-owned businesses. It is our goal to

increase the number and capacity of minority and woman-owned firms, to broaden their experience and expand their abilities. Therefore, Cinergy will favorably evaluate the opportunities provided to certified minority and woman-owned firms when selecting suppliers and contractors from which we purchase goods and services. Cinergy requires suppliers to provide an opportunity to certified minority and woman-owned businesses; thus, information provided with your proposal which describes your commitment to utilizing minority and woman-owned firms to fulfill this agreement will be a consideration during evaluation. Please submit along with other bid information a sub-contracting plan outlining the methods, services and suppliers you will utilize in fulfilling this contract should it be awarded to your company. Failure to return this completed form and all other documentation relative to this project may invalidate your bid.

V. Pre-Bid Meeting And Site Inspection

A. A pre-bid meeting and site inspection will be held on Thursday, September 21, 2005 at 9:00 A.M., at Front and Rose in the upstairs meeting room. Bidder attendance at the pre-bid meeting and site inspection is mandatory unless specifically exempted by The Cincinnati Gas & Electric Company's Representative.

B. Minutes of the pre-bid or proposal review meetings may be prepared by The Cincinnati Gas & Electric Company and any decisions or agreements reached therein shall become part of the Contract or Purchase Order.

VI. Terms Of Payment

The payment shall be paid by The Cincinnati Gas & Electric Company to Contractor Net Forty Five (45) days after the date of receipt of the invoice statement.

VII. Proposal Distribution

All RFQ responses, questions and answers must be submitted using the web-based RFx solution. If you need assistance using RFx, please contact Pantellos Support at 1-877-777-4888.

This Attachment requires the BIDDER to disclose organizations with which it has collective bargaining agreements.

CERTIFICATION OF BIDDER
REGARDING COLLECTIVE BARGAINING

Bidder's Company Name: _____

Address: _____

1. Bidder will perform the work described by this proposal under a valid, existing collective bargaining agreements with one or more labor organizations? _____ YES _____ NO.

   If yes, list the name of the collective bargaining agreement and the applicable organizations:

NAME	LOCAL #
_____	_____
_____	_____
_____	_____
_____	_____

2. Labor wages included in the "bid price" comply with Federal Labor Standards and prevailing trade rates currently prescribed? _____ YES _____ NO.

DATE: _____ _____
Signature of officer or agent

(This attachment must be completed and returned with the proposal documents; failure to do so may result in bid disqualification.)

The Cincinnati Gas & Electric Company
Contractor Corporate Safety Assessment

Do you have a safety mission statement?_____ If yes, Please state _____

_____

_____

_____

Do you have annual safety goals? _____ If yes, your goals are: _____.

OSHA 200 Safety history for the most recent 3 years. RATE = INJURIES X 200,000
Use the following formula for incident/accident rate: ACTUAL HOURS WORKED

Year	05	04	03
1. OSHA recordable incident rate.	_____	_____	_____
2. Number of recordable injury cases	_____	_____	_____
3.Lost time accident rate	_____	_____	_____
4. Number of lost time accidents	_____	_____	_____
5.Total number of hours worked	_____	_____	_____
6.Number of fatalities	_____	_____	_____
7.Your Experience Modification Rate (EMR)	_____	_____	_____

Has your company received an OSHA citation within the last 3 years? _____ If yes, explain the nature of each citation and list the citation amount. (Attach extra sheet if needed.)

_____

Does your company have safety meetings for field employees? _____ If so how often? Daily / Weekly / Monthly?

Do you conduct field safety inspections? _____ If so by whom _ How often? Quarterly / Annually?

Does your crew hold daily job briefings? _____ Are they recorded? _____

How many hours of safety training/orientation are conducted for field personnel?_____. How often?_____

Do you have a safety incentive program? _____

Do you maintain inspection records on your equipment? _____

Do you have a feedback system for safety concerns arising from hazard assessments/field inspections?_____

If yes. Please explain._____

_____

CONTRACTOR:

Sign: _____

Print: _____

Title: _____

Address: _____

_____

Date: _____

CERTIFIED MINORITY, WOMEN AND DISADVANTAGED BUSINESS ENTERPRISES SUB-CONTRACTING REPORT

CINERGY

I. GENERAL INFORMATION

DATE

SUPPLIER NAME

TYPE OF BUSINESS

PROJECT NAME

ANNUAL SALES $

VALUE OF CONTRACT $

YEARS IN BUSINESS?

HAVE USED M/W/SDBs ON PREVIOUS PROJECTS? YES ☐ NO ☐

PREVIOUS YEARS DOLLARS CONTRACTED TO CERTIFIED M/W/SDBs? MBE $

WBE $

SDB $

INDICATE IF YOU ARE A CERTIFIED: MBE ☐ WBE ☐ SDB ☐

MBE: MINORITY BUSINESS ENTERPRISE WBE: WOMAN-OWNED BUSINESS ENTERPRISE SDB: SMALL DISADVANTAGED BUSINESS

(ATTACH PROOF OF CERTIFICATION AND COMPLETE ONLY SECTION II)

II. CERTFIED MBE/WBE/SDB INFORMATION

LIST ALL MBE/WBE/SDB SUBCONTRACTOR(S) CONTRACTED AND TO BE USED ON THE PROJECT AND SUBCONTRACT PRICE

NAME & PHONE NUMBER	SERVICE/GOODS TO BE PROVIDED	AMOUNT $	% OF CONTRACT	CHECK ONE MBE	WBE	SDB
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐

III. SOURCING EFFORT FOR CERTIFIED MBE/WBE/SDB

LIST ALL MBE/WBE/SDB SUBCONTRACTORS CONTACTED THAT WILL NOT BE USED ON THE PROJECT

NAME	ADDRESS	PHONE NUMBER	CONTACT PERSON	CHECK ONE MBE	WBE	SDB
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐
				☐	☐	☐

IV. LIST ANY ORGANIZATIONS, AGENCIES, OR GROUPS THAT YOU CONTACTED TO SOURCE CERTIFIED MBE/WBE/SDB BUSINESSES

(SEE REVERSE SIDE FOR SUGGESTED ORGANIZATIONS)

NAME	ADDRESS	PHONE NUMBER	CONTACT PERSON

SUGGESTED SOURCES

SOUTH CENTRAL OHIO MINORITY BUSINESS COUNCIL 513-579-3104

INDIANA REGIONAL MINORITY SUPPLIER DEVELOPMENT COUNCIL 317-923-2110

CITY OF CINCINNATI DEPT OF ECONOMIC DEVELOPMENT 513-352-3950

NATIONAL MINORITY SUPPLIER DEVELOPMENT COUNCIL 212-944-2430

NATIONAL ASSOCIATION OF WOMEN IN CONSTRUCTION 1-800-552-3506

NATIONAL ASSOCIATION OF MINORITY CONTRACTORS OF INDIANAPOLIS 317-876-1611

NATIONAL ASSOCIATION OF MINORITY CONTRACTORS OF SOUTHERN OHIO 513-579-3132

CPE-10 Cinergy Contractor Labor Rate and Evaluation Form

SPECIFICATION:
LOCATION:
STATE:
CONTRACT PERIOD: **FROM:** _____ **TO:** _____

CRAFT JOB TITLE:
TRADE UNION IF APPLICABLE:
INDICATE LOCAL IF APPLICABLE:
CONTRACT WAGE EXPIRATION DATE:

	Straight Time Calculation	Premium Time Calculation	
Enter the $/Hr for both Craftsman Wages & Fringe Benefits:		Time & 1/2	Double Time
BASERATE - Wage Portion (Actual Contract Wage Rate) $/Hr.	$/HR (Baserate)	$/Hr.	$/Hr.
Fringe Benefits (Contractual Contributions) $/Hr	$/Hr (Rate for Hours Worked)	$/Hr (Rate for Hours Paid)	$/Hr (Rate for Hours Paid)
Total Wages and Fringe Benefits	$0.00 $/Hr	$0.00 $/Hr	$0.00 $/Hr
For the Items Listed Indicate Cost as a percentage of the BASERATE:			
Insurance & Taxes:			
SUTA Statutory Rate: _____; Proposal Rate:	Percent of Baserate	% of Payrate	% of Payrate
FUTA Statutory Rate: _____; Proposal Rate:	Percent of Baserate	% of Payrate	% of Payrate
FICA	Percent of Baserate	% of Payrate	% of Payrate
Work.Comp Statutory Rate: _____; Proposal Rate:	Percent of Baserate	% of Payrate	% of Payrate
Insurance - PL & PD	Percent of Baserate	% of Payrate	% of Payrate
Supplies & Small Tools			
Consumable Supplies [Define on attachment]	Percent of Baserate	% of Payrate	% of Payrate
Small Tools ** [Define on attachment]	Percent of Baserate	% of Payrate	% of Payrate
Field Office Overhead Cost (without time extension)			
Superintendent, Timekeeper, Planner, and others	Percent of Baserate	% of Payrate	% of Payrate
Total Percent of BASERATE for Insurance, Tax, and Field Overhead.	0.00 % of Baserate	0.00 % of Payrate	0.00 % of Payrate
Contractor Direct Cost Subtotal	$0.00 $/Hr.	$0.00 $/Hr.	$0.00 $/Hr.
Per Diem, Overhead & Profit			
Living Expense/ Per Diem [Define on attachment]	Percent of Baserate	% of Baserate	% of Baserate
Home Office Overhead [Define on attachment]	Percent of Baserate	% of Baserate	% of Baserate
Profit or Fee	Percent of Baserate	% of Baserate	% of Baserate
Total Percent of BASERATE for Per Diem, Overhead and Profit	0.00 Percent of Baserate	0.00 % of Baserate	0.00 % of Baserate
SUBTOTAL	$0.00	$0.00	$0.00
Gross Receipts Tax (if applicable) 1.2%	percent	percent	percent
Total Billable Rate to Owner	$0.00 **$/Hr.**	$0.00 **$/Hr.**	$0.00 **$/Hr.**

** Small tools are defined as construction equipment costing less than $2,000.

CONTRACTOR: _____ **DATE:** _____

SIGNED BY: _____ **TITLE:** _____

The Cincinnati Gas & Electric Company
Standard Terms and Conditions
Construction of Gas Facilities

January 17, 2005

The Cincinnati Gas & Electric Company
Standard Terms and Conditions
Construction of Gas Facilities

Standard Terms and Conditions

1. SCOPE

These Gas Facilities Construction Terms and Conditions cover the general requirements for maintenance and construction of the replacement of gas main, associated services and meters, as required and contracted for by CG&E. The Terms and Conditions as listed herein and all accompanying documents referenced in Articles 1 and 2 and all other articles of this document are hereto be incorporated by attachment or reference into any purchase order, contract, agreement or other instrument[s] issued to Contractor for the Work.

2. GENERAL

2.1 Work to be performed is described in the project Specifications designated by the Contract and any drawings, descriptions and diagrams are incorporated herein by reference and made a part thereof.

2.2 In the event that documents incorporated by reference herein set forth conflicting requirements, the order of precedence shall be as described in Article 3.1.5 hereof.

3. DEFINITIONS

3.1 Wherever the following words and expressions are used in the Contract documents, it is understood that they have the meanings defined below:

3.1.1 CG&E - The Cincinnati Gas & Electric Company and its subsidiary, The Union Light, Heat & Power Company and their proper successors and assigns.

3.1.2 Representative - The designated corporate officer for CG&E or their designated representative or representatives.

3.1.3 Contractor - The person, persons, partnership, company or corporation, including any of its subcontractors or successors, heirs and assigns undertaking the performance of Work required by this Contract or any other Work that subsequently becomes a part of the Contract by attachment or incorporation by reference hereto.

3.1.4 Agreement - The document signed by Contractor and CG&E which confirms all agreements and commitments made by the Parties which may not be adequately described in other Contract documents; it may be omitted by mutual agreement of Contractor and CG&E.

3.1.5 Contract - The composite of the commitments of Contractor and CG&E covering the performance of the Work. The components of the Contract are as follows, listed in their order of precedence: (1) mutually agreed changes to the Contract and amendments to the Contract subsequent to the date of Contract execution; (2) the Agreement, if any; (3) the Contract, excepting those terms & conditions printed on reverse side thereof; (4) these Terms and Conditions/Construction of Gas Facilities; (5) project Specifications, including special and technical conditions and other documents referenced within the Specifications

and all modifications thereof incorporated into any of said documents prior to the date of Contract execution; and (6) designated industry standards.

3.1.6 Specifications - Collectively, all the technical conditions, drawings, data, designs, inventions, standards, and other technical information supplied by CG&E and such amendments made or to be made thereto pertaining to the performance of the Work or to quantities and qualities of materials furnished under the Contract.

3.1.7 Drawings - Collectively, all the drawings, sketches or maps referenced in the Contract and incorporated by reference or attachment hereto, and also such supplementary drawings, sketches, or maps as CG&E may issue from time to time in order to expand upon said Drawings.

3.1.8 Work - Labor, supervision, methods, materials, Equipment, engineering and professional services, transportation, and any and all other means necessary to complete the Contract.

3.1.9 Equipment - Collectively, all the tools, apparatus, supplies, and equipment necessary to complete the Contract, including necessary vehicles and facilities for transportation of materials and supplies furnished by Contractor or to Contractor by CG&E.

3.1.10 Completion - Unless the Contract clearly indicates otherwise, conforming the Work with the Drawings and Specifications for the Work; returning to CG&E all excess, retired, or maintenance materials and supplies pertaining to the Work; submitting to CG&E all other documentation required by the Representative; and providing the required assistance for testing and energizing, final turnover, and final clean up; all to the satisfaction of and acceptance by the Representative.

4. TIME AND ORDER OF COMPLETION

4.1 Time is of the essence in the Completion of the Contract, and Contractor agrees that Work shall be commenced and carried on at such points, in the order of precedence, and at such times and season as may be required to meet CG&E's schedule for performing and completing the Work. Contractor declares that it has familiarized itself with the sites of right-of-way, with all local conditions and with all circumstances which may or are likely to affect performance and Completion of the Work, and that it has allowed for such conditions in the preparation of the schedule and its bid.

4.2 No necessity for an extension of time is anticipated. If extraordinary circumstances should arise which are beyond the control of the Contractor, Contractor may file a written request for an extension, documenting therein the need for an extension. If the Representative, in his/her sole discretion, determines to grant the request, the extension shall not be a basis for any claim for additional compensation by the Contractor and shall not operate to release Contractor from its contractual obligations, or be deemed to waive any future claim that CG&E may have against Contractor for failing to comply with Article 4.1.

4.3 In the event Contractor fails to perform the Work in accordance with the schedule agreed upon by the Parties, CG&E shall have the right to terminate the Contract for cause pursuant to Article 18, Termination Provisions. Whether or not CG&E elects to terminate the Contract at a given time shall in no manner be deemed as a waiver of CG&E's right to exercise this option in a subsequent failure of compliance by Contractor. Contractor shall be liable for any and all direct, indirect, and consequential damages resulting from Contractor's failure to comply with the scheduled Completion date. The schedules of this project are considered to be a significant provision thereof, and any failure of Contractor

to comply with contractually scheduled completion dates is considered to be a material breach of the Contract.

4.4 At any time during Contractor's performance of the Work, should CG&E determine that the Contractor may not meet the schedule agreed upon by the Parties for the Completion of the Work, CG&E has the right to request adequate assurance from the Contractor that the Work will be completed in accordance with the schedule. Contractor shall provide the requested assurance in writing within the time set forth by CG&E. Should Contractor fail to provide adequate assurance to CG&E in writing or if such assurance is not satisfactory to CG&E, CG&E may consider either instance a demonstration of the Contractor's inability to perform the Work in accordance with the schedule and may consider such an anticipatory breach of the Contract. As such, CG&E may retain the services of third parties to complete any and all portions of such Work and deduct the compensation for such third party work and incidental expenses related thereto from the amounts to be paid to the Contractor for the relevant portions of the Work, and CG&E may terminate the Contractor with respect to such Work pursuant to Article 18, which shall be at CG&E's sole discretion. Any termination of the Contract under this paragraph shall be deemed to be termination for cause. The remedies afforded CG&E under this paragraph are in addition to any other legal or equitable remedies that may be available to CG&E in accordance with applicable law.

5. CONSTRUCTION SCHEDULE

After notification of award and prior to start of any Work, Contractor shall, when required by the Contract or the Representative, submit its proposed construction schedule to the Representative for approval. The schedule shall be written in sufficient detail to show the chronological relationship of all major aspects of the project, including estimated starting and completion dates of various activities, procurement of materials and scheduling of Equipment.

6. INDEMNIFICATION

6.1 Contractor shall be liable for all damages or injuries occurring to persons or property that are caused by its negligence or its failure to comply with the Terms and Conditions of the Contract. Further, Contractor hereby agrees to, and shall indemnify, hold harmless and defend CG&E during the period of any applicable statute of limitation from and against any and all actions or causes of action, claims, demands, liabilities, losses, damages, infringement of intellectual property or other proprietary rights, or expenses of whatever kind or nature, including attorneys' fees, which CG&E may suffer or incur by reason of bodily injury, including death, to any person or persons, or by reason of damage to or destruction of any property, including the loss of use thereof, arising out of or in any way connected with Contractor's activities pursuant to this Agreement where the Contractor, its agents, employees, representatives, or subcontractors is negligent, resulting in any expenses that CG&E may sustain or incur in conjunction with any litigation, investigation, or other expenditures incident thereto, including any suit instituted to enforce the obligations of this agreement of indemnity, whether or not due in whole or in part to any act, omission or negligence of CG&E or the representatives and employees of CG&E, except insofar as such indemnity arising out of such injury or damage is caused by the sole negligence of CG&E, their representatives or employees. Contractor's indemnification obligation shall not be limited in any way by any limit on the amount or type of damages, compensation, or benefits payable by or for Contractor or any third party under worker's damages, compensation, disability or other employee benefits acts, nor by the provisions of any required insurance. The foregoing notwithstanding, CG&E

agrees to hold harmless, defend and indemnify Contractor against any claim or liability arising from the presence or release of mercury, or any damage or expense caused by such mercury, at the time of the Work or any subsequent time thereafter, at customer premises in connections with its operations in removing gas meters and regulators, except for claims and/or liabilities that arise from Contractor's negligence or any third party working under the direction of Contractor.

6.2 Contractor hereby agrees to, and shall, indemnify, defend, and hold harmless CG&E from any and all claims, demands, actions, causes of action, liabilities, and expenses of whatever kind or nature, including attorneys' fees, that CG&E might suffer or incur by reason of Contractor's breach of this Contract or violation or breach of any other written or verbal contract, purchase order, commitment, or agreement executed in connection in any manner whatsoever with the Work and to which Contractor, its agent or representative is a party.

7. RELEASE AND REIMBURSEMENT

Contractor shall release, exculpate and hold harmless and shall reimburse CG&E, their agents and employees from and for all claims, losses, damages, costs and expenses, including attorneys' fees, arising or alleged to arise, in whole or in part, from injury to Contractor, their representatives, employees or subcontractors, including death, damage to their property, loss of use thereof, or breach of contract or agreement, arising or alleged to arise out of or in any way connected with the Work provided pursuant to the Contract by Contractor or the agents, employees or subcontractors of Contractor, except to the extent caused by the sole negligence or willful misconduct of CG&E, their agents or employees.

8. LIMITATION OF LIABILITY AND ACTION

CG&E shall not be liable to Contractor for anticipated or speculative profits or for incidental, punitive, indirect, or consequential damages. The liability of CG&E on any claim of any kind for any loss or damage arising out of or in connection with, or resulting from the Contract or from the performance or breach thereof, and which has not been cured by CG&E within ninety (90) days after written notice from Contractor of the claim, shall in no event exceed the price allocable to the unit of Work which gives rise to the claim. CG&E shall not be liable for penalties or interest of any description, or any other expenses therefrom. Any action resulting from any alleged breach on the part of CG&E as to the Work performed hereunder shall be commenced within one (1) year after the cause of action has accrued.

9. INDEPENDENT CONTRACTOR

Contractor shall perform its duties under the Contract as an independent Contractor and not as an agent or employee of CG&E, and nothing contained in the Contract shall be so construed as to justify a finding of the existence of any relationship between Contractor and CG&E inconsistent with that status. Contractor shall have exclusive control of and responsibility for its labor relations.

10. ASSIGNMENT AND DELEGATION

Contractor and its subcontractors shall neither assign any of their rights nor delegate any of their duties under the Contract without the prior written consent of CG&E. If delegation

is permitted by CG&E, Contractor shall still continue to be responsible for the Completion of the Contract.

11. PROTECTION OF MATERIAL AND WORK

Contractor shall at all times protect and preserve all materials, Equipment of every description, including property which may be furnished by CG&E, and all Work performed. For this purpose, to the satisfaction of the Representative, Contractor shall provide all storage warehouses, adequate housing or other protection against deterioration and damage. If, as determined by the Representative, materials, Equipment, and Work performed are not adequately protected by Contractor, such items may be protected by CG&E and all costs thereof shall be charged to the Contractor or deducted from any payments due it.

12. REMOVAL OF EQUIPMENT

Contractor shall not sell, assign, mortgage, pledge or remove Equipment or materials which have been installed or which are necessary for the Completion of the Contract without the written consent of the Representative.

13. WORK PERFORMED AT CONTRACTOR'S RISK

The Contractor shall take all precautions necessary, shall be responsible for the necessary expenses and safety of the Work, and shall maintain all lights, guards, signs, temporary passages or other protection necessary for that purpose. All temporary facilities shall be removed by Contractor when no longer required. All Work shall be done at the Contractor's risk, and if any loss of or damage to the property of CG&E or others shall result from fire or from any other cause, the Contractor shall at its own expense promptly repair or replace such loss or damage to the satisfaction of the Representative. If the Contract provides for the loading, unloading, transit and/or erection of Equipment, Contractor shall be fully responsible for all loss or damage to said Equipment from whatever cause; such responsibility to commence when the Equipment is available for such loading or erection. Contractor waives all claims against CG&E for loss or damage to Contractor's property. The Work shall be carried on to Completion without damage to any Work or property of CG&E or others, and without interference with the operation of existing machinery or equipment.

14. INSPECTION AND RIGHT OF ACCESS

14.1 Contractor shall notify the Representative twenty-four (24) hours prior to commencing Work at a CG&E location. CG&E shall have the right to inspect thoroughly all Work furnished under the Contract. Contractor shall furnish to the Representative access at all times to the Work and to the premises used by the Contractor, and shall provide the Representative every reasonable facility for the purpose of inspection, even to the extent of discontinuing portions of the Work temporarily, or of uncovering or disassembling portions of finished Work.

14.2 When finished Work is taken down or disassembled for purpose of inspection, Contractor shall incur all expenses incident thereto in the event that said Work is found to be defective. CG&E will pay the costs incident thereto in the event that Work taken down or disassembled for inspection is found to be in accordance with the Specifications. If the Contractor should fail to replace any defective Work after reasonable notice, the Representative may cause such defective Work to be replaced, and the expenses thereof

shall be charged to the Contractor or deducted from the amount to be paid the Contractor. In addition to the remedies set forth above, CG&E, at its sole option, may cancel the Contract in accordance with Article 18, Termination Provisions.

15. DAMAGED OR DEFECTIVE WORK

If the Work or any portion thereof is damaged in any way, except by acts of CG&E, or if defects, including latent defects, shall develop before final Completion and acceptance of the Work, Contractor shall, without compensation, correct such damage or defects in a manner satisfactory to the Representative.

16. MODIFICATIONS OF METHODS AND EQUIPMENT

Contractor alone shall be and remain liable and responsible for the safety, efficiency and adequacy of its methods, materials, working force and Equipment. However, if at any time Contractor's methods, materials or Equipment appear to the Representative to be unsafe, inefficient or inadequate for securing the safety of the workmen, the public, the quality of Work, or rate of progress required, or if at any time the Contractor's working force and Equipment, in the opinion of the Representative, shall be inadequate for securing the necessary progress, as stipulated in the Contract or on the Contract, the Representative may give notice to the Contractor of the problem and they shall meet promptly to address the problem. If they are not able to resolve the matter to Representative's satisfaction, Representative may order Modifications to those methods, materials, or Equipment or may, in writing, order the Contractor to provide a written program to rectify the problems identified and the Contractor shall comply with such orders to such an extent as to give the Representative reasonable adequate assurance of compliance with the schedule of completion. Failure of Representative to make such demands shall not relieve the Contractor of its obligation to provide the quality of the Work, the safe conduct of the Work, and the rate of progress required by the Contract.

17. DISCONTINUANCE OF WORK BY REPRESENTATIVE

17.1 The Representative shall have the right to order temporary discontinuance of the Work or any portion thereof when, in the opinion of the Representative, performance thereof by the Contractor is unsatisfactory to comply with the requirements of the Contract. Failure of the Representative to discontinue any Work shall not be deemed an acceptance of the Work and shall not relieve Contractor of any obligations relating to the performance of the Work. If the unsatisfactory condition is promptly corrected by Contractor, the Representative will authorize resumption of the Work. If Contractor does not promptly correct the unsatisfactory condition, CG&E may proceed under the provisions of Article 18, Termination Provisions. Discontinuance of Work by the Representative hereunder and resumption thereof by Contractor shall not be construed in any way as the basis for a claim for extra compensation by Contractor. For any instructions for the discontinuance of Work given by the Representative due to unsatisfactory performance by Contractor that is not corrected within a timely manner as determined solely by the Representative, Contractor may forfeit the respective payment originally due from CG&E prior to the unsatisfactory performance.

17.2 The Representative shall have the right to require discontinuance of Work, in whole or in part, for such time as may be necessary, should the condition of weather, flood or other contingencies make it desirable to do so in order for the Work to be properly performed. An extension of time may be granted to Contractor for any discontinuance of Work so required, but such extension shall not be a basis for any claim for additional compensation

by the Contractor, and shall not operate to release the Contractor from any of its obligations.

18. TERMINATION PROVISIONS

18.1 CG&E may terminate the Contract or any part thereof for cause if: Contractor refuses or fails, after receiving written notice from CG&E, to supply enough properly skilled workmen or proper materials or Equipment to perform the Work as scheduled by CG&E; Contractor disregards statutes, laws, ordinances, codes, rules or regulations; Contractor is otherwise in breach of any other term, condition or provision of the Contract. Should Contractor fail to provide assurance for enough properly skilled workmen, CG&E may terminate this Contract in accordance with paragraph 18.2 below, or any other contract CG&E has with Contractor. Any failure to comply with this Contract or any breach of any term and condition of the Contract may be considered, by CG&E at its sole discretion, a breach for which CG&E may terminate this Contract for cause under paragraph 18.2. If any of the foregoing occur, CG&E may, without prejudice to any other right or remedy, terminate the Contract immediately after giving the Contractor written notice of the termination date, which may indicate that the termination is effective immediately; take possession of the premises and all materials, Equipment, and any other property thereon; and finish the Work by whatever method the Representative deems expedient. If it is subsequently determined by CG&E that there were inadequate grounds for Termination for Cause, the Contract shall be deemed to have been terminated pursuant to paragraph 18.2 hereof. In the event of termination under this paragraph 18.1, payment shall be based upon either the evaluated contractual value of the Work performed or audited costs, and shall be made in the manner prescribed in paragraphs 18.1.1 and 18.1.2.

18.1.1 Under any contract which has been terminated subject to paragraph 18.1, Contractor shall not be entitled to receive any further payment until the Work is finished by CG&E or its designee. If the unpaid balance for the Work performed, which was not a basis for the termination for cause, exceeds CG&E's expenses for finishing the Work, including compensation for additional engineering, managerial, administrative and legal services, such excess shall be paid to Contractor. If those CG&E expenses exceed that unpaid balance, CG&E shall invoice Contractor for the amount due CG&E and Contractor shall pay that amount to CG&E within thirty days of the issuance of the invoice. Any amount unpaid more than thirty days from the date of issuance of the invoice shall be assessed interest at the rate of 1-1/2% per month until paid. If Contractor fails to remit any invoiced balance due under this Article within a reasonable period, as determined solely by CG&E, CG&E is entitled to all available legal and equitable remedies to recover said losses and costs. In this event, Contractor shall be liable to CG&E for all associated expenses and costs including, but not limited to, attorneys' fees and court costs.

18.1.2 In addition to the provisions in 18.1.1 above, under a cost-plus type contract, no additional payments will be made except for acceptable Work performed prior to the month of termination.

18.2 In addition to its rights to cancel the Contract for cause as set forth in paragraph 18.1, CG&E shall have the right, for its convenience, to terminate the Work in whole or in part at any time by written notice to the Contractor. Any notice of termination shall state the extent and effective date of such termination, and on such effective date the Contractor shall, as and to the extent directed: stop work under the Contract and the placement of further orders or subcontracts; terminate work under existing orders and subcontracts; and take any action necessary to protect property in its possession in which CG&E has or may acquire any interest and to dispose of such property in such manner, at the times,

and at the price or prices as may be directed by CG&E. In the event CG&E elects to terminate the Contract for its convenience, payment shall be handled in the manner prescribed in 18.2.1 and 18.2.2 below.

18.2.1 Under a lump sum firm price or a firm price per unit contract, Contractor shall be entitled to receive payment from CG&E based, at CG&E discretion, upon either the value of Work performed to the effective date of termination or for all audited direct costs actually and necessarily incurred by Contractor in performing the Work up to the effective date of the termination notice, less amounts previously paid and less amounts recovered through sale of materials, Equipment and all other items not yet incorporated into the Work, together with ten percent (10%) of all such audited direct costs for overhead and profit, and such other actual and necessary audited cancellation costs, exclusive of overhead and profit, as Contractor may have reasonably and necessarily incurred as the result of such termination.

18.2.2 Under a cost-plus type contract, Contractor shall be paid for the balance of all payments reimbursable to it under the Contract, plus any applicable fee computed at the percentage rate stated in the contract upon the audited cost of the Work completed to date or on Contractor's fixed fee amount due as of the effective date of the written notice of termination.

18.3 Contractor shall, as a condition precedent to receiving the payments provided in this Article, execute and deliver all such papers and take all such steps, including the legal assignment of its contractual rights, as CG&E may require for the purpose of fully vesting in CG&E the rights and benefits of Contractor under any contracts, obligations or commitments which Contractor has undertaken or incurred in connection with the Work. Before any assignment of rights under this provision, Contractor agrees to, and shall, provide written confirmation to CG&E that any and all financial obligations that Contractor has under any such contract, obligation, or commitment have been fully satisfied and paid.

18.4 After receipt of a notice of termination, Contractor shall submit its termination claim to CG&E, in the form, manner and with certification to be prescribed by CG&E, and shall submit evidence satisfactory to the Representative that all payrolls, invoices, bills and other indebtedness connected with the Work have been paid. Such claim and evidence shall be submitted no later than ninety (90) days from the effective date of termination, and CG&E shall have up to ninety (90) days to evaluate that claim and evidence.

18.5 CG&E shall be entitled to defer payment to Contractor to the extent of all claims CG&E or others may have against Contractor arising out of or connected with the Contract or the Work, until such claims have been fully resolved. In any event, no claim from the Contractor shall be processed for payment until Contractor has submitted its termination claim pursuant to paragraph 18.4.

18.6 Contractor shall, from the effective date of termination until the expiration of four years after final settlement under the Contract, preserve and make available to CG&E all such books, records, documents and other evidence bearing on the costs, expenses, and methods of payment of Contractor under the Contract relating to the Work terminated hereunder, and CG&E shall have the full right to audit those books, records, documents and other evidence within a reasonable time after written request.

19. CHANGES

19.1 CG&E shall have the right at any time to modify the Contract and the Specifications contained herein. CG&E may, without invalidating the Contract, in writing, order such changes to be made, and the changes shall be made accordingly. If any such changes cause an increase or decrease in the price in the Contract or in the time and order of Completion, an equitable adjustment, upon the request of either party, shall be made and the Contract amended by supplemental orders or by a Contract Change Notice. No change in price shall result unless approved in writing by CG&E. The value of any changes shall be determined by unit prices listed in the Contract or other pricing subsequently agreed upon.

19.2 All claims of Contractor for adjustments allowed by Paragraph 19.1 shall, except in the case of emergency changes as determined by the Representative or if the change has a mutually agreed to estimated value of $5,000 or less, be made prior to Contractor's commencement of performance of the changes on which they are based and shall, if not made prior to such time, be conclusively deemed to have been waived. For those claims with a mutually agreed to estimated value of $5,000 or less, or emergency changes as determined by Representative, the claim for adjustment shall be made within twenty (20) days from date of receipt of the change notice by Contractor.

19.3 The foregoing sets forth the sole means by which the work may be changed. Should CG&E at any time make any interpretation of any of the Contract documents, submit any additional drawings, refuse to approve any of Contractor's shop drawings or require any change in the same as a condition precedent to the approval thereof, or issue any other direction which, although not so identified by CG&E, is considered by Contractor to be an order making a change in the Work, Contractor shall, within five (5) days after receipt of its written notice of such direction, submit to the Representative, a written request for the issuance of a written Contract Change Notice. Upon receipt by CG&E of such Notice, the Parties shall endeavor to agree as to whether the direction in question constitutes an order for a Change in the Work and as to the equitable adjustment, if any, to be made, and failure of the Contractor to so endeavor to agree shall constitute a breach of this Contract, subject to termination under Article 18. If agreement can or cannot be reached, Contractor shall promptly proceed with the Work involved. The cost of such work shall be determined by the Representative on the basis of Contractor's reasonable expenditures and savings which may be verified by an audit of the direct costs or savings associated with the change, including, in the case of an increase in the Contract sum, an allowance of ten percent (10%) for overhead and profit. In such case, Contractor shall keep and present, in such form as the Representative may reasonably prescribe, an itemized accounting, together with appropriate supporting data. The amount of credit to be allowed by Contractor to CG&E for any deletion or change which results in a net decrease in cost will be the amount of actual net decrease as confirmed by the Representative. When both additions and credits are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any. The foregoing provisions or any negotiations between the parties shall not operate to relieve Contractor of its duty to perform the Work in complete accordance with the Contract documents or to release or discharge either party of any duty arising under the Contract. The failure of Contractor to make a request in the manner and within the time provided above for a Change Notice covering any such direction shall constitute its agreement that such direction does not make any change in the Work required by the Contract for which there is a cost basis, and any adjustment for an increase shall be deemed waived.

19.4 Documents issued by CG&E engineer which constitute a change under the terms of this Contract shall not be accepted by Contractor unless authorized by CG&E and confirmed by formal change authorization.

19.5 Deviations to the Specifications by Contractor are not permitted unless authorized by CG&E and confirmed by a formal change authorization.

20. CONTRACTOR INFORMED AS TO CONDITIONS

20.1 Contractor acknowledges that it has examined all available records and has made a field examination of the site and rights-of-way and has informed itself about the subsurface conditions and surface and subsurface water conditions to be encountered, the character of Equipment and facilities needed for the execution and Completion of the Work, location and suitability of all construction materials, quantities in various material or labor related sections of the Work, local labor conditions, and all other matters in connection with the Work and services to be performed under the Contract.

20.2 Any records of subsurface conditions or other observations which may have been made by CG&E may be made available to the contractor for its information, but there is no expressed or implied warranty or guarentee as to the accuracy of the records or any interpretation thereof. Contractor understands this and has formed its opinion of the character of materials to be excavated from an inspection of the ground and has made its own interpretation on such records.

20.3 Contractor warrants that the agreed prices set forth in the Contract are based on its knowledge and judgment of the conditions and hazards involved, and not upon any representation of CG&E. No claim of ignorance of conditions that exist or difficulties encountered in the execution of the Work shall be presented or accepted as an excuse for failure to comply with the Contract.

21. LAWS, REGULATIONS AND PERMITS

21.1 The Contract shall be governed by and interpreted under the laws of the state in which the CG&E facility for which the Work is to be performed is located, except to the extent said laws are preempted by the laws of the United States of America. If any part of these Terms and Conditions is adjudged by a court of competent jurisdiction to be contrary to the law governing the Contract, the remaining provisions of the Contract Terms and Conditions shall in all other respects be and remain legally effective and binding to the fullest extent possible.

21.2 Contractor shall comply with federal, state and local laws, rules and regulations, Presidential directives and executive orders, including, but not limited to, Executive Order 11246 Equal Opportunity, Section 503 of the Rehabilitation Act of 1973, Section 2012 of the Vietnam Era Veterans Readjustment Assistance Act of 1974, the Occupational Safety and Health Act, and regulations of the Environmental Protection Agency, that are now or may during the period Contractor is performing the Work become applicable to the Contractor or the subject matter of the Contract, and all such federal, state and local laws, rules and regulations, Presidential directives and executive orders are hereby incorporated herein by this reference.

Contractor shall also procure all necessary municipal and other governmental permits, licenses and inspections, and shall pay all fees and charges in connection therewith, unless CG&E indicates in writing that it elects to procure and pay for all or some of the permits, licenses and inspections. CG&E shall have no obligation of any kind to review Contractor's compliance with these measures.

21.3 Contractor shall abide by any and all rules CG&E may have in effect or hereafter put into effect at the site of the Work pertaining to workmen, safety, use of cameras, security procedures or requirements, lighting of fires, and the handling of Equipment, materials or any other part of the Work.

22. WARRANTIES

22.1 Contractor warrants that it has title to and the proprietary right to provide the Work pursuant to the Contract. Contractor shall at its expense either defend or settle, with the prior approval of CG&E, any suit, claim or action against CG&E based on an allegation that the Work or the use thereof constitutes a patent, copyright or other intellectual property right infringement. Contractor shall pay all amounts awarded against CG&E in such suit, claim or action and shall reimburse CG&E for any damages, direct or consequential, incurred as a result of such suit, claim or action, including but not limited to royalties, license fees and CG&E expenses incurred by participating in the defense or settlement thereof, including attorneys' fees. In the event the Work is held to constitute an infringement in such suit, claim or action or its continued use is enjoined, Contractor shall at its own expense and at the option of CG&E either (a) procure for CG&E the right to continue using the Work, (b) replace the Work with equivalent non-infringing Work, or (c) modify the Work so it becomes non-infringing.

22.2 Contractor warrants that all Work performed under the Contract is consistent with good engineering and construction practices, shall be free from defects in workmanship or materials, shall conform to the requirements of the Contract, and shall be fit and sufficient for the purposes expressed in, or reasonably to be inferred from, the Contract documents. Contractor shall, at no expense to CG&E, correct any failure to fulfill the above warranty which may appear at any time within one (1) year (or, in the case of items as to which a longer warranty period is set forth in the Specifications, within such longer period) after the date of Contract Completion and actual use. In any event, the warranty herein expressed shall not be sole and exclusive and is in addition to any other warranty expressed or implied.

22.3 Contractor warrants that Work provided pursuant to the Contract pertaining to the Equipment shall conform to all affirmations of fact or promises made by Contractor, descriptions, samples, specifications and appropriate industry standards, shall be new and of the best quality and shall be free from defects in material and workmanship. In addition, Contractor warrants that said Equipment is merchantable and is fit for ordinary purposes for which such Equipment is used. If CG&E has represented to Contractor the particular purposes for which the Equipment is required by CG&E, Contractor warrants that the Equipment shall be fit for said purposes. In the event of a breach of any of the foregoing warranties, Contractor shall expeditiously as that term is defined by CG&E, and at its own expense but at the sole option of CG&E, repair or replace the Equipment to comply with said warranties and shall be liable to CG&E for any consequential damages resulting from said breach. If CG&E determines that Contractor is not expeditiously making said repair or replacement, CG&E may thereafter repair or replace the Equipment by the most expeditious means available and charge or backcharge Contractor for the costs incurred by CG&E. The foregoing warranties shall apply to any and all repaired or replacement Equipment provided hereunder.

23. CONTRACTOR'S ADDRESS/NOTICES

Both the address appearing on the Contract and Contractor's Office at or near the Work site are hereby designated as places to which notices, letters or other communications to

Contractor may be mailed or delivered. The personal delivery of any notice, letter or other communication to Contractor at either of the above named places, or depositing the same in the United States mail, first class postage prepaid addressed to either location shall be deemed sufficient notice or service thereof upon Contractor, and the date of such notice or service shall be the date of such personal delivery or depositing. The first-named address may be changed at any time by an instrument in writing executed and acknowledged by Contractor and delivered to CG&E. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon Contractor personally.

24. AGENTS, SUPERINTENDENTS AND FOREMEN

24.1 In the event of emergencies, when Contractor or its General Superintendent is not present for part of the Work and it may be necessary for CG&E to give directions, orders may be given by the Representative and shall be received and obeyed by the person who may have charge of the particular part of the Work in reference to which such orders are given. If requested to do so, the Representative shall subsequently confirm such orders in writing.

24.2 Any supervisory personnel furnished by Contractor shall be technically qualified to perform the Work for which they are assigned. When requested by CG&E, Contractor shall submit the resume of the superintendent that will be assigned to this Work.

25. WORKMEN TO BE USED

25.1 Certain portions of the installation call for workmen skilled not only in their trade but who also specialize in the particular field required. Contractor guarantees that such Work shall be done by workmen who are skilled and specialized in the Work to which they are assigned, and the Representative must approve the qualifications of each worker who is required to be certified prior to such worker commencing any Work on the project. All labor will be under a collective bargaining agreement.

25.2 Contractor, on an all-things-being-equal basis, shall use local material, Equipment, subcontractors and workmen when to do so will not result in additional expense to Contractor.

25.3 Contractor's superintendents, supervisors and engineers should not be withdrawn from the Work without reasonable notification being given to the Representative; *provided, however*, that no such withdrawal shall be made if it will jeopardize successful and timely completion of the Work.

25.4 The Cincinnati Gas & Electric Company and its affiliates require any and all employees of any contractor or subcontractor that provides goods or services to The Cincinnati Gas & Electric Company and its affiliates, to be either United States citizens, permanent residents, or otherwise legally authorized to work in the United States for the sponsoring employer.

26. CHARACTER OF EMPLOYEES

Whenever requested to do so by CG&E, Contractor shall immediately remove any person from the worksite, and such person shall not again be employed on or allowed access to the worksite without the prior written consent of CG&E. Nothing herein shall prohibit Contractor from making its determination regarding its work force.

27. INTOXICANTS AND NARCOTIC DRUGS

Contractor shall not permit or suffer the introduction or use of intoxicating liquor, narcotic drugs, substance abuse paraphernalia, firearms, gambling or gambling paraphernalia during the Work outlined in the Contract, or upon any of the grounds occupied, owned or controlled by CG&E. Any Contractor employee found engaging in such activities shall be removed and permanently barred from CG&E property, including any and all job sites.

28. SUBSTANCE ABUSE POLICY

A. Contractor, its subcontractors, and construction managers shall establish and implement a substance abuse program which includes requirements meeting or exceeding the terms set forth below (the "Policy"). This Policy shall apply to all Work at all existing and future CG&E job sites.

This Policy shall be consistent with the Construction Owners Association of the Tri-State ("COATS") COATS/Bethesda substance abuse testing programs. Any Contractor performing Work for CG&E in the Cincinnati/Tri-State area is encouraged to participate in the COATS/Bethesda substance abuse testing program. Any Contractor performing Work for CG&E which falls under the definition of "Safety Sensitive" as defined by the Department of Transportation (DOT) Research and Special Programs Administration (RSPA) shall submit a Policy which meets or exceeds 49 CFR Parts 199 and 40 before commencement of any such Work.

B. Before beginning any Work, Contractor shall submit to CG&E a written statement certifying that each employee assigned to the Work, including all labor, craft, supervision and management employees, has completed a substance abuse screening test within the past 12 months and has not tested positive, or if the employee tested positive, was referred to a Substance Abuse Professional ("SAP") for an evaluation, has completed or is complying with the SAP's recommendations, and has been retested and tested negative.

C. Contractors whose Work is defined as "Safety Sensitive" under DOT RSPA shall submit statistical reports quarterly, or more frequently if requested by CG&E, which meet or exceed DOT RSPA requirements.

28.1 Minimum Substance Abuse Testing Parameters

A. The following are the minimum substance abuse testing parameters:

1. Use of a National Institute of Drug Abuse ("NIDA") approved laboratory.

2. Use of a Medical Review Officer ("MRO") for confirmation of positive test results.

3. Use of a NIDA 5 Panel Drug Screen with the following cut-off and confirmation levels:

	ng/ml cut-off	ng/ml confirmation

Marijuana (THC, Cannabinoids)	50	15
Amphetamines	1000	500
Cocaine	300	150
Phencyclidine (PCP)	25	25
Opiates	2000	2000

4. Use of an evidential breath testing device to detect the consumption of alcohol with a positive cutoff level of .02 percent

5. Use of a DOT approved collection form for DOT and DOT RSPA Contractor employees.

B. Contractor shall test all employees involved in any accident requiring consultation with a doctor or medical treatment beyond first aid, or when there is probable cause as determined by Contractor or by CG&E. Contractor shall post accident test all Contractor employees whose actions may have contributed to, or cannot be significantly discounted as a contributing factor to, an accident, as defined by DOT RSPA, other federal, state, and local laws and regulations, and CG&E rules and requirements. No Contractor employee shall perform Safety Sensitive work, as defined by DOT RSPA, following a post accident or reasonable cause test until a negative result is received.

C. Contractor shall implement a random substance abuse testing program which meets the minimum requirements set forth in Paragraph 28.2 hereof or certify that the employees assigned to the Work are already participating in a qualified random substance abuse testing program ("Qualified Program"). A Qualified Program must require, on an annual basis, a number of random tests equal to an annual rate of 25 percent of the total number of Contractor employees assigned to the Work and comply with the minimum substance abuse testing parameters stated in Article 28.1.A above.

28.2 Random Substance Abuse Testing Minimum Requirements

A. The random selection method used by Contractor shall be computerized, truly random and credible. The number of random substance abuse tests to be administered by Contractor shall be equal to the greater of 10 percent of Contractor employees assigned to the Work or 25 percent times the number of Contractor employees assigned to the Work times the duration of the Work in weeks divided by 52. For example:

- If the duration of the Work is 4 weeks and the number of Contractor employees assigned to the Work is 100, a minimum of 10 percent, 10 random substance abuse tests would be performed because:

$$\frac{25\% \times 100 \text{ employees} \times 4 \text{ weeks}}{52 \text{ weeks}} = 1.9 \text{ tests}$$

- If the duration of the Work is 26 weeks and the number of Contractor employees assigned to the Work is 100, 12.5 random substance abuse tests would be performed.

$$\frac{25\% \times 100 \text{ employees} \times 26 \text{ weeks}}{52 \text{ weeks}} = 12.5 \text{ tests}$$

- The total number of random substance abuse and/or alcohol tests shall equal or exceed the minimum percentage of tests required by DOT and/or DOT RSPA for all Contractor employees performing Safety Sensitive work on an annual basis.

B. Immediately upon receipt of test results, Contractor shall remove from the job site any Contractor employee who tests positive or in any way does not comply with the Policy. Contractor shall not allow an employee who tests positive to return to the Work for the duration of the project, unless, following a positive test, the employee is referred to a SAP for evaluation, is in complete and continuous compliance with any recommendations of the SAP, and has a negative return-to-duty test. In the event the employee complies with the above, Contractor may permit said employee to return to the Work. Any Contractor employee that has a second positive test or has a negative return-to-work test will be removed and permanently barred from CG&E property, including any and all job sites.

C. Contractor shall consider a refusal to submit to substance abuse and/or alcohol testing as a positive result.

D. CG&E may, at its sole discretion, upon notice to Contractor, audit Contractor's substance abuse testing records relating to the Work.

E. CG&E encourages Contractor to offer employee assistance to all employees who test positive, and CG&E requires the Contractor to have such employees visit a SAP as required by DOT.

29. HARASSMENT FREE WORKPLACE POLICY

A. Contractor, its subcontractors, and construction managers shall be required to comply in CG&E's Harassment Free Workplace Policy. This Policy shall apply to all Work.

B. Before beginning any Work, Contractor and its subcontractors shall submit to CG&E a written statement certifying that each employee assigned to the Work, including all labor, craft, supervision and management employees, have completed training on the Harassment Free Workplace Policy.

30. REPRESENTATIVE TO DEFINE TERMS AND EXPLAIN PLANS

30.1 The various parts of the Contract are intended to be complementary to each other, but any discrepancy or misunderstanding as to the import of anything contained therein which is not resolved by the listing of precedence in Article 3.1.5, shall be interpreted by the Representative, which interpretation shall be final and binding. Correction of any error or omissions in drawings and specifications may be made by the Representative when such correction is necessary to bring out clearly the intention indicated by a reasonable interpretation of the drawings and Specifications as a whole.

30.2 Additional drawings and explanations to exhibit or illustrate details may be provided by the Representative and will be so provided whenever necessary as determined by the

Representative, and such additional drawings and specifications shall be binding upon Contractor and incorporated into the Contract in accordance with Article 19, Changes.

31. USE OF EXPLOSIVES

Use of explosives in a manner which might disturb or endanger the stability, safety or quality of the Work will not be allowed. Explosives shall be stored, handled and used as prescribed by the laws and regulations of the United States and the state in which the Work is performed, their agencies, and any political subdivisions thereof. Contractor shall be responsible for removal of all unused explosives.

32. COLLATERAL WORK

32.1 CG&E reserves the right to have such agent or agents, as it may elect, enter upon the property or location upon which Work is being performed for the purpose of constructing or installing such collateral work as CG&E may desire. Contractor shall work in harmony with other contractors or such agents employed by CG&E and any difference of opinion relating to work being performed at the site between contractors shall be arbitrated by the Representative.

33. INSURANCE

33.1 At least seven (7) days before commencing the Work, Contractor shall cause and shall direct each of its subcontractors to cause the insurance companies providing Worker's Compensation insurance for Contractor or subcontractors to certify to the satisfaction of the Worker's Compensation Board of the state or states in which the Work or any portion of the Work is to be performed that Contractor and its subcontractors have complied with all applicable Worker's Compensation and Occupational Disease laws.

33.2 During the entire period of the Work, Contractor shall procure and keep in force and shall require its subcontractors to procure and keep in force, a policy or policies of insurance, in a form acceptable to CG&E and issued by an insurance company or companies acceptable to CG&E, which adequately protect Contractor and CG&E from and against claims, losses or actions arising out of or in any way connected with the Work. Except for Worker's Compensation, such insurance policies shall name CG&E as an additional insured. Within ten (10) days of the execution of the Contract, and during the entire period of the Work, Contractor shall provide CG&E with Certificates of Insurance providing evidence of at least the following insurance coverage and limits:

COVERAGE	LIMITS
Worker's Compensation	Statutory Requirements
Employer's Liability	$2,000,000 Each Person
PUBLIC LIABILITY	
Commercial General Liability and Contractual Liability	
Bodily Injury	$2,000,000 Each Person $2,000,000 Each Occurrence
Property Damage (Including coverage for "X" Explosion, "C" Collapse and "U" Underground Hazards)	$2,000,000 Each Occurrence $2,000,000 Aggregate

Products/Completed Operations	
Bodily Injury	$2,000,000 Each Person $2,000,000 Each Occurrence
Property Damage	$2,000,000 Each Occurrence
Automobile Liability	
Bodily Injury	$2,000,000 Each Person $2,000,000 Each Occurrence
Property Damage	$2,000,000 Each Occurrence

33.3 A. During the entire period of Work, Contractor shall maintain, at Contractor's cost, All Risk Builders Risk Insurance including, but not limited to fire, lightning, windstorm, extended coverage perils, vandalism, theft, collapse, explosion, and testing, and transit, covering the Work with a limit to the full insurable value. Such insurance shall (i) name CG&E, Contractor, and subcontractors as Insureds; (ii) include a waiver of subrogation against CG&E and the Contractor and subcontractors; (iii) be primary to any other insurance maintained by CG&E; and (iv) be in a form acceptable to CG&E and issued by an insurance company acceptable to CG&E. At least seven (7) days prior to the commencement of Work, Contractor shall furnish a copy of said policy to CG&E, and such policy shall remain in effect during the Contractor's entire duration of Work.

B. Until accepted in its entirety by CG&E, the Work shall be at Contractor's risk, and if any loss of or damage to the Work from whatever cause or causes occurs prior to acceptance by CG&E, Contractor shall, without cost to CG&E, promptly repair the Work so lost or damaged at the Contractor's expense.

C. In case Contractor shall use any facilities of CG&E, it shall be Contractor's duty before such use to ascertain that such facilities are in safe operating condition and Contractor shall be responsible for and indemnify CG&E against any loss or damage resulting from such use and to such facilities.

34. TAX

34.1 A. Unless exempted therefrom, all taxes, except gross retail sales or use tax applicable to this transaction, which the Contractor is required by law to pay, are included in the price stated in the Contract. For taxability of purchases in Ohio and Kentucky, see Paragraphs 34.2 through 34.9. The purchase under the Contract is exempt from other states' sales or use tax because it is made in interstate commerce and the ultimate use will be by CG&E in its respective states of Ohio and Kentucky.

B. For purposes of classifying property for taxation, items of property devoted primarily to the general use of the land or buildings thereon are classified as Real Property. All other items of property, including their foundations and items accessory thereto, which are devoted primarily to the business conducted on the premises, are classified as Personal Property. For Contracts which include both of the above

classifications, CG&E shall inform Contractor of the appropriate amount or percentage of material which should be considered as Real and Personal Property.

C. Material and labor charges must be separately stated when invoicing CG&E.

34.2 Work on Real Property Performed in Ohio or Kentucky, except as Noted in Section 34.3.

A Contractor supplying materials for erection or installation that will become a part of Real Property is the consumer of the materials and, as such, Contractor is primarily liable for sales tax. Also, any materials, supplies or Equipment purchased or supplied by a Contractor that is not incorporated into the Work (consumables) are the property of Contractor and, as such, Contractor is liable for sales tax applicable to these materials. Contractor and subcontractors must show the amount of sales tax paid and include the tax on their invoices, which must include the following statement: "(insert applicable state) Sales or Use Tax in the amount of (insert amount or "none") is included in this invoice."

34.4 Work on Personal Property Performed for CG&E in Ohio.

When a Contractor incorporates Personal Property or taxable services into the Work, and such property will retain its status as Personal Property, Contractor is considered a vendor. As such, Contractor shall not pay sales or use tax on the acquisition of such material or services and shall not invoice sales or use tax to CG&E in accordance with CG&E's direct pay permit. CG&E has been issued Direct Pay Permit No. 98000298 by the state of Ohio. A direct pay authorization is not extendible and cannot be used by a Contractor when purchasing materials. Contractor and subcontractors may acquire materials exempt from such taxes by delivering a properly executed Sale for Resale exemption certificate to their suppliers. The above provisions for the exclusion of sales and use tax by Contractor are limited to materials purchased to be incorporated into or become part of the property of CG&E. For this Work, it is Contractor's responsibility to determine its status regarding the appropriate sales taxability of consumables.

34.5 Work on Personal Property Performed for CG&E in Ohio, except as noted in Section 34.4.

A Contractor purchasing materials for erection or installation, which will retain their status as Personal Property, shall not pay tax on such materials. Contractor and subcontractors may buy materials exempt from such taxes by delivering a properly executed Sale for Resale exemption certificate to their suppliers. Except for Cinergy Services, Inc., Cinergy Services, Inc. does not have direct pay permits in Ohio. Contractor shall invoice Cinergy Services, Inc. for the sales tax on the entire contract price, unless provided with an exemption certificate by CG&E. For this Work, it is Contractor's responsibility to determine its status regarding the appropriate sales taxability of consumables.

34.6 Work on Personal Property Performed for CG&E or ULH&P in Kentucky.

A Contractor purchasing materials for erection or installation, which will retain their status as Personal Property, shall not pay tax on such materials. CG&E and ULH&P are authorized to pay the sales and use tax directly to the state on all purchases of Personal Property in accordance with direct pay authorizations issued to them by the state of Kentucky. Direct pay authorizations are not extendible and cannot be used by a Contractor when purchasing materials. Contractor and subcontractors may buy materials exempt from such taxes by delivering a properly executed Sale for Resale exemption certificate to their suppliers. The above provisions for the exclusion of sales and use tax

by Contractor are limited to materials purchased to be incorporated into part of the property of CG&E. For this Work, it is Contractor's responsibility to determine its status regarding the appropriate sales taxability of consumables.

34.7 Work on Personal Property Performed for CG&E in Kentucky, except as noted in Section 34.6.

A Contractor purchasing materials for erection or installation, which will retain their status as Personal Property, shall not pay tax on such materials. Contractor and subcontractors may buy materials exempt from such taxes by delivering a properly executed Sale for Resale exemption certificate to their suppliers. Except for CG&E and ULH&P, CG&E does not have direct pay permits in Kentucky. Contractor shall invoice CG&E for the sales tax on the material portion of the Contract, unless provided with an exemption certificate by CG&E. For this Work, it is Contractor's responsibility to determine its status regarding the appropriate sales taxability of consumables.

35. MECHANIC'S LIEN WAIVER

Contractor waives any and all claims to rights of a mechanic's lien on CG&E's property as a result of providing the Work pursuant to the Contract. Contractor shall also obtain written waivers of mechanic's liens from all subcontractors, suppliers, and materialmen of Contractor providing labor or material in connection with the Work. The written waivers shall be obtained by Contractor and provided to Representative at quarterly intervals, with the first interval beginning on the day that Work is commenced. The written waivers for each quarter shall pertain and be limited to that labor and those supplies and materials for which payment is due during said interval. In the event Contractor fails to secure written waivers of mechanics liens from its subcontractors, suppliers, or materialmen as required under this article, CG&E may terminate the Contract for cause pursuant to Article 18. In the event that rights to a mechanic's lien are claimed upon CG&E's property by a subcontractor, supplier, or materialman of Contractor, Contractor shall expeditiously obtain the release of said mechanic's lien. Upon Contractor's failure to obtain said release expeditiously, CG&E may proceed to obtain the release of the mechanic's lien and Contractor shall be liable to CG&E for any and all costs and expenses, including attorneys' fees, which are incurred by CG&E in obtaining said release.

36. PROVISIONAL ACCEPTANCE OF PORTIONS OF THE WORK SHALL NOT CONSTITUTE A WAIVER

Provisional acceptance of sections of Work for the purposes of preparing partial statements and payment of money for such partial statements shall not operate as a waiver of any portion of the Contract or acceptance thereof; shall not be construed to prevent the Representative from requiring replacement of defective Work that may become apparent after said provisional acceptance; and shall not be construed in any way as the basis for a claim of extra compensation for any cause whatsoever by the Contractor. Work rejected and Work provided in excess of Contract requirements may be returned to Contractor at Contractor's expense, and, in addition, CG&E may charge Contractor for all expenses of unpacking, examining, repacking and reshipping such Work. Nothing contained in the Contract shall relieve Contractor from its obligations of testing, inspection and quality control. CG&E shall have the right to inspect and expedite the Work in the process of manufacture, in storage, in transit or in performance to assure compliance with all terms and specifications of the Contract.

37. SETOFF

All claims for money due or to become due from CG&E shall be subject to deduction or setoff by CG&E with respect to the Work, the Contract, or any issue related to the Work or Contract.

38. ADVANCE SHIPMENTS

Contractor shall make no shipments in advance of the required shipping date, unless there is adequate storage area at the site of the Work, or such area is provided by Contractor. Any such advance shipment shall not entitle Contractor to any payment prior to the time when such payment would otherwise be due if the shipment were made on the scheduled shipping date.

39. NON-DISCLOSURE

Contractor shall not disclose to any third party any information concerning CG&E, any other contractor, or the Work that is obtained in connection with the Work provided under this Contract without the prior consent of CG&E, unless CG&E has made such information available previously to third parties without any restriction upon its disclosure. Such information not to be disclosed shall include the Contract price of the Work and any reference to CG&E in Contractor's advertising. Notwithstanding the foregoing, CG&E may disclose information regarding the Contractor, the Work or the Contract, including confidential information to governmental departments or agencies including but not limited to the Ohio Department of Transportation, Kentucky Department of Transportation and Indiana Department of Transportation as required or requested by such departments or agencies for the Contractor to provide services under this Contract for work awarded to CG&E by such governmental departments or agencies. CG&E shall inform the intended recipients of the confidential nature of information disclosed hereunder, and use its reasonable best efforts to ensure such information is afforded confidential treatment.

40. FORCE MAJEURE

CG&E shall not be deemed in default for failure to perform any of its duties pursuant to the Contract where such failure is the result of causes beyond the reasonable control of CG&E, which may include by way of illustration but not by limitation acts of God, the public enemy or any governmental entity; insurrection or riots; strikes, organizational attempts or other labor disputes; shortages of supplies, Equipment or transportation; and any exigency of generating electricity or delivering natural gas.

41. WORKING IN HARMONY

Contractor recognizes that at the location of its Work under the Contract other contractors may be performing work on a closed-shop, open-shop, or merit-shop basis and that Contractor's Work may be allied to or in conjunction with such work being performed by other closed-shop, open-shop, or merit-shop contractors. Therefore, Contractor shall assume full responsibility and liability to ensure without limitation that Contractor and its employees will perform Contractor's work in harmony with all other contractors and their employees, and that Contractor's employees will cooperate to the extent required for the expedient performance of the Work with CG&E and its employees and all other contractors and their employees without disruption to or cessation of Contractor's Work or the work of CG&E or other contractors, and without harassment, solicitation, picketing, violence or destruction of property.

42. CERTIFICATION OF NO BID RIGGING

Contractor certifies to CG&E that it has not combined or conspired with any other person to reduce or eliminate competition in the bidding of the Contract, the effects of which constitute an unreasonable restraint of interstate trade and commerce in violation of Section 1 of the Sherman Act (15 U.S.C. Section 1) and is cause for termination pursuant to Article 18, Termination Provisions.

43. PAYMENT & RETENTION

43.1 A. Whenever, in the opinion of Contractor, Work covered by the Contract has reached Completion, Contractor shall request from the Representative an inspection of all Work performed. When accepted by CG&E, Contractor shall prepare a statement showing the total amount of Work Completed by Contractor and its value according to the terms of the Contract. All invoices submitted by Contractor must separate the total charge for labor and other services from the total charge for the material.

B. Whenever, in the opinion of Contractor, Work covered by the Contract has reached Completion, Contractor shall request from the Representative an inspection of all Work performed. When accepted by CG&E, Contractor shall prepare a statement showing the total amount of Work Completed by Contractor and its value according to the terms of the Contract. All invoices submitted by Contractor must separate the total charge for labor and other services from the total charge for the material.

C. Unless specifically deleted in the Contract documents, a retention of 10 percent shall be made from the total value thus computed and from the remainder there will further be deducted all previous payments, if any, and all deductions made in accordance with the provisions of the Contract. The final payment, less retention, shall be paid by CG&E to Contractor within Fourty Five (45) days after the date of receipt of the final statement. Payment of the 10 percent retention shall be due sixty (60) days after Completion and the Work is accepted by CG&E.

43.2 Before Contractor shall be entitled to the said retention payment, all bills for labor, materials, bonds, licenses, and other expenses for which CG&E might be sued or for which a lien might be filed must be fully satisfied by Contractor. Contractor shall at the request of CG&E, execute and file a release with CG&E, in proper form, of any and all claims against CG&E relative to the Contract, and Contractor shall also save harmless and defend CG&E from future claims, actions and liens. Acceptance of final payment by Contractor shall constitute a release and waiver of all claims, damages, and causes of action against CG&E, its employees, agents and subcontractors which Contractor has or may have as a result of the Work.

44. ENTIRETY OF AGREEMENT

44.1 The Contract constitutes the entire agreement between Contractor and CG&E. All previous contracts, proposals and communications relative to the Work, oral or written, are hereby superseded, except to the extent that they have been expressly incorporated herein by attachment or reference.

44.2 Printed terms and conditions contained on the reverse side of contracts issued to Contractor by CG&E with respect to the Work shall not be effective to modify or add to the Terms and Specifications which are contained in the Contract.

45. SAFETY PROVISIONS

45.1 Contractor shall be responsible for the safe performance of the Work with due regard for the safety of Contractor's employees, subcontractor's employees, the general public, and CG&E's employees and property. Contractor shall at all times be solely responsible for complying with all applicable laws, regulations and ordinances in connection with the Work, including those relating to the safety of persons and property. Contractor shall also adopt, maintain and abide by its safety rules and standards; *provided, however*, for the Contract, such rules and standards shall be compatible with CG&E's safety rules. To effectuate its responsibilities hereunder, Contractor shall establish a formal documented safety program (or programs) and shall designate a responsible supervisor to coordinate safety at all job sites. Contractor shall inform CG&E of Contractor's supervisor(s) responsible for on-the-job safety. Such safety program should adopt the recommendations of the Business Round Table (the A-3 Report) for improving construction safety performance whenever possible. Contractor shall provide the Representative, a copy of Contractor's safety program prior to commencement of the Work.

45.2 CG&E is entitled to conduct safety audits at any time during the progress of the Work with or without notice to Contractor. However, CG&E has no obligation to conduct any such safety audits. Safety shall be included as a topic for discussion by Contractor in any project meetings that are conducted.

45.3 Contractor shall promptly investigate and report all accidents involving Contractor's work to the CG&E employee monitoring progress of the Work.

45.4 Neither the foregoing provisions related to safety nor the enforcement of such provisions is intended to create any duty on the part of CG&E to review or enforce Contractor safety; rather, the obligation for Contractor safety, and the safe performances of the Work rests entirely upon Contractor, its subcontractors, and its employees. Further, the foregoing provisions regarding safety are not for the benefit of any third party.

46. CONFINED SPACE

Work may be performed in a confined space area. A "confined space" is defined as a space that (1) is large enough and so configured that an employee can bodily enter and perform Work; (2) has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits); and (3) is not designed for continuous employee occupancy. If Contractor is working in a confined space, the Contractor must comply with OSHA confined space standard, 1910.146. If, based upon the above definition of a confined space, Contractor determines that the Work being performed may include work in a confined space, Contractor is to contact the Representative prior to performing such Work.

47 HAZARDOUS MATERIALS

47.1 Work may be performed in areas such as but not limited to boilers, precipitators, and any other connecting Equipment which may contain inorganic arsenic. If Contractor is working in these areas, Contractor must comply with the OSHA inorganic standard 1910.1018. If documentation is provided to the Representative that employee exposure to inorganic arsenic is below the level which is regulated by 1910.1018, Contractor need not comply with this standard.

47.2 If Contractor encounters other toxic substances, hazardous substances, or hazardous wastes (as such terms may be defined in any Federal, State, or local statute, ordinance or regulations issued thereunder) at the site, which require special handling and or disposal, Contractor shall immediately notify CG&E and allow CG&E to take whatever precautions are required to eliminate such hazardous conditions so that the Work may safely proceed. If any such toxic substances, hazardous substances, or hazardous wastes cause an increase in Contractor's cost of, or the time required for, performance of any part of the Work, an equitable adjustment shall be made in the price and schedule. CG&E agrees to properly dispose of all hazardous wastes produced or generated in the course of Contractor's Work at the site. Except where Contractor fails to notify CG&E as required above and mishandles any toxic or hazardous substances or hazardous waste encountered on the site, CG&E shall indemnify Contractor for claims arising out of or relating to the presence of any such toxic or hazardous substances or hazardous wastes which are: (i) present on the site prior to the commencement of Contractor's Work, (ii) improperly handled by CG&E, or (iii) brought to the site or produced thereon by parties other than Contractor or its subcontractors or their agents, representatives, or consultants.

47.3 Contractor and its subcontractors shall adhere to the following requirements for toxic substances, hazardous substances or hazardous wastes generated under the control of Contractor or its subcontractors and/or generated as a result of their activities.

47.3.1 CG&E must be provided with a Material Safety Data Sheet ("MSDS") for each product brought to a CG&E facility and a written explanation of the necessity for the specific product described in each MSDS for the execution of the Work if their use may result in the production of hazardous waste. The MSDS must be provided prior to each product being brought to the facility. CG&E may refuse to allow such products on site.

47.3.2 Contractor and its subcontractors are responsible for ensuring that their employees properly handle hazardous waste generated by their operations. It is the responsibility of Contractor and its subcontractors to differentiate properly between hazardous and non-hazardous wastes that they are generating and to ensure that the waste is placed in the proper containers and stored properly during the course of the Work. Individuals generating the waste are responsible for ensuring that incompatible wastes are not mixed. If improper identification or mixing by Contractor or its subcontractors results in additional disposal costs, an accident, or damage, Contractor shall indemnify CG&E for any and all claims, damages, losses, causes of action, demands, judgments, and expenses, including without limitation reasonable attorney and consultant fees and expenses arising out of or relating to such improper action.

47.3.3 CG&E will provide labeled hazardous waste collection drums or other containers as described in 40 CFR 262.

47.3.4 CG&E will arrange for the disposal of hazardous wastes generated by Contractor or its subcontractors provided the wastes have been properly characterized, segregated, and placed in appropriate containers.

47.3.5 CG&E is not responsible for injuries to Contractor's or its subcontractors' employees that are a result of handling hazardous waste that was generated by Contractor or its subcontractors.

48. NON-HIRING OF EMPLOYEES

For a period of six (6) months from the completion of the Contract, unless the prior written approval of CG&E shall have been first obtained, Contractor shall not employ (either directly as an employee or indirectly as a consultant or contractor) any person who is, or has been within the previous twelve (12) months, a CG&E employee. In view of the difficulty of establishing actual damages to CG&E which would arise as a result of a breach of this provision, Contractor agrees to pay to CG&E as liquidated damages and not as a penalty an amount equal to one-half (1/2) of the employee's annual salary from CG&E. Contractor and CG&E agree that this provision shall not be deemed or used in any way to restrain or limit such employee's pursuit of his or her trade or profession. The parties further agree that such payment by Contractor to CG&E will be construed as being of a similar nature to payment made by any employer to an employment agency.

This provision does not apply to retirees or persons involuntarily separated from CG&E or involuntarily redeployed by CG&E.

49. USE OF CONTRACTOR'S INFORMATION

Contractor agrees that all information, including tools, plans, designs, specifications and drawings, heretofore or hereafter furnished or disclosed to CG&E by Contractor in connection with this Contract, is furnished or disclosed as a part of the consideration for this Contract; that such information is not, unless otherwise agreed to by CG&E in writing, to be treated as confidential or proprietary; and that Contractor shall assert no claims (other than for patent infringement) by reason of the use or disclosure of such information by CG&E, its assigns or its employees.

50. ACCOUNTING AND AUDITING

50.1 Contractor's records (hard copy, as well as computer readable data if they can be made available), which shall include but not be limited to accounting records, written policies and procedures; subcontract files (including proposals of successful and unsuccessful bidders, bid recaps, etc.); original estimates; estimating work sheets; correspondence; change order files (including documentation covering negotiated settlements); backcharge logs and supporting documentation; general ledger entries detailing cash and trade discounts earned, insurance rebates and dividends; books, papers, documents, subscriptions, recordings, agreements, purchase orders, leases, contracts, commitments, arrangements, notes, daily diaries, superintendent reports, drawings, receipts, vouchers and memoranda, and any and all other agreements, sources of information, matters, and any other supporting evidence deemed necessary by CG&E to substantiate charges related to the Contract (all the foregoing are hereinafter referred to as "Records") shall be open to inspection and subject to audit and/or reproduction by CG&E's authorized representative to the extent necessary to permit adequate evaluation and verification of the cost of the Work and any invoices, change notices, payments or claims submitted by Contractor or any of its Payees pursuant to the execution of the Contract.

50.2 Such audits may require inspection and copying on occasion and at reasonable times and places of any and all Records that may in CG&E's judgment have any bearing on or pertain to any matters, rights, duties or obligations under or covered by any Contract document. Such Records subject to audit shall also include, but not be limited to, those records necessary to evaluate and verify direct and indirect costs (including overhead allocations) as they may apply to costs associated with the Contract.

50.3 CG&E or its designee shall be afforded access to all of Contractor's Records, and shall be allowed to interview any of Contractor's employees, pursuant to the provisions of this

article throughout the term of the Contract and for a period of three years after final payment or longer if required by law.

50.4 Contractor shall require all subcontractors, insurance agents, and material suppliers ("Payees") to comply with the provisions of this article by insertion of the requirements hereof in a written contract agreement between Contractor and Payee. Such requirements will also apply to subcontractors and sub-subcontractors, etc. Contractor will cooperate fully and will cause all Related Parties and all of Contractor's subcontractors (including those entering into lump sum subcontracts) to cooperate fully in furnishing or in making available to CG&E in an expeditious manner any and all such information, materials and data requested by CG&E.

50.5 CG&E's authorized representative shall have access to Contractor's facilities, all necessary Records, and shall be provided adequate and appropriate work space, in order to conduct audits in compliance with this article.

50.6 If an audit inspection or examination in accordance with this article discloses overcharges (of any nature) by Contractor to CG&E in excess of one percent (1%) of the total Contract billings, the actual cost of CG&E's audit shall be reimbursed to CG&E by Contractor. Any adjustments and/or payments must be made within 30 days from presentation of CG&E's findings to Contractor.

51. ALTERNATIVE DISPUTE RESOLUTION

51.1 If a dispute arises between the Parties relating to this Contract, the Parties agree to use the following alternative dispute resolution ("ADR") procedure prior to either Party pursuing other available remedies:

A. A meeting shall be held promptly between the Parties, attended by individuals with decision-making authority regarding the dispute, to attempt in good faith to negotiate a resolution of the dispute.

B. If, within thirty (30) days after such meeting, the Parties have not succeeded in negotiating a resolution of the dispute, they will jointly appoint a mutually acceptable neutral person not affiliated with either of the parties (the "Neutral") to act as a mediator. If the Parties are unable to agree on the Neutral within twenty (20) days, they shall seek assistance in such regard from the CPR Institute for Dispute Resolution, Inc. ("CPR"). The fees of the Neutral and all other common fees and expenses shall be shared equally by the Parties.

C. The mediation may proceed in accordance with CPR's Model Procedure for Mediation of Business Disputes, or the Parties may mutually establish their own procedure.

D. The Parties shall pursue mediation in good faith and in a timely manner. In the event the mediation does not result in resolution of the dispute within sixty (60) days, then, upon seven (7) days' written notice to the other Party either Party may suggest another form of ADR, e.g., arbitration, a mini-trial or a summary jury trial, or may pursue other available remedies.

51.2 All ADR proceedings shall be strictly confidential and used solely for the purposes of settlement. Any materials prepared by one Party for the ADR proceedings shall not be

used as evidence by the other Party in any subsequent litigation; *provided, however*, the underlying facts supporting such materials may be subject to discovery.

51.3 Each Party fully understands its specific obligations under the ADR provisions of the Contract. Neither Party considers such obligations to be vague or in any way unenforceable, and neither Party will contend to the contrary at any future time or in any future proceedings.

52. HEADINGS

The headings used in the paragraphs of these Terms and Conditions are only for the reference of the Parties and shall have no meaning in the interpretation of any of the provisions herein.

Specifications for the 2006 Gas Main Replacement, Relocation, and Extension Projects

The Cincinnati Gas & Electric Co.
The Union Light, Heat, & Power Co.

September 21, 2006

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1.0 GENERAL

1.1 Scope of Work

The Cincinnati Gas & Electric Company and The Union Light, Heat & Power Company (hereafter "CG&E") both initiated a program in 2001 to replace cast iron and bare steel natural gas mains and residential service lines. The projected completion year for the program is 2010 in Kentucky and 2015 in Ohio.

The total project will consist of the replacement of approximately 1457 miles of cast iron and bare steel natural gas mains with plastic or coated steel pipe, and the renewal and updating of the associated gas services. Work will be required in most communities within the service territory and will be more specifically identified with each years work. Service areas will be broken into modules consisting of approximately 3 to 5 miles of main replacement work using plastic pipe. Most 12-inch diameter or larger pipe replacement work will be let as individual projects and not as a module.

In addition to the replacement work, there are approximately 30 miles of relocation and gas main extensions which are constructed by CG&E each year. These specifications will be used for all Cinergy gas projects except joint trench projects.

Cinergy reverses the right to remove any portion of a project as deemed necessary. This will mainly occur on AMRP modules if a pending street improvement is known or due to budget constraints.

As necessary, Cinergy reserves the option to impose a 10% retainer to all invoices. If the retainer is imposed, the Gas Contractor will be notified prior processing the invoice.

1.2 Standards

All facilities must be installed in accordance with this specification, The Cincinnati Gas & Electric Company's Gas Division specification GD-150 composite, CFR part 192, and all other applicable specifications. Welding shall be completed in accordance with the enclosed specifications.

1.3 Video Taping

Cinergy recommends that the Contractor videotape every project prior to starting. The video is extremely important in settling disputes with governing agencies. If the project is not videoed and there is a dispute between the contractor and the customer, Cinergy will side with the customer.

When videoing, addresses must be indicated verbally or pictorially.

1.4 Construction Drawings

Construction drawings are done by both CG&E employees and by outside design firms (Novak Engineering of Jackson, Michigan; and Energy Management Services of Lexington, Kentucky). Each drawing will provide the name and telephone number of the designing engineer on the prints so the engineer can be contacted for any questions during the replacement work.

1.5 Permits

All permits for the replacement work will be obtained by CG&E and will be provided to the Contractor prior to the start of work. CG&E will pay all permit fees except cut/fill fees. Cut/fill fees required for dumpsites will not be paid by Cinergy except for material dumped for Tie Ins where the contractor is paid on a time and material (T&M) basis. The Contractor will be responsible for all tree and landscaping damage unless the damage was a result of a direct order by a CG&E employee. Additional compensation will not be paid for any restricted hours identified prior to the bid submittal, whether in the permit book or posted on street signs.

1.6 Meetings

The Contractor will be required to hold weekly on site meetings with the community representatives and the Cinergy inspector to insure immediate handling of all customer concerns. The Contractor will be required to provide the inspector with a proposed schedule prior to the start of work as well as weekly progress reports. Various communities also require a final walk through at the completion of the project.

1.7 Training

CG&E will require polyethylene qualification on all fusion and mechanical connections. Renewal of fusion cards are the responsibility of the contractor. Adequate time must be given by the contractor to CG&E so classes can be scheduled. CG&E will provide training to the Contractor on the renewal of services by insertion and mechanical, installation of meter sets, turn off, turn on and appliance light up. Contractors will be trained for free on Cinergy policies associated with spotting unacceptable meter locations and the identification of tin meters and mercury regulators. Only CG&E personnel shall handle mercury regulators. Safety procedures, grounding procedures and a review for sizing services will also be covered in the training.

1.8 Site Safety

The Contractor will be required to provide emergency numbers to the dispatcher to assure 24/7 coverage. The Contractor will also be required to leave door hangers with business cards, sewer tags and phone numbers for customer contact during and after working hours. A customer notification log must be filled out and returned to the on site inspector prior to the start of any construction.

Picture ID's are required for all Contractor employees. Contract personnel are required to show their ID when asked by customers or CG&E Personnel.

If a block of sidewalk is to be open for more than 48 hours, class 53 temporary asphalt must be used. All tripping hazards are to be avoided in sidewalk areas and where necessary foot traffic will be re-routed when blocking any sidewalk.

2.0 MATERIALS

2.1 Cinergy Supplied Materials

CG&E will provide all piping and associated pipe materials required for the replacement work. All 2", 4", 6" and 8", and some 12" mains shall be yellow medium density polyethylene (MDPE) or epoxy coated steel Grade B or stronger. 12" and 16" coated steel pipe will typically have a wall thickness of 0.219" and 0.250", respectively. Cinergy shall specify the grade and wall thickness of all steel pipes on the construction drawings.

2.1.1 Material Delivery and Tracking

The contractor will be responsible for requesting material as it is needed. The contractor must allow 21 days for material deliveries. It will be the responsibility of the Contractor to meet the truck and to track material received and to provide weekly reports showing material received, material used and material remaining. The material assigned to a module is to be used on that module only. At the end of the project, all surplus materials are to be returned to the storeroom or a credit requisition completed allocating the material to another job. The material must be returned or requisitioned to another job in the same condition that it was received. A 10 % overrun in the quantity of pipe will be allowed for waste. All other unaccounted, damaged or material left unprotected will be the responsibility of the Contractor.

Service Material will be delivered to each Contractor yard. Each Contractor will be required to provide an adequate shelter area with shelves to organize all the service material. The Contractor will provide a person to receive material, organize and reorder material as needed. The Contractor will accept responsibility to ensure reorder is completed as necessary and faxed to 513 287-5434. At the end of each year the Contractor will be required to inventory all service related material including job sites and truck inventory. The material will then be charge credited to the following year service work codes.

2.2 Contractor Supplied Materials

The Gas Contractor is required to provide all materials and equipment other than as indicated on the construction drawings, which is necessary to construct the project. Spray paint used by the contractor for markings must be water soluble and capable of being removed if needed. CDF, CLSM or Flashfill must meet the specifications of the appropriate governing agency (Hamilton Co./Cincinnati, ODOT or KDOT specifications). All welding materials such as welding rods, grinding wheels, clamps, etc is to be provided by the Contractor.

2.3 Contractor Requirements for Coiled MDPE Pipe Delivery & Handling

Pipe trailers will be a requirement for handling coiled pipe. Brecon, Cinergy's material storage facility, does not have the equipment necessary to deliver 6 inch coiled pipe to the job site. CG&E will make every effort to have the large diameter coils delivered to the Contractors'

material holding area at the start of each project. If CG&E is unable to make these arrangements, it will be necessary for the large diameter coils to be picked up at Brecon. Cinergy will pay the Contractor for pick up and delivery in these cases.

2.3.1 Coil Pipe Trailer Capacity Specifications

The coil dimensions of the current Performance Pipe (Driscopipe/Plexco) product that the trailer will need to be able to accommodate is:

Pipe Size	Coil Footage	Wt. Per Coil	Min. Coil ID	Max. Coil OD	Width
2"	500'	315 lbs.	51"	78"	13"
4"	500'	1110 lbs.	68"	94"	41"
6"	500'	2040 lbs.	84"	120"	50"

The capacity of the trailer must be able to accept all current known coil sizes from all major manufacturers of 2", 4" and 6" PE pipe.

2.3.2 Loading System

The trailer will need to have some form of loading mechanism in which the trailer can be field loaded from a Brecon material truck at the job site or loaded at the pipe yard, at the Brecon facility. If the trailer does not have a loading mechanism then the Contractor should make provisions to have the necessary equipment available to safely load the coils without damaging the pipe.

2.3.3 Rerounding/Taming equipment

The Trailer shall be equipped with the necessary equipment to re-round the coiled pipe and remove the curvature conditions created in the pipe by the coiling process. There are no definable parameters to the approved straightness. However, pipe should be able to lie flat in a trench when straightening is complete, as well as not cause additional stress to the pipe when inserting.

3.0 JOINING PIPE

3.1 Welding Steel Pipe

All welds will be made in accordance with CG&E's Gas Division welding specifications:

Specification No. 501-2	Standard Welding Procedure SA-II-A-II: For Steel Pipe with O.D. from 2 3/8" to, and including 12 ¾ " and wall thickness 0.188", up to, but not including 0.250"
Specification No. 501-3	Standard Welding Procedure SA-III-A-III: For Steel Pipe with O.D. greater than 12 ¾ " and wall thickness 0.250", up to, but not including 0.344"
Specification No 501-20	Standard welding Procedure SA-F1-A-V: for fillet welds on steel pipe for socket –weld couplings, slip-on flanges, and full encirclement welding sleeves.

All welders must be pre qualified in accordance with CG&E's Gas Division specifications prior to the start of construction. All testing for welders will be in accordance with API Standard 1104, Section 6.3, at the Contractor's cost.

The contractor must have a copy of the welding specifications for all steel pipeline projects, if not they should request one. F/L projects will have the welding specifications noted on the cover sheet of projects. Contractor can question the specification if they are not in agreement with the required process.

3.2 Joining Plastic Pipe

Butt fusion will be considered the primary method of joining longitudinal sections of plastic main. Rotary scrapers will be required when joining 4" and larger pipe in the ditch. Electro-fusion may be used at the discretion of the on site inspector. Electro-fusion couplings have been ordered for joining insertion or directional bored mains at intervals of 500 feet. Bar clamps should be used to secure 2" coiled pipe when joined by electro-fusion. Vice-grip clamps can not be used when joining runs of plastic mains together.

Two couplings are required per Cinergy Gas Standards when joining directionally drilled pipe. Personnel found joining pipe without the proper line up clamps and fusion equipment will lose their fusion cards., NO SECOND CHANCES WILL BE GIVEN FOR SHORT CUTS WHEN JOINING PIPE.

4.0 MAIN INSTALLATION

4.1 Inspection

CG&E will provide a Gas Inspector on all projects. The inspector will have multiple assignments.

4.2 Depth and Location of Main

All mains are to be installed at a minimum of 30 inches of cover in the sod. 36 inches under hard paving, or additional depths where permits or drawings specify. The State of Ohio Department of Transportation requires 48-inch of cover if the main is within 12-foot of the pavement, The State of Kentucky requires 42 inches of cover when in the road right-of-way and street improvement projects will set the depth or elevation of the main to be installed. Refer to attached letter (Appendix A).

4.3 Installation Methods

Acceptable methods of gas main installation are direct bury, insertion, pipe bursting or splitting, and directional drill.

4.3.1 Direct Bury

Spoil is to be used as backfill whenever practical.

4.3.2 Insertion

Pipelines installed by the insertion method shall include all costs associated with installation including mobilization, stringing, saw cutting of pavement, excavation at the service and tie in connections, removal of spoil, backfill, fusion, compaction, test wires and connections, pipe supports, foam sealing, squeezing off, excavation for utility location, temporary restoration and all final grass restoration, (which includes seed). Also included in the installation cost will be the air testing and the removal of segments of pipe associated with insertion and service reconnection activities. These segments must be removed from the job site and disposed of in an approved landfill. Pipelines will be leak surveyed by the on site inspector in accordance with CG&E standards. Insertion projects will require all customers to be back in service the same day. Crew hours will be paid for main line tie-ins only.

4.3.3 Directional Drilling

Directional drilling is an accepted method for pipe installation and must comply with all the guidelines set forth in this specification. The Gas Engineering Sponsor must approve all directional drilling of standard pressure pipe, pipe that will be drilled in rocky conditions, pipe placed within 3 feet of a paralleling a 3rd party utility, within 3-ft of a City of Cincinnati curb or within 5-ft of any Metropolitan Sewer or Clermont County water or sewer line.

The location and depth of all sewer laterals shall be determined and documented prior to directional drilling gas main to insure there is no conflict between the proposed gas main and the existing sewer. A plan for locating sewer laterals must be submitted to CG&E and approved prior to the Contractor performing any directional drill work; this cost is to be included in the installation price. Acceptable methods for locating the laterals are using a camera or physically uncovering the lateral. The contractor must install a sewer tag on every clean out if the main is directional drilled. Cinergy will provide the tags.

The Contractor must record the location and depth of the directional-drilled gas main at an interval of not less than every fifty (50) feet. The contractor shall excavate two test holes for every 300-500 foot bore to verify the location and depth of the gas main.

Spot holes or locate holes for 3rd party utilities, under hard pavement for directional drill bores should be done with a vacuum truck to eliminate 4 ft. x 2 ft. restoration holes. The City of Cincinnati does require a 1-foot cut back for small restoration areas.

4.4 Damage to Gas Facilities

The Contractor is not to repair any active services or mains that may be damaged during construction. If the Contractor encounters any leaks or anything questionable the inspector is to be notified.

4.5 Strength Testing

The Contractor must supply all test gauges and test recorders (minimum chart size no less than 8 inches) with the appropriate certification sent to CG&E Gas Engineering prior to performing any air test on piping facilities. The testing equipment must be certified annually and the certification sent to Gas Engineering. The Contractor will also be required to have certified purging equipment.

4.6 Restoration

Clean up and restoration on all projects must be in compliance with the local governmental agencies and must be approved by the CG&E inspector. If the permitting agency requires restoration other than Cinergy's standards, a written request must be submitted to the job sponsor prior to the final restoration being preformed.

All final restoration of longitudinal cuts should be rolled even if grind and pave is a requirement of the permit. Cinergy will require all uneven restorations to be redone.

Permits requiring grind and pave will be done at Cinergy's expense, unless it is do to poor workmanship. In some cases the grind and pave would have been waived if the final restoration was smooth.

5.0 GAS MAIN TIE INS

CG&E intends to do all tie-ins with CG&E crews, but the Contractor might be required to redirect contractor crews to complete tie ins in certain situations. Tie-ins will require the installation and tapping of TD Williamson fittings, squeezing polyethylene mains and installing the appropriate saddles and making appropriate taps for connecting to cast iron mains. The Contractor will be required to have the following equipment:

- T D Williamson equipment up to 4-inch. The Contractors are not required to purchase 6 thru 12 inch T D Williamson and other pertinent equipment; however. Cinergy would like the Contractor to own this equipment.
- guillotine saws
- Pressure gages
- Squeeze-off equipment for 2-inch through 8-inch polyethylene
- Stopper bags for 2-inch through 12- inch cast iron
- Pertinent equipment necessary to tie in 2-inch through 6-inch mains steel and polyethylene.

If the contractor assists CG&E crews with tie-ins, the Contractor will be compensated at an hourly rate for the use of tie in equipment. The Contractor will be compensated one additional hour, over and above the tie in time for the transportation and cleaning of the T D Williamson equipment. It will be the responsibility of the Contractor to meet with the Cinergy inspector, prior to scheduling any tie in work, to discuss the equipment and personnel necessary to perform the work. Cinergy will provide pressure crews to assist on tie in and purging activities.

Wipe tests are required when performing tie-ins over 4" in diameter, however, should the Contractor see any liquid condensate, the on site inspector must be notified. Cinergy will provide roll off containers to the contractor. The Contractor is responsible to provide a space for a roll off container to collect possible PCB contaminated pipe. The contract personnel are responsible to keep the roll off container covered at all times.

6.0 GAS SERVICES

The Gas Contractor will be required to renew costumer services from the gas main to the customer's service meter, as needed. Customer service lines are broken into two portions: the main to curb cock portion (M-C) and the curb cock to service meter portion (C-M). The Gas Contractor is required to complete all associated Job Completion Forms (JCF's) with the service work. The completion of the JCF's is required within one day of the completion of the service work. JCF's which are not filled out correctly will be returned to the contractor for correction.

6.1 Main to Curb (M-C) Service

Main to Curb services will be classified as either short-side M-C or long-side M-C. M-C short side services are less than 15 feet in length, regardless of the installation conditions. M-C long side services are 15 feet or longer in length and usually cross under roadways. It is possible to have all long side (crossover) services on a project. The main to curb portion of the service lines must be installed at the depth of 36 inches unless otherwise indicated. Street improvement plans typically contain cross section sheets which should be used to determine the depth of services.

In some insertion projects, it may be possible to reconnect the existing polyethylene main to curb service, should it pass the required pressure test, to the new gas main. This item will be paid on a lump sum basis as a M-C short side service.

When encountering a gas street lamp, the service to this will be considered M-C only and the actual connection to the lamp will be done by the Cincinnati Gas Light Company.

6.2 Curb to Meter (C-M) Service

Within the Cinergy natural gas service territory, the customer currently owns the C-M portion of the service line. Curb to meter services that do not pass the required pressure test or services that are metallic (steel or copper) will be renewed. The renewal work shall include turning on and off the services, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set, setting a new meter bracket, replacing the meter as required, and re-lighting the customer appliances. One extra hole will be paid to dig and separate the existing C-M when needed. Renewed C-M service lines shall be installed at a minimum depth of 18 inches on customer owned property. Gas Contractors are to gas track their own service work and it must be done by someone other than the installer. Every C-M service renewal or meter replacement must be gas tracked the same day it is installed. No leaks will be tolerated on inside meter sets, cards will be pulled.

Existing polyethylene services shall be reconnected to the new mains if it passes testing. The Gas Contractor will be required to turn off and to re-light customer appliances in accordance with the planned service replacement work and the Contractor must notify the Cinergy Inspector of any damaged or faulty appliances. The inspector will then call for a Service Mechanic who will then red tag the appliance if necessary.

Conversion projects where gas services must be converted from standard pressure to intermediate or high pressure will require the installation of regulators and vent piping.

The Gas Contractor will be required to replace tin meters and regulators associated with the renewal of curb to meter services. This replacement cost must be included in the curb to meter renewal unit price. CG&E will train Gas Contractors for free on the policies associated with spotting unacceptable meter and house service line locations and the identification of tin meters and mercury regulators. Only Cinergy personnel shall handle mercury regulators. If the household service lines or meters are found in an unacceptable location, the meters may be relocated to the outside.

7.0 BID ITEMS

CG&E is willing to review Contractor proposed alternatives to the bid items listed in the proposal. CG&E will require the Contractor to provide hourly rates for all labor and equipment such that payment can be made for work not anticipated on the contract.

7.1 Length of Gas Main

The length of gas main will be **paid on a linear foot basis** based on the type and size of pipe and method of installation. Payment will only be made for main that has been placed into service. The bid will specify direct bury or directional drill for 2, 4 or 6 inch main installations. The unit price received for 8 inch and larger mains will be accepted on the basis of direct bury unless otherwise specified by the Contractor. The designer must approve all changes.

Each size pipe shall be measured along the centerline of the pipe through fittings and casements from end to end. Where the pipe changes size, the particular size pipe shall be measured to the center of the transition fitting. The length of gas main installed by the Contractor shall be reported for payment under the units of gas main construction on the Units Work Completed Report. Each unit length of gas main installed shall include costs for:

- Mobilization
- Flag-persons or any arrow-boards
- Incidental items such as landscaping, trees and traffic loops
- Hydroseeding or seed and straw
  - Hydroseeding or seed and straw for tie-in holes should be included in the pipe price.
- Stringing
- Saw cutting of pavement
- Excavating & excavation for utility location
- Removal of spoil
- Joining pipe
- Placing backfill
- Compaction
- Anode installation
- Test connections
- Couplings
- Coating welds and couplings
- Temporary Restoration will be required for sidewalk installation and will consist of Class 53
- Air testing & purge point installation at ends of main (including installation of 8" valve box if backfilled
- Installing a 1 ¼ inch high volume tee to assist in the purging process of SP mains
- Blowing pigs through the new main
  - Two pigs are required for pigging with each lined up nose to nose
- Performing "Gas and Goes"

7.2 Boring – No Casing

This unit will apply to 8 inch and larger facilities. The installation price for 2, 4 or 6-inch bores shall be included in the main installation unit price. This unit is to be reported for payment by size groups of the pipe installed in the bore regardless of the size of the bore and shall include all costs associated with completing the bore as well as setting up the bore machine. The cost of installing the gas main in the bore is in addition to the cost of the actual bore and should be reported for payment under length of gas main installed. Payment for driveway bores will be calculated on the basis of edge to edge, for trees drip line to drip line and landscaped areas from edge to edge.

7.3 Boring – With Casing

This unit is to be reported for payment by the size of the casing that is installed in the bore regardless of the size of the bore and shall include joining, excavation, installation of all insulators, seals and vents in accordance with Engineering Standard 2.12.1. The cost of installing the gas main in the casing is in addition and shall be reported as length of gas main installed. Boring through rock shall not be included in this unit but should be negotiated by the Contractor and the Purchaser at the time such rock is encountered.

Where boring has been specified on the construction plans, boring will be the expected method of installation. The contractor must receive prior written approval from Gas Engineering if directional drilling is to be used in place of boring.

7.4 Valve Assembly Complete

Each valve must be reported for payment on the basis of the size of the valve installed. The unit price for each valve installation includes setting the valve box to proper grade and the installation of pressure stems in accordance with the appropriate standard. For steel valves, the cost of welding the companion flanges, bolting the valve to the companion flange or welding the valve directly onto the line is included in the valve installation unit.

On plastic valve installations, electro fusion couplings will no longer be allowed to be used on the in line portion of a plastic valve. A 3 ft. pup piece must be butt fused on each side of the valve.

7.5 Satisfactory Test Welds / Fusions

Each satisfactory test weld fusion must be designated by the size of pipe before reporting for payment. The cost of removing the weld / fusion from the line and re-welding / reconnecting the line shall be included in this payment. This unit will not be paid should the weld or fusion fail.

7.6 Services

Main to curb and curb to meter service renewal shall be paid on a lump sum basis. Included in the lump sum payment for main to curb or curb to meter is the associated paperwork, soft

restoration, and traffic control. The Contractor will be required to complete all associated JCF's. Any hard surface restoration required for main to curb or curb to meter service installations will be paid as a separate item. The number of services installed must be reported for payment. The inspector must be notified after a failed service line has been repaired so a record of the event can be logged and the inspector can verify that the repair was adequate.

7.6.1 Main to Curb (M-C) Service Line

The main to curb service will be paid on a lump sum basis by service size (1", 1-1/4", 2" or larger) and method of installation (direct bury, drill or insertion). The lump sum unit cost shall include excavating at the curb valve for reconnecting to the curb to meter portion of the service, and installing weld-o-let, service tee, service piping, curb cock, cap, setting of the curb box to grade, air test, soft restoration, and C-M tie-in. Curb cocks should not be installed in the sidewalk without the inspectors' approval prior to installation. Payment will be made on main to curb services when they are tested with the main.

7.6.2 Curb to Meter (C-M) Service Line

Curb to Meter service renewal will be paid on a lump sum basis for 1" or 1-1/4" service lines based on the type of installation (direct bury, drill, or insertion). The curb to meter price shall include turning on and off appliances, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set (including setting a new meter bracket and replacement of the meter as required), and re-lighting the customer appliances. This lump sum price will apply to a C-M service up to 70 feet in length. Any footage required over 70 feet will be paid at the price of $7.00 per foot (excluding insertions). Payment for curb to meter services will be made when they are placed into service and the restoration and appropriate paperwork is complete on a street. Any additional holes excavated for an outside meter set or changes in elevation, required for renewal of C-M by insertion only, will be paid at a set price of $ 75 per hole.

Large Service Reconnection – The reconnection of polyethylene or coated steel services 2" and larger to the main to curb will be paid on and hourly basis.

Large Service Renewal – The renewal of services 2" and larger will be paid as a bid item. This price shall include turning on and off appliances, separating existing facilities for testing, excavating, air testing, rebuilding of the meter set (including setting a new meter bracket and replacement of the meter as directed by the Gas Inspector), and re-lighting the customer appliances. This price will apply to a C-M service up to 70 feet in length. Any footage required over 70 feet will be paid at the price of $15.00 per foot. Payment for curb to meter services will be made when they are placed into service and the restoration and appropriate paperwork is complete on a street.

7.6.3 Test & Relight

Curb to Meter services that are polyethylene and pass the required pressure test will not be renewed. Test & Re-Light work will be paid on a lump sum basis for polyethylene C-M service lines that pass the required pressure test. The Test & Re-Light work includes turning on and off

the gas service, separating existing facilities for testing, air testing, re-connecting the meter set, and re-lighting the customer appliances according to CG&E approved procedures.

If flexible risers are encountered, they will be replaced at the time of the test and relight unit price plus $75.00 for each additional hole excavated. See attached (Appendix B) sketches for pay item clarification.

If old style regulators with 3/4" vents are encountered, they will be replaced with a new regulator (1" vent). **The new 1" vent pipe shall not be reduced to 3/4".**

Where dwellings with multiple meters are encountered, the contractor will be paid a test & relight price for the first meter and $50 for each additional meter.

7.6.4 Meter Relocation

The cost to move meters from an unacceptable location shall be included in the C-M service unit cost; no additional payment will be made. Any house-line piping that must be relocated will be paid for on a time and material basis. In the case where the meter is in an acceptable location, and the customer asks the Gas Contractor to relocate the meter outside, the Gas Contractor must negotiate a price with the customer for any house line piping that must be relocated. When moving remote meters to the outside, the Contractor must reuse the existing meter and reattach the remote reader and verify that reads of the meter and the remote are the same. When moving meters outside make sure to replace a non-temp compensated meter with a temp compensated meter.

7.6.5 Pressure Conversion Projects

Replacement projects where gas services must be converted from standard pressure to intermediate or high pressure will require the installation of regulators and vent piping. The installation of regulator vent piping will be paid on a pre-set lump sum basis for piping up to 10-feet in length ($55.00) and be paid on a pre-set linear footage basis for lengths over ten feet ($2.50 per foot). Any additional excavation holes will be paid at pre-set price of $75.00 each.

Bid Unit ID 55A-RPR, "Replace Plastic Riser Less Than 2", includes the excavation, installation, soap test, backfill, soft restoration and the relight.

7.7 Main Tie Ins

The time associated with separating the existing facilities and reconnecting to the new main will be paid on an hourly basis. Flag-persons, arrow-boards, and plates required for tie in work will be paid on a time and material basis. Cinergy reserves the right to allocate work to company personnel at any time to provide assistance with the tie-ins, to insure completion in a timely manner.

Tie-in costs shall include the preparation of any and all by-pass requirements, the installation of fittings, such as TD Williamson, excavation, preparing cast iron mains by installing appropriate

saddles and making appropriate taps in accordance with standards, and the abandonment of the existing facilities to include purge and sealing the ends, in accordance with standards.

7.8 Rock Excavation

Refer to specification GD-150 section 10, 10.9.1 to 10.9.5 (GD-147, Contractor's schedule of unit cost) included in this specification.

7.9 Extra Depth

Refer to specification GD-150 section 10, 10.10.1 (GD-147, Contractor's schedule of unit cost) included in this specification.

7.10 Backfill – Bankrun Gravel or Sand in Open Trench (Tons)

The Contractor must provide the number of tons of bankrun gravel or sand installed in an open trench to receive payment under this bid item. The cost of hauling excavated material will not be paid as an extra and must be included in this bid.

7.11 CDF, CLSM or Flashfill

CLSM must be used as required by the appropriate governmental agency or as directed by CG&E. Within the hard surface areas, payment will be made to within 11 inches of final grade. The Contractor must provide the number of cubic yards installed in an open trench to receive payment under this item. The cost of hauling excavated material will not be paid as an extra and must be included in this bid item.

7.12 Restoration

Restoration shall be reported for payment under the appropriate unit cost item. The restoration will be bid on a class basis and must be completed in accordance with CG&E Standard 2.14, Specification GD-161 and the appropriate governmental agency requirements. Common restoration units not identified on the bid will be paid at the pre-set price shown on the attached list (Appendix C).

7.12.1 Soft Restoration

All final soft restoration, seed and straw, shall be included in the length of main installed. Twelve (12) inches of topsoil will be required if granular material is used as a backfill. The Contractor will be required to hydro-seed all soft areas, except when a Cinergy or community Inspector instructs you to seed and straw based on drought conditions. A seed mixture Spec is included. Topsoil is a separate bid item. All service holes outside the pavement area are to be covered with ¾" plywood and flasher barricade or snow fencing.

Soft restoration of tie-in holes should be included in the pipe installation cost regardless of whether CG&E crews or contractor crews perform the tie-in.

7.12.2 Hard Surface Restoration

Restoration for asphalt pavement (street or driveway) will be paid in lineal feet in accordance with the unit price received. This price will apply to restoration completed in conjunction with the lineal feet of excavation required for installing the main and will be based on 2 feet of width. Equivalent footage two feet wide will be calculated for payment for service cuts and bell holes. Any sidewalk removal must be temporarily restored in accordance with local governmental requirements.

Curb ramps may be required at the intersections of streets. All restoration must be in compliance with the municipalities. Cost associtiated with this activity should be included in the integral curb with sidewalk pay item.

Bores under driveways and walkways are not considered hard paving when they are crossed. The entire bore is paid as sod. If the bore crosses a roadway it will be paid at the hard paving rate. Payment for restoration and backfill for directional-drilled facilities will only be made for necessary cuts and not for the entire length of main. Should the Contractor choose to directional drill and pop a driveway, payment will be made for the driveway restoration only and no payment will be made for boring without casing. Should the Contractor pop a street, payment will only be made for a 2 foot wide restoration strip, as would be required for open cut.

7.12.3 Tie-In Restoration

Restoration associated with tie-ins or other areas will be paid on a square yard basis.

7.12.4 Service Renewal Restoration

Any hard surface restoration required for main to curb or curb to meter service installations will be paid as a separate item.

7.12.5 Restoration Not Included on Bid

An addendum letter must be submitted prior to performing the work to the Job Sponsor. Prices on the pre-set small restoration unit price list should be used, refer to (Appendix C). Small restoration units will be paid cumulatively if completed in the same week.

7.12.6 Warranty of Restoration

The Contractor shall warrant materials and workmanship for a minimum period of one year from the final acceptance date of the project. All necessary repairs or replacements shall be made at

the Contractor's expense. If after a period of one year, the surrounding area does not deteriorate and the repaired area does, the Contractor will be partially responsible for making a new repair.

7.13 Miscellaneous

1- Consideration will be made to pay a welder to cut streetcar tracks. There will be no down time for the crew. The concrete removal will be paid in accordance with the rock unit after the first 11-inches from the street.

2- Northern Kentucky Sanitation District has requested that they be contacted when their facilities are damage. Refer to attached letter (Appendix D).

3- Test Holes will be paid as follows:

In Sod	$75, includes seed restoration
In Pavement	$150, restoration will be paid as a separate item

Any test hole required to spot utility crossings and to verify depth on directional drills will not be paid.

4- Traffic loops will be the responsibility of the contractor and should be included in the pipe price.

5- All railroad crossing permits were applied for by CG&E assuming that the crossings will take place with cased pipe bored at minimum 5.5' of cover below tracks. If the Contractor want to directional drill the crossing, the main has to be 10 below the tracks. If the change to directional drilling creates a problem with the original permit the Contractor will not be reimbursed for any down time. It is the contractor's responsibility to notify CG&E of their intention to directional drill the crossing and to allow adequate time to obtain a change in the railroad permit. If time does not allow for a change in the permit the contractor is expected to bore the crossing.

6- The City of Covington has submitted a restoration requirement for brick streets. Refer to attached letter (Appendix E).

7- The City of Cincinnati has submitted a general guideline of their traffic control requirements and usage of LSM and concrete. Refer to attached notes (Appendixes F).

8.0 COMPLETION OF WORK

No work shall be completed unless it is accepted by the authorized agent of the Contractor and the authorized agent of CG&E. Work must comply with the proposal and any written negotiations associated therewith. The completion report is a listing of units installed or total number of hours of worked to complete the job.

The purchaser will track units of work completed as well as the associated hours such that productivity data can be collected for future cast iron and bare steel modules.

All work must be completed in the field by December 1, 2005 and all invoices received by December 15, 2005. However, all 12-inch main work must be completed in the field by October 27, 2005.

9.0 INVOICING

Contractors must meet with Inspectors on a weekly basis to complete sign off sheets on all projects (preferably Friday evening or Monday morning). The Inspector's copy is immediately forwarded to the invoice desk. The Contractor's copy is forwarded with the invoice to the invoice desk. Only one project can be billed on an invoice. Do not send two or more projects on one invoice or the invoice will be rejected. Do not add any items after the document has been signed. If there are additional items, sign out an additional sheet with the inspector. If the restoration is not completed when an invoice is payable, the payment will be held until the Supervisor accepts the completed work.

Items which were not bid (addendums) should not be invoiced with items that were bid. Also, any time and material (T&M) requests should be invoiced separate of bid items. T&M invoices should be accompanied by the daily sheets for each date that T&M was requested. The daily sheets should clearly identify the start and stop times for the T&M on each date along with the inspector's signature for approval on that date.

All invoices must be submitted such that the units to be invoiced, previous units invoiced and total units invoiced are shown. All invoicing must be submitted in this manner. A sample invoice is enclosed. Send all invoices to:

Cast Iron / Bare Steel Invoice Desk,
139 East 4th Street, Room 405-A
Cincinnati, Ohio 45202

APPENDIX "A"

STATE OF KENTUCKY UNDERGROUND UTILITIES DEPTH REQUIREMENTS

KENTUCKY TRANSPORTATION CABINET
FRANKFORT, KENTUCKY 40622
WWW.KENTUCKY.GOV

ERNIE FLETCHER
GOVERNOR

MAXWELL C. BAILEY
SECRETARY

MEMORANDUM

TO: Chief District Engineers
District Permits Personnel
District Utilities Personnel

THRU: Maxwell C. Bailey
Secretary

Marc Williams
Commissioner of Highways

J.M. Yowell
State Highway Engineer

Charles A. Knowles
Executive Director of Traffic Operations & Maintenance

Tom Schomaker
Director of Maintenance

FROM: M. Chad LaRue
Branch Manager of Permits

DATE: October 27, 2004

SUBJECT: **Revision to Permits Policy Manual-Utility Crossings-Change to Underground Utilities Depth Requirements**

This memorandum is to notify all Kentucky Transportation Cabinet personnel of the change to the required depth for underground utilities that are located on state right-of-way. This change is being done to reduce the potential for impacting underground utilities that are located on state right-of-way. The previous policy had a variance that led to inconsistency in the depth at which underground utilities have been installed throughout the state. In addition, there have been instances where sign post installation, guardrail installation, and ditching have damaged underground utilities.

Effective the date of this memorandum, section PE 202-2, page 2 of 3, under **Utilities** in segment **Underground,** in the Permits Policy Manual shall now read, **"The minimum depth for underground utilities is 42" under roadways, ramps, and ditch lines and 30" in all other areas within state right-of-way. Exceptions may be made only where the terrain is such that this requirement is proved to be impractical and where a lesser depth will not interfere with highway maintenance, safety or aesthetics. It is at the discretion of the Chief District Engineer to determine where these exceptions are to be allowed."**

Section PE-202-3, page 1 of 5, in the segment **Underground Utilities Installed Longitudinally,** shall now read, **"Requirements- These utilities must be buried a minimum of 30 inches deep... "** The remaining portion of this segment shall remain the same.

Section PE-202-3, page 3 of 5, under **Encasement of Utilities,** in the segment **Conditions Where Encasement Not Required,** shall now read, **"3. Pipe crossings 2" in diameter and under will not require encasement provided they are buried at least 42" below bottom of ditches, shoulders, and roadway surfaces."** I have also attached an updated form TC 99-10 that reflects the above change.

This policy change will be made in the Permits Policy Manual upon its next revision.

MCL

C: Central Office Division Directors

Attachment

Kentucky Transportation Cabinet
Department of Highways
Permits Branch

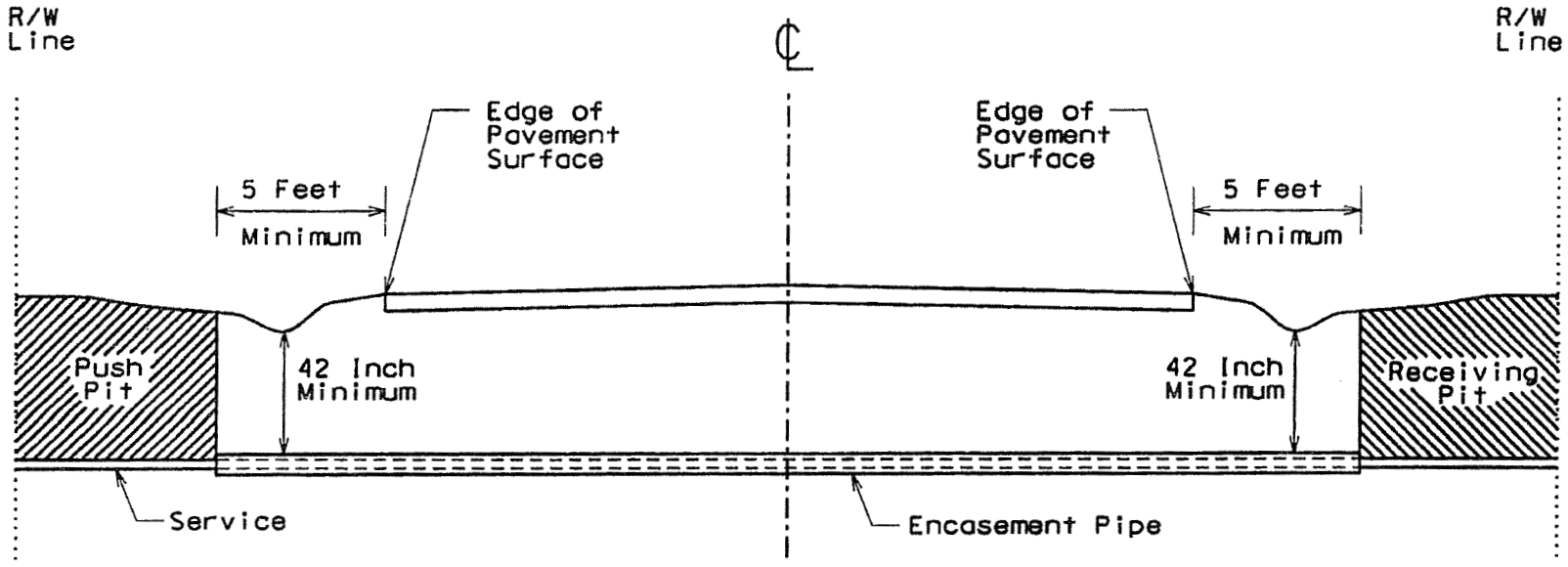
EXHIBIT B
TC 99-10
Rev. 9/20C

TYPICAL HIGHWAY BORING CROSSING DETAIL

Permit No. _____

Route No. _____

Pavement Width _____



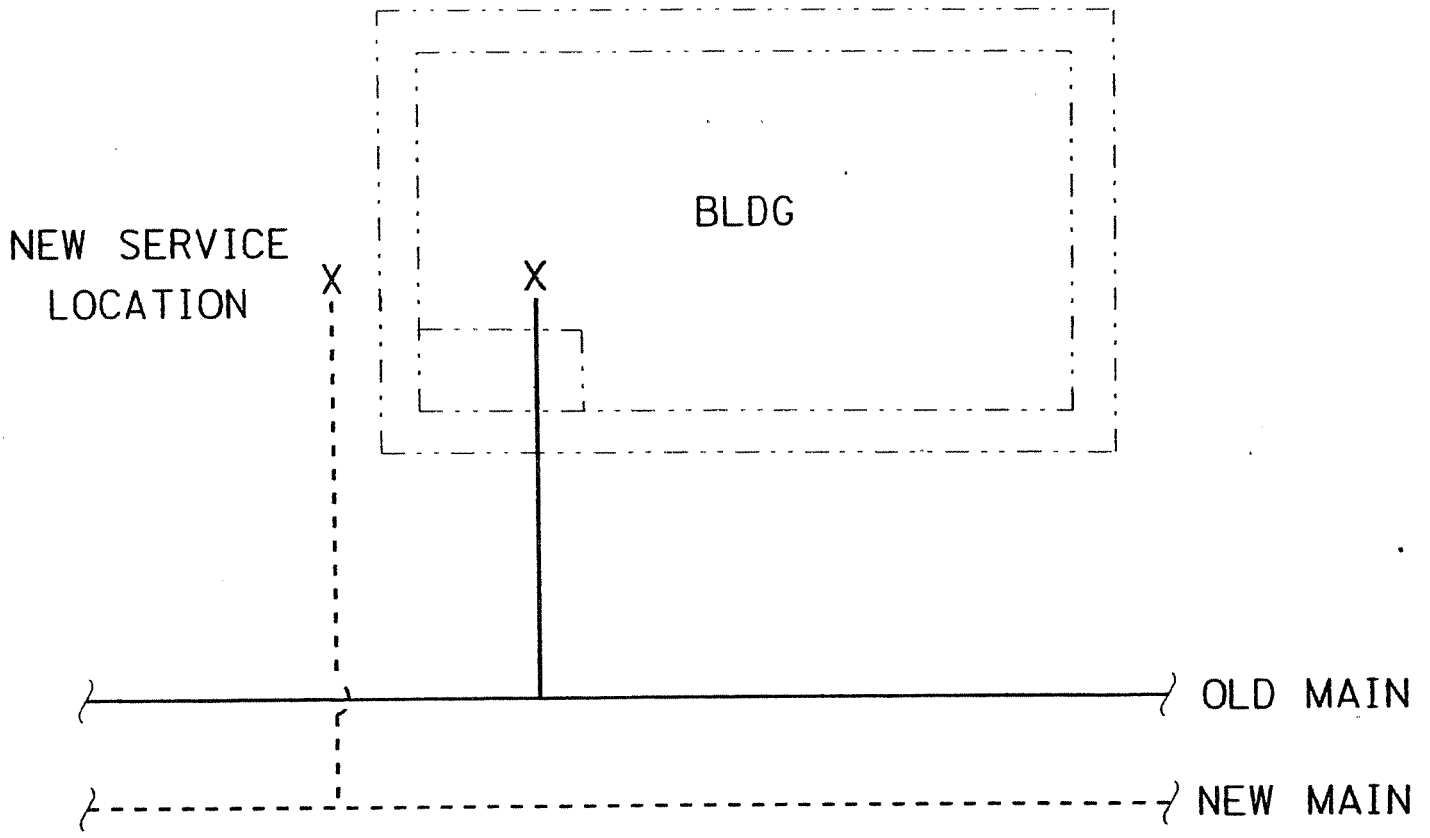
1. Push Pit and Receiving Pit shall be backfilled and thoroughly compacted.
2. All ditch lines are to remain open at all times.
3. Seed and straw all disturbed areas immediately after completing the work.
4. Provide traffic control as required to insure the safety of the traveling public in accordance with the current edition of the "Manual on Uniform Traffic Control Devices".

ALL SERVICES OVER 2" IN DIAMETER SHALL REQUIRE ENCASEMENT.

APPENDIX "B"

SERVICES SKETCHES

UNACCEPTABLE LOCATION MOVE METER TO SIDE OF HOUSE



CURB LINE

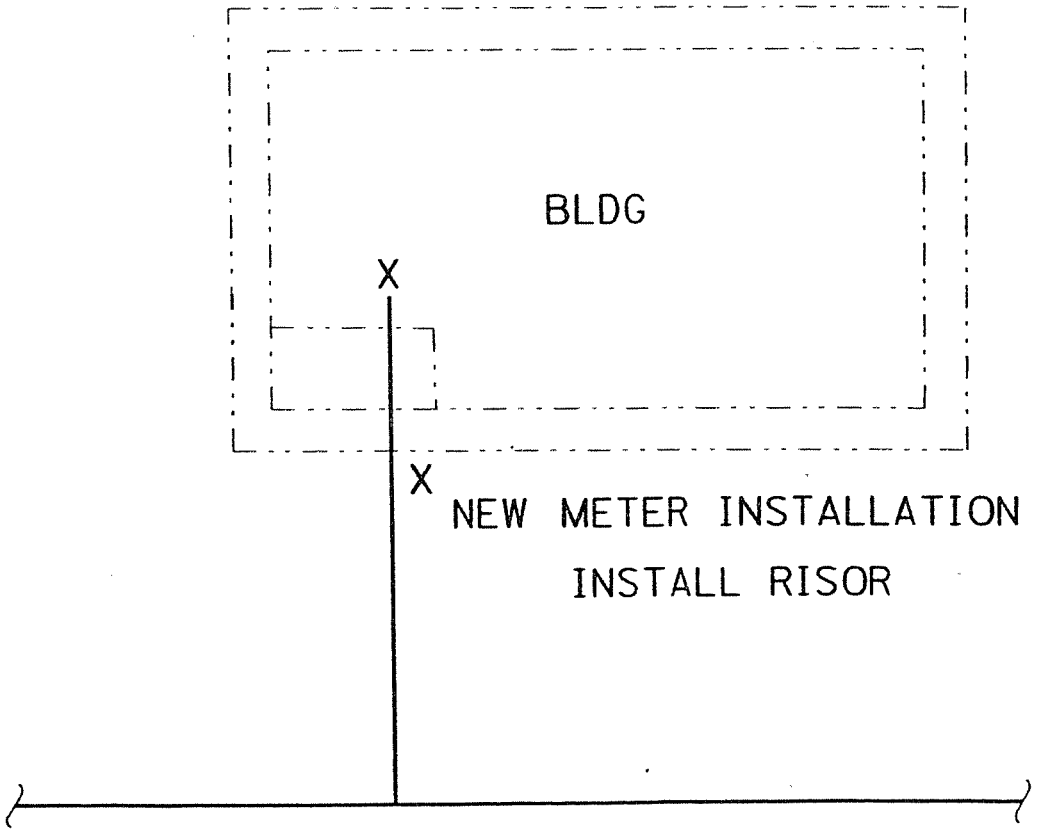
PAY ITEMS

1) RENEW CURB TO MAIN DIRECT BURY

2) T & M RELOCATE HOUSELINE

UNACCEPTABLE LOCATION MOVE METER

TO FRONT WALL TEST AND RELIGHT EXISTING PL M - M

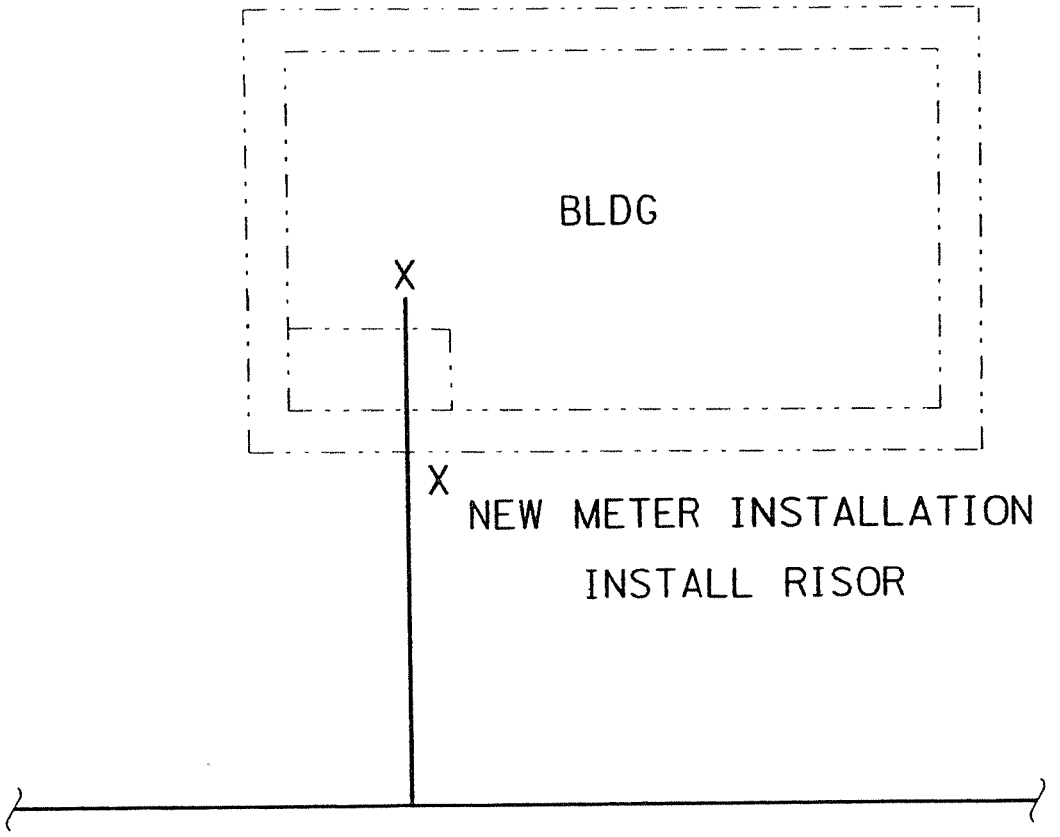


CURB LINE

PAY ITEMS

1) TEST AND RELIGHT
2) EXTRA HOLE AT CURB AND FRONT WALL
   T & M FOR HOUSE PIPE

UNACCEPTABLE LOCATION MOVE METER FRONT WALL (INSERTION)



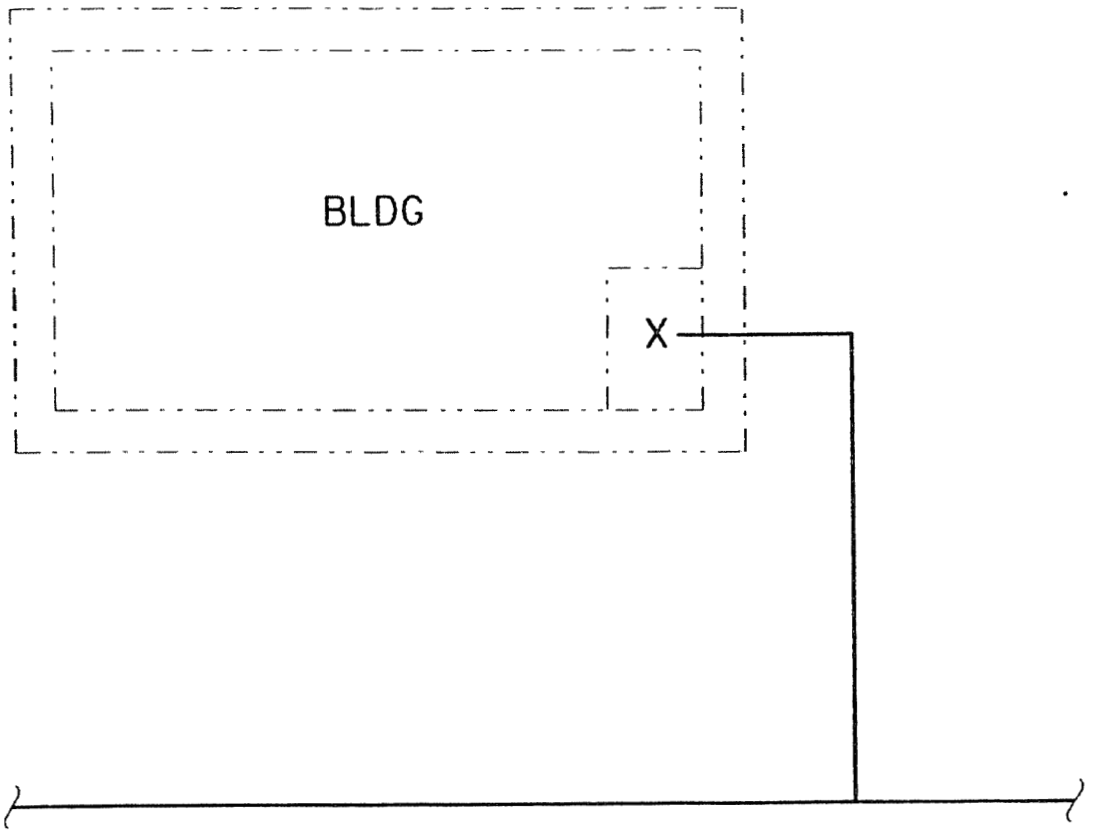
CURB LINE

PAY ITEMS

1) RENEW INSERTION C - M
2) EXTRA HOLE
   T & M RELOCATE HOUSE LINE

METER IN GARAGE

C - M EXISTING C - M ABOVE GROUND



CURB LINE

CURB LINE

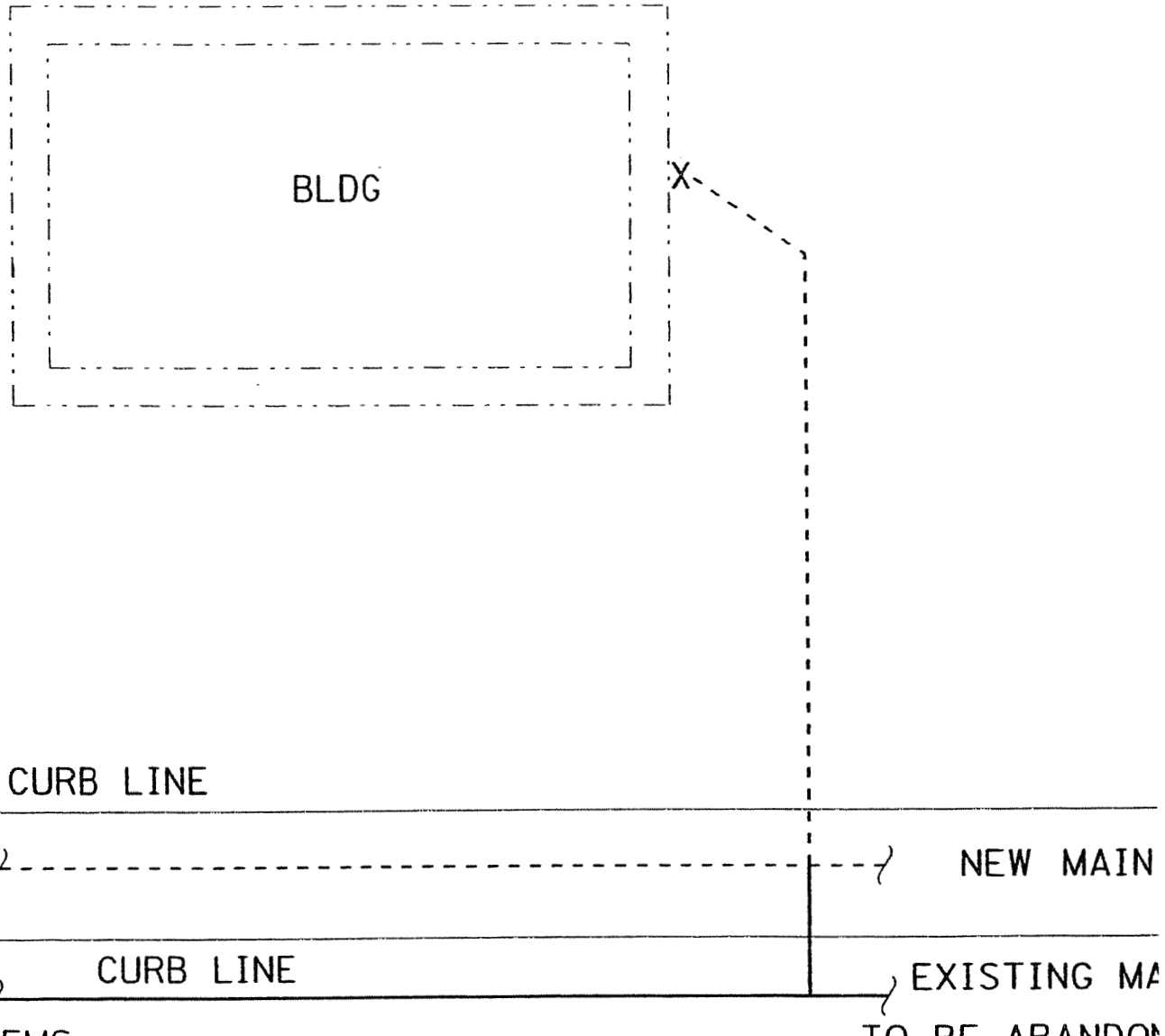
INSERTION C - M PAY ITEMS

1) RENEW C - M INSERTION
2) T & M TO RECONNECT
- M (METER INSIDE)
3) IF METER IS MOVED TO OUTSIDE T & M TO RECONNECT HOUSELINE
4) EXTRA HOLE

DIRECT BURY C- M PAY ITEMS

1) RENEW C - M DIRECT BURY
2) (METER INSIDE) T & M TO RECONNECT C - M THROUGH THE WALL
3) (OUTSIDE METER) T & M TO RECONNECT HOUSELINE THROUGH THE WALL

SHORTEN EXISTING M - C REPLACE RISER

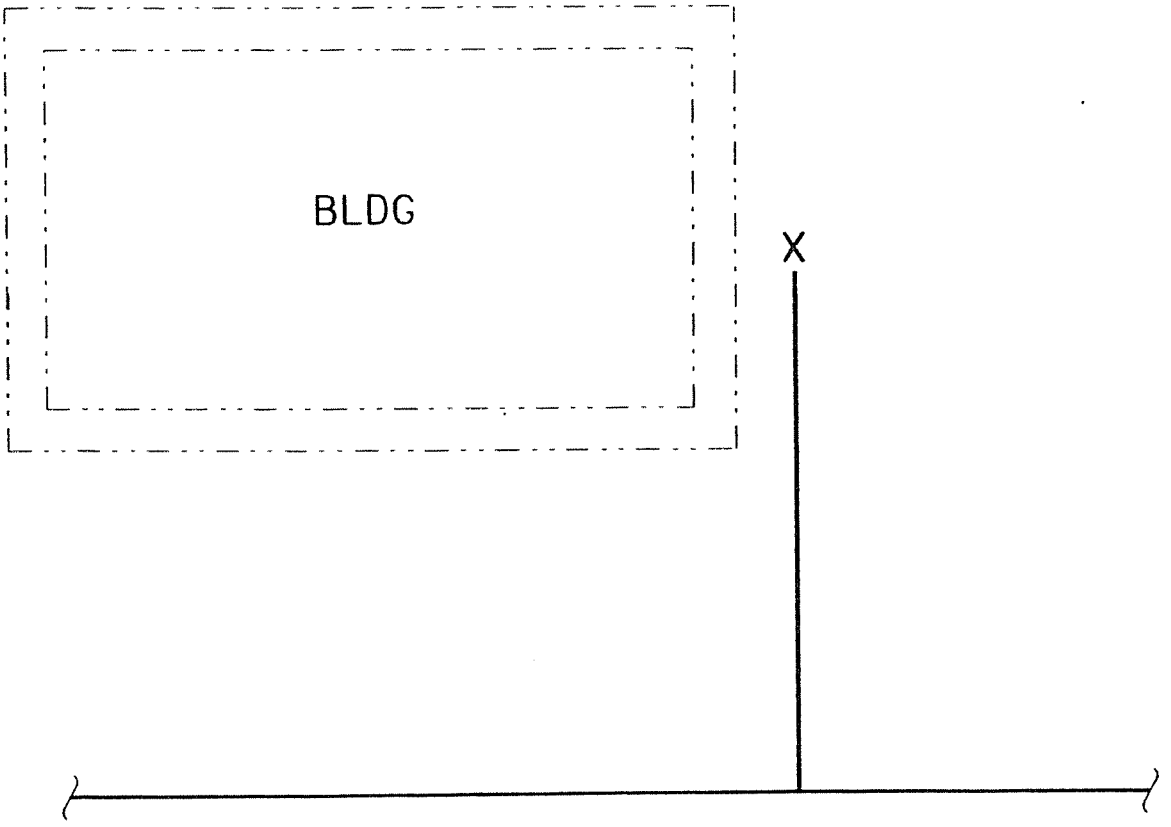


PAY ITEMS

1) M - C SHORT SIDE
   TEST AND RELIGHT
3) EXTRA HOLE AT HOUSE
4) EXTRA HOLE AT CURB

IF VERIFICATION HOLE IS DUG

EXISTING C - M PLASTIC DIG AT CURB REPLACE RISER



CURB LINE

CURB LINE

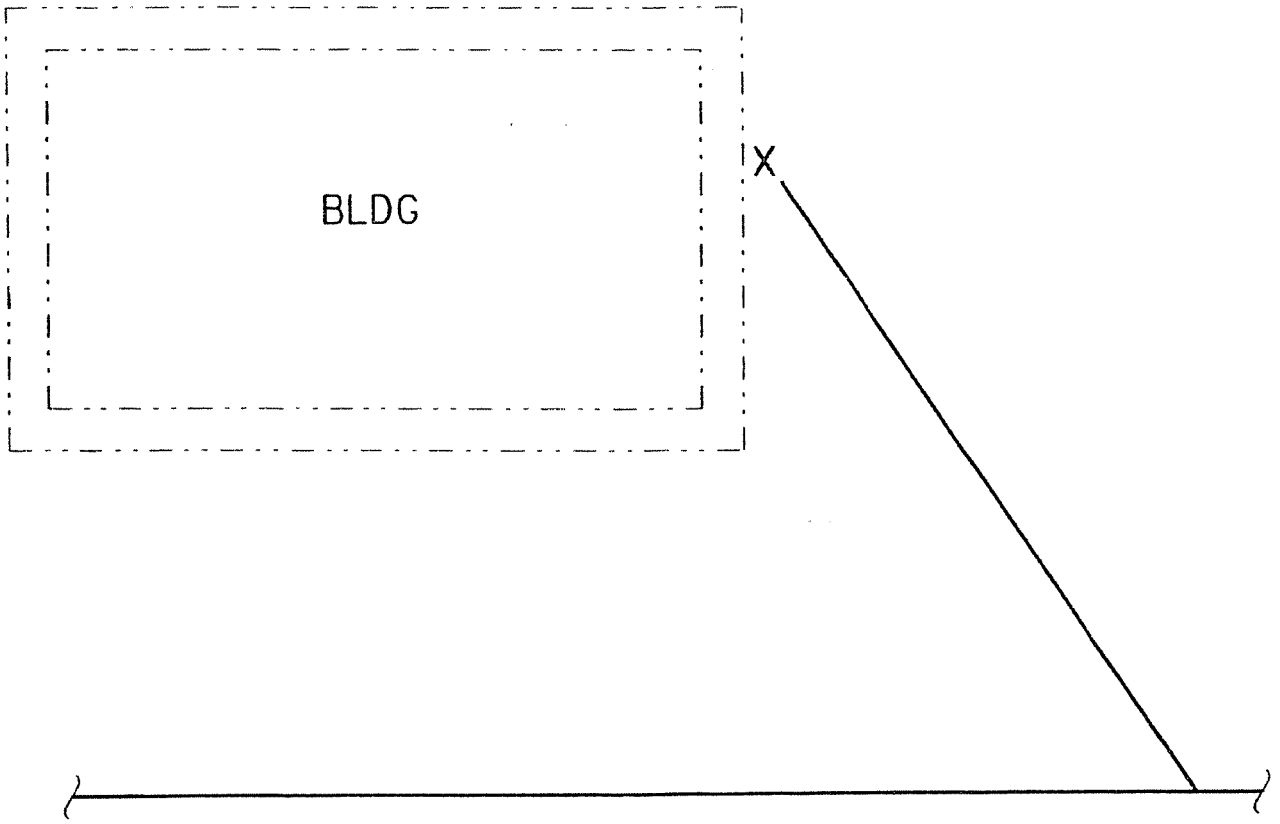
PAY ITEMS

1) TEST AND RELIGHT

EXTRA HOLE AT HOUSE

3) EXTRA HOLE AT CURB

EXISTING C - M PLASTIC REPLACE RISER ONLY



CURB LINE

PAY ITEMS

1) REPLACE RISER

EXTRA HOLE AT CURB IF VERIFICATION HOLE IS DUG

APPENDIX "C"

PRICING FOR NON-BID RESTORATION

UnitID	UnitDesc	Unit	Payment for Non-Bid Items ($)
10-A3	Cl. 10 Concrete Curb - (0-3.9)	Lin. Ft.	$ 41.00
10-B4	Cl. 10 Concrete Curb - (4-24.9)	Lin. Ft.	$ 34.00
10-C25	Cl. 10 Concrete Curb - (Over 25)	Lin. Ft.	$ 30.00
13-A3	Cl. 13 - Concrete Curb (0-3.9)	Lin. Ft.	$ 43.00
13-B4	Cl. 13 - Concrete Curb (4-24.9)	Lin. Ft.	$ 42.00
13-C25	Cl. 13 - Concrete Curb (Over 25)	Lin. Ft.	$ 41.00
14-A3	Cl. 14 - Conc. Curb w/ sidewalk (0-3.9)	Lin. Ft.	$ 40.00
14-B4	Cl. 14 - Conc. Curb w/ sidewalk (4-24.9)	Lin. Ft.	$ 32.00
14-C25	Cl. 14 - Conc. Curb w/ sidewalk (Over 25)	Lin. Ft.	$ 29.00
16-A2	Cl. 16 - Install tie bars (0-2)	Each	$ 17.00
16-B3	Cl. 16 - Install tie bars (3-12)	Each	$ 16.00
16-C12	Cl. 16 - Install tie bars (Over 12)	Each	$ 16.00
19-A2	Cl. 19 - Dowel Pins/Tie Bars (0-2)	Each	$ 17.00
19-B3	Cl. 19 - Dowel Pins/Tie Bars (3-12)	Each	$ 16.00
19-C12	Cl. 19 - Dowel Pins/Tie Bars (Over 12)	Each	$ 16.00
32-A2	Cl. 32 - Asph. Concrete Surface (0-2.9)	Sq. Yd.	$ 50.00
32-B3	Cl. 32 - Asph. Concrete Surface (3-12.9)	Sq. Yd.	$ 43.00
32-C13	Cl. 32 - Asph. Concrete Surface (13-49.9)	Sq. Yd.	$ 33.00
32-D50	Cl. 32 - Asph. Concrete Surface (50-199.9)	Sq. Yd.	$ 28.00
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	$ 26.00
43-A3	Cl. 43 - Bituminous Curb (0-3.9)	Lin. Ft.	$ 25.00
43-B4	Cl. 43 - Bituminous Curb (4-24.9)	Lin. Ft.	$ 22.00
43-C25	Cl. 43 - Bituminous Curb (Over 25)	Lin. Ft.	$ 19.00
44-A2	Cl. 44 - Asphalt surf./stone base (0-2.9)	Sq. Yd.	$ 80.00
44-B3	Cl. 44 - Asphalt surf./stone base (3-12.9)	Sq. Yd.	$ 75.00
44-C13	Cl. 44 - Asphalt surf./stone base (13-49.9)	Sq. Yd.	$ 74.00
44-D50	Cl. 44 - Asphalt surf./stone base (50-199.9)	Sq. Yd.	$ 74.00
61-A3	Cl. 61 - Concrete sidewalk (0-3.9)	Sq. Yd.	$ 99.00
61-B4	Cl. 61 - Concrete sidewalk (4-24.9)	Sq. Yd.	$ 67.00
61-C25	Cl. 61 - Concrete sidewalk (Over 25)	Sq. Yd.	$ 62.00
71-A3	Cl. 71 - Concrete Driveway (0-3.9)	Sq. Yd.	$ 87.00
71-B4	Cl. 71 - Concrete Driveway (4-24.9)	Sq. Yd.	$ 82.00
71-C25	Cl. 71 - Concrete Driveway (Over 25)	Sq. Yd.	$ 67.00
72-A2	Cl. 72 - Asph surf-stone base - driveway (0-2.9)	Lin. Ft.	$ 59.00
72-B3	Cl. 72 - Asph surf-stone base - driveway (3-11.9)	Lin. Ft.	$ 52.00
72-C12	Cl. 72 - Asph surf-stone base - driveway (Over 12)	Lin. Ft.	$ 23.00
73-A2	Cl. 73 - Asphalt surf. Driveway (0-2.9)	Lin. Ft.	$ 70.00
73-B3	Cl. 73 - Asphalt surf. Driveway (3-11.9)	Lin. Ft.	$ 41.00
73-C12	Cl. 73 - Asphalt surf. Driveway (Over 12)	Lin. Ft.	$ 30.00
74-A3	Cl. 74 - Concrete driveway (0-3.9)	Sq. Yd.	$ 82.00
74-B4	Cl. 74 - Concrete driveway (4-24.9)	Sq. Yd.	$ 77.00
74-C25	Cl. 74 - Concrete driveway (Over 25)	Sq. Yd.	$ 70.00
75-A2	Cl. 75 - Full depth asphalt driveway (0-2.9)	Lin. Ft.	$ 69.00
75-B3	Cl. 75 - Full depth asphalt driveway (3-24.9)	Lin. Ft.	$ 63.00
75-C12	Cl. 75 - Full depth asphalt driveway (Over 25)	Lin. Ft.	$ 57.00
93	Cl. 93 - Topsoil	Cu. Yd.	$ 40.00
RVP	Vent pipe for Regulator Up to 10 ft. for SP Conversions	Each	$ 55.00
EXRVP	Extra regulator vent line over 10 ft.	Lin. Ft.	$ 2.50
55A-MRE	Multiple Re-light existing services	Each	$ 50.00
55F	C-M services over 70 ft.	Lin. Ft.	$ 7.00
EXTRA HOLE	Extra Hole Soft Surface	Each	$ 75.00
EXTRAHOLEH	Extra Hole Hard Surface	Each	$ 150.00

APPENDIX "D"

SANITATION DISTRICT CONTACT INFORMATION

SANITATION DISTRICT NO. 1

June 15, 2004

Ms. Rhonda Whitaker
Area Manager
Cinergy, ULH&P
107 Brent Spence Square
Covington, KY 41011

Dear Rhonda:

We understand that Cinergy is currently in the process of completing upgrades to gas systems throughout much of Northern Kentucky. While this work was being completed in the City of Southgate, crews damaged a sanitary sewer line on Willow Road near US 27. Gas crews made a repair to the sanitary line but unfortunately it was done improperly.

In the future, if a sanitary sewer line is damaged during a repair, we ask that you contact our Dispatch immediately at 859-578-7466. This will help us to ensure that proper materials and procedures are used to complete the repairs. We ask that if one of your crews completes the repair, that we be notified so that an inspection can be completed prior to the repair being backfilled. If it is more convenient for you, Sanitation District crews can complete the repairs and invoice you for the costs of the repair including time and material.

If you have any questions regarding this matter, please do not hesitate to contact John Penick, Director of Collection Systems, at 859-578-7455.

Sincerely,

Jeffery A. Eger
General Manager

1045 EATON DRIVE • FT. WRIGHT, KENTUCKY 41017-9681 • PH: (859) 578-7450 • FAX: (859) 331-2436

APPENDIX "E"

CITY OF COVINGTON RESTORATION ORDINANCE

CITY OF COVINGTON

638 MADISON AVENUE • COVINGTON, KENTUCKY 41011-2298

August 9, 2005

Cinergy
670 W. North Bend Road
Cincinnati, OH 45224

Re: City of Covington Restoration Ordinance

Based on the recent concerns expressed by Covington residents, neighborhood committees, and various public agencies regarding restoration of streets and sidewalks, I felt it necessary to provide all the utility organizations performing work within the City a copy of our restoration requirements. Enclosed is a copy of the pertinent sections of our Code of Ordinances specifically addressing restoration of streets, alleys, sidewalks, and other passageways within the City's right-of-way.

The recent concerns have been restoration of brick streets and alleys or the lack thereof. Due to the historical significance of this particular infrastructure I am asking that you remind your field crews and contractors of the detailed requirements for restoration of brick streets and alleys. The intent insofar as possible is to carefully remove the existing brick and replace the same after utility work is completed. In cases where this is not possible, I ask that you coordinate your efforts with the Engineering Department.

To assist in the planning process, I have enclosed a map highlighting the brick streets within Covington. We are hopeful that with proper coordination we can maintain the historical appeal we are known for in the state of Kentucky.

Thank you for your continued efforts in maintaining and improving our city.

Sincerely,

Thomas H. Logan, PE
City Engineer
City of Covington

c: Jay Fossett, City Manager

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§ 96.05 ENCROACHMENT PERMITS FOR WORK ON STREETS; REPAIRS TO STREETS.

(E) *Restoration regulations.*

(1) Each and every person who excavates, digs into, or occupies the right-of-way of any city street, alley, sidewalk, or other public way or any owner of real estate or the agent or lessee of such owner, who allow or permits such work to be done, whether under contract with the city or otherwise, has a duty, upon completio of such work, to immediately cause the street, alley, sidewalk, or other public way worked upon to be placed in reasonably close conformity to its condition before such work began. This work shall include, but not be limite to, the following:

(a) Installing, removing, or repairing any water pipe for the conveyance of water; gas pipe for the conveyance of gas; sewer pipe for the conveyance of drainage or sewerage; electric, telephone, computer, or cable type conduit of any kind; construction of any kind of sewer or other drain structure; or for the purpose of making house connections of any kind whatsoever;

(b) Installing, removing, or repairing any overhead lines or other similar facilities; and/or

(c) Opening, excavating, or occupying the right-of-way of any city street, alley, sidewalk or other public way or causing or permitting it to be opened, excavated, or occupied.

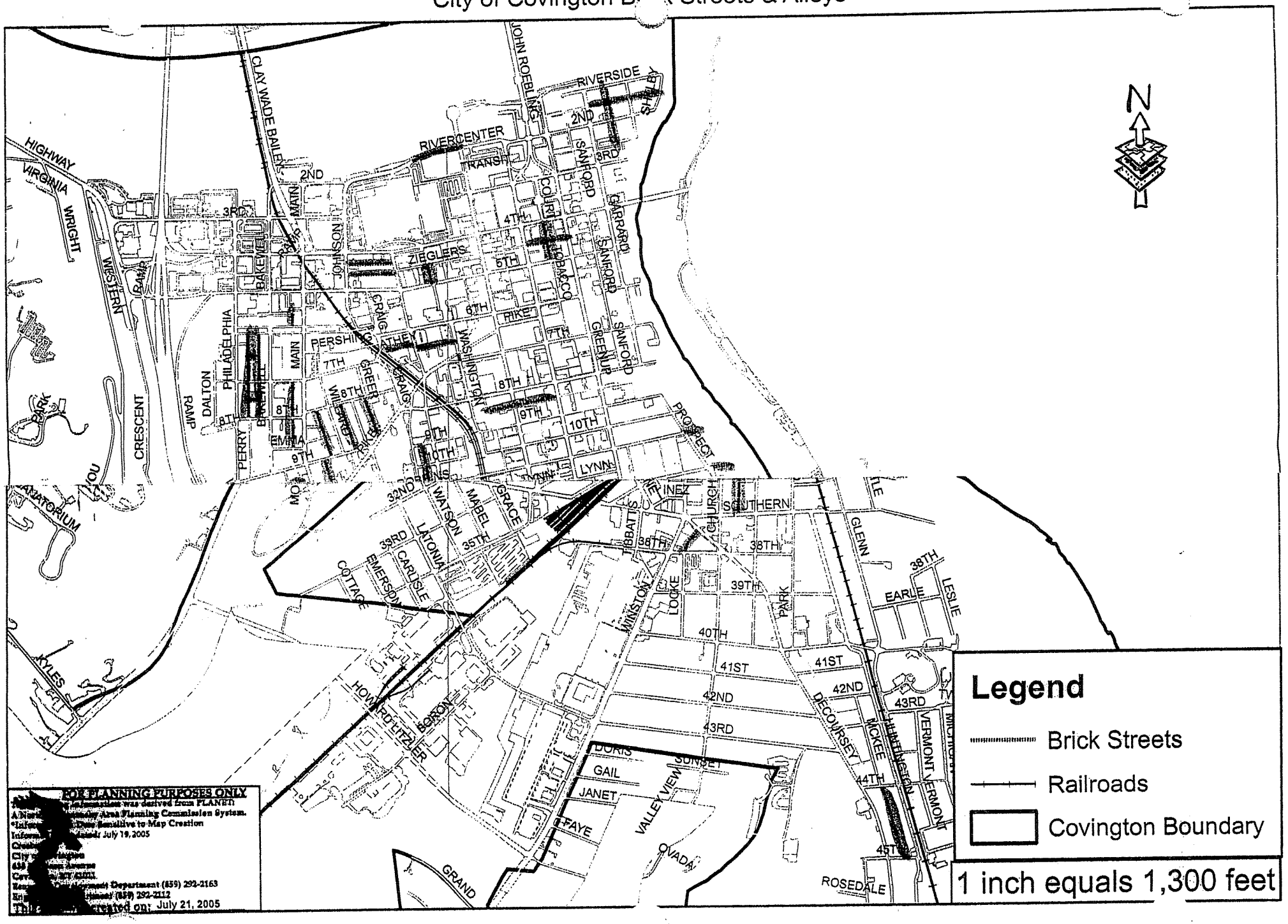
(2) Restoration work shall include the proper and thorough compacting and settling of the earth displaced, replacement of backfill, sub-base, or pavement, as required by current city standards or subdivision egulations. The top of any such opening shall be replaced or laid with the same or nearly the same kind of material(s) as composed the surface before such opening was made and in the same manner and upon the same level as it lay before such opening was made.

(a) If bricks or pavers are removed, to the extent possible, the removed bricks or pavers should be reused at the top of any such opening. If the removed bricks or pavers cannot be reused, then bricks or pavers of a like kind and material should be used. Restoration work must be completed immediately after the purpose for opening the street, alley, sidewalk, or public way is accomplished, and such work must be completed befor the person or company doing the work leaves the work site, unless the City Engineer grants to said person or company a written extension of time to complete the restoration work. The street, alley, sidewalk, or other public way worked on, immediately after such work is done, shall be placed in reasonably close conformity to its original condition in every respect as it was before such work was commenced.

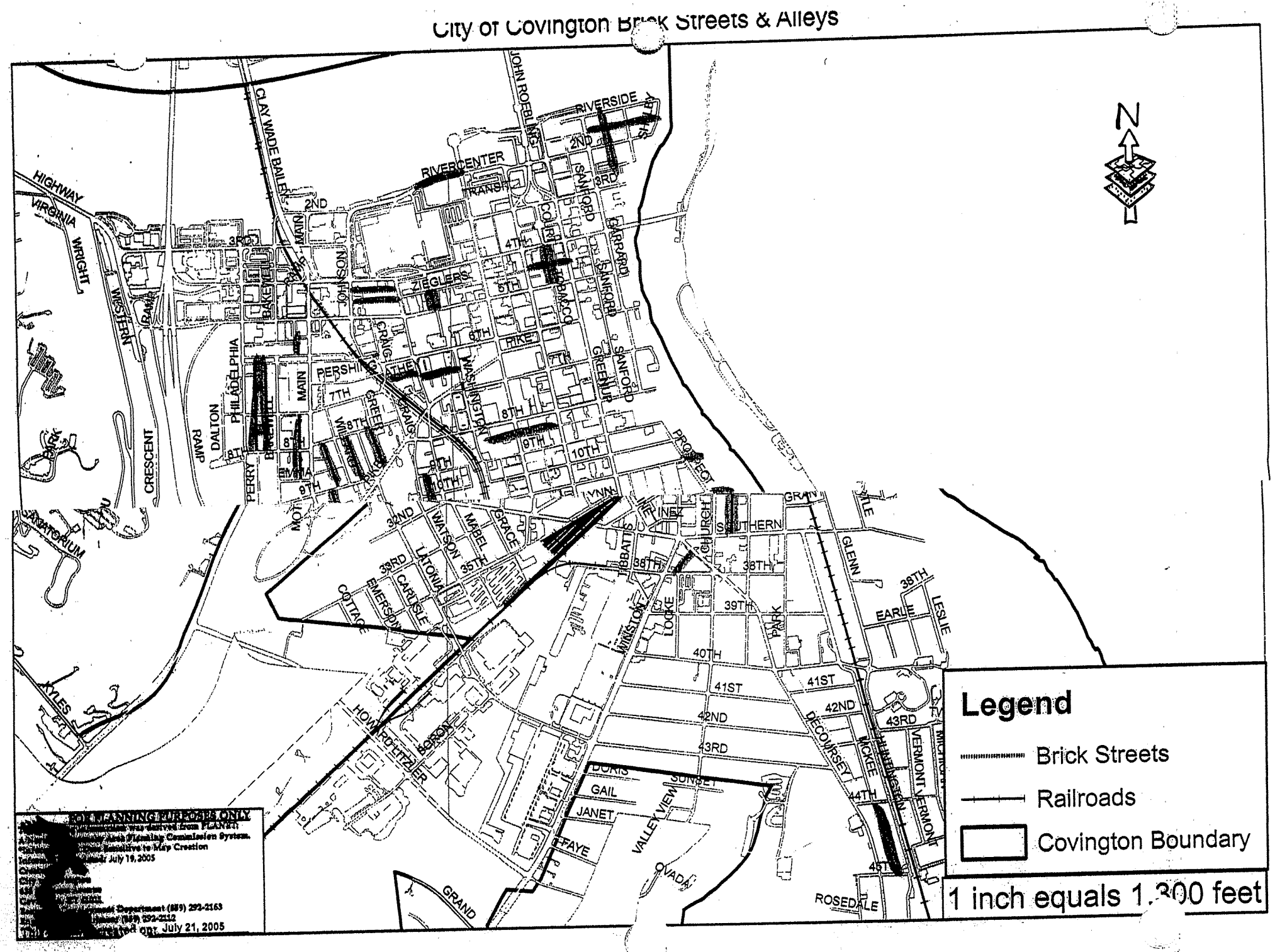
(b) The duty of restoring the street, alley, sidewalk, or other public way to conformity with its original condition is also imposed upon any contractor and any officer and upon any and all other persons und whose direction, supervision, or oversight such work is done or upon whose request, permission or cooperatio such opening is made. It is the duty of the City Engineer to require and see that the provisions of this section are strictly, promptly, fully, and carefully carried out and enforced.

('77 Code, § 622.2, Sec. IV(a)) (Ord. O-16-82, passed 3-16-82; Am. Ord. O-17-02, passed 4-9-02) Penalty, see § 96.99

City of Covington Brick Streets & Alleys



City of Covington Brick Streets & Alleys



APPENDIX "F"

CITY OF CINCINNATI NOTES

Pre-Construction Meeting

Inspection

Call 352-3451 every morning between 7:30AM & 8:30 AM with Permit Number.

No phone calls on cell phone for inspection.

All traffic control, excavations, backfill, temporary and permanent restoration must be inspected.

When field inspections are made a designated or responsible person must be on job site to take instructions.

Excavation and Restoration

Excavation – Pre-saw full-depth with wet diamond blade saw, brine from saw must be washed down so as not to be tracked by autos or pedestrians into business. Remove spoils every day, nothing left over night.

Backfill – CLSM required in all city streets and driveways. See approved Ham-Cin List for approved mixes.

CDF with concrete base restoration – must wait a minimum of 12 hours before pouring concrete

CDF with asphalt base restoration – must wait a minimum of 12 hours before placing asphalt

Flashfill ™ - must wait 1-4 hours before pouring concrete or asphalt base

Temporary Street Restoration – 3 options

1. 10" crushed stone or slag with a 2" cap of Hot Asphalt Mix #448
2. Bring CLSM within 2" of street and cap with 2" of Hot Asphalt Mix #448
3. Bring CLSM within 3" of street and cap with 3" of Concrete

Temporary Sidewalk Restoration – 2" of compacted Hot Asphalt Mix # 448

No Cold Mix will be allowed for any temporary restoration, street or sidewalk.

Final Street Restoration –

Concrete Base - 9" Class C Concrete with 2" cap of Hot Asphalt Mix #448. Main arterial roads require concrete to be pinned with #5 Epoxy Coated Rebar. Rebar or keyways will be required at the end of each concrete base pour.

Concrete

Standard Class C Concrete - minimum setup time 5-7 days
Class MS Concrete – minimum setup time 24 hours
Class FS Concrete – minimum setup time 4 hours

Internal Vibrator
Bull Float
Hand floats
Broom finish
String all castings for grade.

Asphalt

All asphalt restoration must be parallel and perpendicular to the C.L. or curb line
Hot Asphalt Mix #448
Tack coat per ODOT 702.04
3 to 5 ton roller
Sealer per ODOT 705.04 (except in crosswalks)

Asphalt Base

Arterial Road – 2-5" lifts of Asphalt Item 304 with a 2" cap of Asphalt Item 448
Residential – 2-4" lift of Asphalt Item 304 with a 2" cap of Asphalt Item 448

All Brick surface streets must be restored in kind.

Final Sidewalk and Driveway Restoration – 5" Class C Concrete for sidewalks and 7" Class C Concrete for driveways.

Any excavation through a curb ramp will require complete replacement of the curb ramp and upgraded to meet current ADA requirements.

Maintenance of Traffic

Follow all rules for maintenance of traffic. Item 614 ODOT Traffic Safety Manual

Advance warning signs for traffic pattern.

Use of a uniformed police officer with cruiser may be required when working in or within 50' of a signalized intersection. Contact the Cincinnati Police Detail Unit at 352-2583 to coordinate.

No Parking Signs – Contact appropriate police district for policy and procedure

Some streets may have restricted working hours.

Miscellaneous

Street Plates - Plates will be required to be pinned, welded and ramped as necessary. No over night noise. Silence plates with expansion paper, tar paper or ramp plates.

Contact Urban Forestry at 861-9070 when working within 15' of a tree in the public right-of-way.

Special circumstances to be decided / directed by the City Engineer.

JobNo: 02-7338-3 ReqNo: G-4941 Jobname: PLAINFIELD Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	1,25
1A-DS	Length of 2" PL Gas Main -Directional Drill sod	Lin. Ft.	72
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	53
1A-S	Length of 2" PL Gas Main-Sod DB	Lin. Ft.	31
1C-DP	Length of 4" PL Gas Main - Directional Drill Pavement	Lin. Ft.	89
1C-DS	Length of 4" PL Gas Main - Directional Drill Sod	Lin. Ft.	37
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	48
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	16
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	7
1H-P	Length of 12" SWPC Gas Main - Pavement DB	Lin. Ft.	
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	7
1Q-P	Length of 12" PL Gas Main - Pavement DB	Lin. Ft.	2,58
4C	Valve Assembly 4" PL	Each	
4F	Valve Assembly 6" PL	Each	
4G	Valve Assembly 8" PL	Each	
5A	Authorized Satisfactory Test Fusion	Each	
7	Rock Excavation	Cu. Yd.	2
8	Extra Depth	Cu. Yd.	2
99A	Offset (Not shown on print.) 2" PL	Each	
99C	Offset (Not shown on print.) 4" PL	Each	
99D	Offset (Not shown on print.) 6" PL	Each	
99E	Offset (Not shown on print.) 8" PL	Each	
99F1	Offset (Not shown on print.) 12" PL	Each	

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	75
9A	Low Strength Concrete Backfill	Cu. Yd.	32

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	44
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	1,26
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	62
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	38
71	Cl. 71 - Concrete driveway	Sq. Yd.	19
93	Cl. 93 - Topsoil	Cu. Yd.	2
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	1

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	4
61A-5DPNM	Install M-C Long-Side Service Piping (1/2") Drill in Pavement Where Main Not Replaced	Each	1
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	10
61BPNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Pavement, Main Not Replaced, Direct Bury	Each	1
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	8
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	2

JobNo: 02-7338-3 ReqNo: G-4941 Jobname: PLAINFIELD Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	47
61A-5DPNM	Install M-C Long-Side Service Piping (1/2") Drill in Pavement Where Main Not Replaced	Each	14
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	100
61BPNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Pavement, Main Not Replaced, Direct Bury	Each	12
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	82
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	3
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	1
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	20

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	81
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	54
55A-CMINM	Install C-M Service (1" or 1 1/4") Insertion Where Main Not Replaced	Each	22
55A-RPR	Replace Plastic Riser Less Than 2"	Each	18
55CM2	Install C-M Service (2") Up to 70 ft.	Each	23
55CM3	Install C-M Service (3") Up to 70 ft.	Each	1

JobNo: 03-0033-5 ReqNo: G-4945 Jobname: CREW HOUR+ EQUIPMENT Eng: PJZ

UnitID	UnitDesc	Unit	EstUnits
AIR COMPRE	185 Air Compressor	Hour	
ARROWBOARD	Flashing Arrow Board	Hour	
BACKHOE	Backhoe	Hour	
CREW TRUCK	Crew Truck	Hour	
CREWLEAD	Crew Leader	Hour	
CREWLEAD15	Crew Leader Overtime	Hour	
CREWLEAD2	Crew Leader Doubletime	Hour	
DOZER D4	Dozer D4 or less	Hour	
DOZER D5	Dozer D5 or larger	Hour	
DRIVER	Driver	Hour	
DRIVER15	Driver Overtime	Hour	
DRIVER2	Driver Doubletime	Hour	
EARTHSAW	Earth Saw	Hour	
EXCAVATOR	Small Excavator	Hour	
FLAGMAN	Flagman	Hour	
FLAGMAN15	Flagman Overtime	Hour	
FLAGMAN2	Flagman Doubletime	Hour	
FUSER	Fuser	Hour	
FUSER1-4	1 - 4" Fusing Equip. w/ generator	Hour	
FUSER15	Fuser Overtime	Hour	
FUSER2	Fuser Doubletime	Hour	
FUSER6-8	6 - 8" Fusing Equip. w/ generator	Hour	
GENERATOR	Generator	Hour	
HYDRO	Hydrocrane	Hour	
LABORER	Laborer	Hour	
LABORER15	Laborer Overtime	Hour	
LABORER2	Laborer Doubletime	Hour	
LIGHT BAR	Light Bar	Hour	
NAV-1620	1620 Navigator or equivalent	Hour	
NAV-2440	2440 Navigator or equivalent	Hour	
NAVIGAT711	711 Navigator or equivalent	Hour	
OPERATOR	Operator	Hour	
OPERATOR15	Operator Overtime	Hour	
OPERATOR2	Operator Doubletime	Hour	
PICKUP	Pickup Truck	Hour	
PIPE	Crew hours for Pipe Crane	Hour	
PLOW	Service Plow	Hour	
S/A DUMP	Dump Truck	Hour	
SKIDSTEER	Skid Steer	Hour	
TANDUMP	Tandem dump	Hour	
TAPEQUIP2	Tapping Equip. 2 - 4" Stopple	Hour	
TAPEQUIP6	Tapping Equip. 6 - 12" Stopple	Hour	
TRACTOR	Trencher Tractor type	Hour	
TRENCHER	Trencher - Walk behind	Hour	
VACUUM	Vacuum rig	Hour	
WELDER	Welder	Hour	
WELDER RIG	Welder Rig	Hour	
WELDER15	Welder Overtime	Hour	
WELDER2	Welder Doubletime	Hour	

JobNo: 04-1005-0 ReqNo: G-4943 Jobname: MITCHELL E Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	1,558
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	714
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	229
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	693
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	23
1Q-P	Length of 12" PL Gas Main - Pavement DB	Lin. Ft.	6,958
1R-P	Length of 24" SWPC Gas Main - Direct Pavement	Lin. Ft.	8
4A	Valve Assembly 2" PL	Each	4
4C	Valve Assembly 4" PL	Each	3
4H	Valve Assembly 12" PL	Each	1
5A	Authorized Satisfactory Test Fusion	Each	1
7	Rock Excavation	Cu. Yd.	28
8	Extra Depth	Cu. Yd.	28
99A	Offset (Not shown on print.) 2" PL	Each	1
99C	Offset (Not shown on print.) 4" PL	Each	1
99D	Offset (Not shown on print.) 6" PL	Each	1
99E	Offset (Not shown on print.) 8" PL	Each	1
99F1	Offset (Not shown on print.) 12" PL	Each	1

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	983
9A	Low Strength Concrete Backfill	Cu. Yd.	1,332

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	2,642
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	283
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	5,172
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	2,547
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	154
71	Cl. 71 - Concrete driveway	Sq. Yd.	44
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	14

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	60
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	106
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	126
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	6
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	1
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	7
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	1

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	103
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	69
55A-RPR	Replace Plastic Riser Less Than 2"	Each	23
55CM2	Install C-M Service (2") Up to 70 ft.	Each	13
55CM3	Install C-M Service (3") Up to 70 ft.	Each	2

JobNo: 04-1005-0 ReqNo: G-4943 Jobname: MITCHELL E Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	1
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	
55A-RPR	Replace Plastic Riser Less Than 2"	Each	
55CM2	Install C-M Service (2") Up to 70 ft.	Each	
55CM3	Install C-M Service (3") Up to 70 ft.	Each	

JobNo: 04-1019-1 ReqNo: G-4942 Jobname: WILLIAM HOWARD TAFT Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	193
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	161
1H-S	Length of 12" SWPC Gas Main - Sod DB	Lin. Ft.	11
1K	Length of 1 1/4" PL Gas Main - Including Compaction	Lin. Ft.	15
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	28
1Q-P	Length of 12" PL Gas Main - Pavement DB	Lin. Ft.	4,914
1Q-S	Length of 12" PL Gas Main - Sod DB	Lin. Ft.	40
1S-P	Install 20"SWPC Gas Main - Direct Pavement	Lin. Ft.	5
1S-S	Install 20"SWPC Gas Main - Direct Sod	Lin. Ft.	2
4C	Valve Assembly 4" PL	Each	1
4G	Valve Assembly 8" PL	Each	1
4H	Valve Assembly 12" PL	Each	2
5A	Authorized Satisfactory Test Fusion	Each	1
5B	Authorized Satisfactory Test Weld	Each	1
7	Rock Excavation	Cu. Yd.	15
8	Extra Depth	Cu. Yd.	15
99A	Offset (Not shown on print.) 2" PL	Each	1
99C	Offset (Not shown on print.) 4" PL	Each	1
99E	Offset (Not shown on print.) 8" PL	Each	1
99F	Offset (Not shown on print.) 12" ST	Each	1
99F1	Offset (Not shown on print.) 12" PL	Each	1

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	572
9A	Low Strength Concrete Backfill	Cu. Yd.	823

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	1,146
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	3,310
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	1,630
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	76
93	Cl. 93 - Topsoil	Cu. Yd.	2
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	3

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	20
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	29
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	47
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	3
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	7
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	3
64A2-DL	Install M-C Long-Side Service Piping 4" Drill	Each	1

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	34
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	22
55A-RPR	Replace Plastic Riser Less Than 2"	Each	8

JobNo: 04-1019-1 ReqNo: G-4942 Jobname: WILLIAM HOWARD TAFT Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	3
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	2
55A-RPR	Replace Plastic Riser Less Than 2"	Each	

JobNo: 04-1069-6 ReqNo: G-4944 Jobname: HAMILTON AVE Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1B-P	Length of 2" SWPC Gas Main - Pavement DB	Lin. Ft.	4
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	332
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	43
1D-P	Length of 4" SWPC Gas Main - Pavement DB	Lin. Ft.	238
1D-S	Length of 4" SWPC Gas Main - Sod DB	Lin. Ft.	7
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	409
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	73
1F-P	Length of 6" SWPC Gas Main - Pavement DB	Lin. Ft.	112
1G-P	Length of 8" SWPC Gas Main - Pavement DB	Lin. Ft.	113
1H-P	Length of 12" SWPC Gas Main - Pavement DB	Lin. Ft.	9,132
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	428
4H	Valve Assembly 12" PL	Each	1
5A	Authorized Satisfactory Test Fusion	Each	1
5B	Authorized Satisfactory Test Weld	Each	1
7	Rock Excavation	Cu. Yd.	30
8	Extra Depth	Cu. Yd.	30
99C	Offset (Not shown on print.) 4" PL	Each	1
99C1	Offset (Not shown on print.) 4" ST	Each	1
99D	Offset (Not shown on print.) 6" PL	Each	1
99D1	Offset (Not shown on print.) 6" ST	Each	1
99E	Offset (Not shown on print.) 8" PL	Each	1
99E1	Offset (Not shown on print.) 8" ST	Each	1
99F	Offset (Not shown on print.) 12" ST	Each	1

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,069
9A	Low Strength Concrete Backfill	Cu. Yd.	1,723

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	1,982
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	353
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	7,070
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	3,482
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	96
93	Cl. 93 - Topsoil	Cu. Yd.	6
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	3

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	29
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	67
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	43
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	9
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	3
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	12
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	1
64A2	Install M-C Short-Side Service Piping 4" Direct Bury	Each	1
64A6-DL	Install M-C Long-Side Service Piping 6" Drill	Each	1

JobNo: 04-1069-6 ReqNo: G-4944 Jobname: HAMILTON AVE Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	2
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	6
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	4
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	1
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	
64A2	Install M-C Short-Side Service Piping 4" Direct Bury	Each	
64A6-DL	Install M-C Long-Side Service Piping 6" Drill	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	4
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	3
55A-RPR	Replace Plastic Riser Less Than 2"	Each	1
55CM2	Install C-M Service (2") Up to 70 ft.	Each	2
55CM3	Install C-M Service (3") Up to 70 ft.	Each	
55CM4	Install C-M Service (4") Up to 70 ft.	Each	
55CM6	Install C-M Service (6") Up to 70 ft.	Each	

JobNo: 04-8319-8 ReqNo: G-4937 Jobname: KY CIBS MODULE 319 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	886
1A-DS	Length of 2" PL Gas Main -Directional Drill sod	Lin. Ft.	513
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	380
1A-S	Length of 2" PL Gas Main-Sod DB	Lin. Ft.	220
1C-DS	Length of 4" PL Gas Main - Directional Drill Sod	Lin. Ft.	448
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	755
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	836
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	2,554
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	165
5A	Authorized Satisfactory Test Fusion	Each	1
7	Rock Excavation	Cu. Yd.	19
8	Extra Depth	Cu. Yd.	19
99A	Offset (Not shown on print.) 2" PL	Each	1
99C	Offset (Not shown on print.) 4" PL	Each	1
99D	Offset (Not shown on print.) 6" PL	Each	1
99E	Offset (Not shown on print.) 8" PL	Each	0

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	464
9A	Low Strength Concrete Backfill	Cu. Yd.	659

UnitID	UnitDesc	Unit	EstUnits
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	817
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	2,472
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	1,217
71	Cl. 71 - Concrete driveway	Sq. Yd.	18
93	Cl. 93 - Topsoil	Cu. Yd.	60
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	3

UnitID	UnitDesc	Unit	EstUnits
98	Fabricated Drip Pot	Each	6
98D	Fabricated Drip Pot 4" PL	Each	6

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	36
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	64
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	74
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	4
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	1
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	2

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	61
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	41
55A-RPR	Replace Plastic Riser Less Than 2"	Each	14
55CM2	Install C-M Service (2") Up to 70 ft.	Each	6
55CM3	Install C-M Service (3") Up to 70 ft.	Each	1

JobNo: 04-8319-8 ReqNo: G-4937 Jobname: KY CIBS MODULE 319 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	
55A-RPR	Replace Plastic Riser Less Than 2"	Each	
55CM2	Install C-M Service (2") Up to 70 ft.	Each	
55CM3	Install C-M Service (3") Up to 70 ft.	Each	

JobNo: 05-8311-2 ReqNo: G-4940 Jobname: 2005 KY CIBS MODULE 311 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	489
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	259
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	5,678
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	6,375
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	28
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	1,241
4A	Valve Assembly 2" PL	Each	1
4C	Valve Assembly 4" PL	Each	1
4E	Valve Assembly 6" ST	Each	1
4F	Valve Assembly 6" PL	Each	1
4G	Valve Assembly 8" PL	Each	1
5A	Authorized Satisfactory Test Fusion	Each	1
7	Rock Excavation	Cu. Yd.	39
8	Extra Depth	Cu. Yd.	39
99A	Offset (Not shown on print.) 2" PL	Each	1
99C	Offset (Not shown on print.) 4" PL	Each	1
99D	Offset (Not shown on print.) 6" PL	Each	1
99E	Offset (Not shown on print.) 8" PL	Each	1

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,307
9A	Low Strength Concrete Backfill	Cu. Yd.	2,262

UnitID	UnitDesc	Unit	EstUnits
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	3,081
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	8,995
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	4,431
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	56
93	Cl. 93 - Topsoil	Cu. Yd.	1
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	3

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	111
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	238
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	188
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	2

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	189
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	126
55A-RPR	Replace Plastic Riser Less Than 2"	Each	43
55CM2	Install C-M Service (2") Up to 70 ft.	Each	2

JobNo: 05-8312-0 ReqNo: G-4934 Jobname: 2005 KY CIBS MODULE 312 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	9
1C-DP	Length of 4" PL Gas Main - Directional Drill Pavement	Lin. Ft.	90
1C-DS	Length of 4" PL Gas Main - Directional Drill Sod	Lin. Ft.	1,04
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	2,76
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	1,28
1D-P	Length of 4" SWPC Gas Main - Pavement DB	Lin. Ft.	22
1E-DP	Length of 6" PL Gas Main - Directional Drill Pavement	Lin. Ft.	19
1E-DS	Length of 6" PL Gas Main - Directional Drill Sod	Lin. Ft.	45
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	1,88
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	1,67
1F-P	Length of 6" SWPC Gas Main - Pavement DB	Lin. Ft.	82
1F-S	Length of 6" SWPC Gas Main - Sod DB	Lin. Ft.	
1G-P	Length of 8" SWPC Gas Main - Pavement DB	Lin. Ft.	3
1H-P	Length of 12" SWPC Gas Main - Pavement DB	Lin. Ft.	57
1L-P	Length of 3" PL Gas Main - Pavement DB	Lin. Ft.	
1L-S	Length of 3" PL Gas Main - Sod DB	Lin. Ft.	
4D	Valve Assembly 4" ST	Each	
5A	Authorized Satisfactory Test Fusion	Each	
5B	Authorized Satisfactory Test Weld	Each	
7	Rock Excavation	Cu. Yd.	3
8	Extra Depth	Cu. Yd.	3
99A	Offset (Not shown on print.) 2" PL	Each	
99C	Offset (Not shown on print.) 4" PL	Each	
99C1	Offset (Not shown on print.) 4" ST	Each	
99D	Offset (Not shown on print.) 6" PL	Each	
99D1	Offset (Not shown on print.) 6" ST	Each	
99E1	Offset (Not shown on print.) 8" ST	Each	
99F	Offset (Not shown on print.) 12" ST	Each	

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,16
9A	Low Strength Concrete Backfill	Cu. Yd.	78

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	43
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	89
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	3,30
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	65
71	Cl. 71 - Concrete driveway	Sq. Yd.	68
93	Cl. 93 - Topsoil	Cu. Yd.	14
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	1

JobNo: 05-8312-0 ReqNo: G-4934 Jobname: 2005 KY CIBS MODULE 312 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	80
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	144
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	162
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	2
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	1
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	1
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	1

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	136
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	91
55A-RPR	Replace Plastic Riser Less Than 2"	Each	31
55CM2	Install C-M Service (2") Up to 70 ft.	Each	3
55CM3	Install C-M Service (3") Up to 70 ft.	Each	2

JobNo: 05-8331-0 ReqNo: G-4938 Jobname: 2005 CIBS MODULE 331 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	2,27
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	1,03
1C-DP	Length of 4" PL Gas Main - Directional Drill Pavement	Lin. Ft.	2,57
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	7,06
1D-P	Length of 4" SWPC Gas Main - Pavement DB	Lin. Ft.	
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	4,74
1H-P	Length of 12" SWPC Gas Main - Pavement DB	Lin. Ft.	20
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	2,98
4A	Valve Assembly 2" PL	Each	
4C	Valve Assembly 4" PL	Each	
4F	Valve Assembly 6" PL	Each	
4H1	Valve Assembly 12" ST	Each	
5A	Authorized Satisfactory Test Fusion	Each	
5B	Authorized Satisfactory Test Weld	Each	
7	Rock Excavation	Cu. Yd.	5
8	Extra Depth	Cu. Yd.	5
99A	Offset (Not shown on print.) 2" PL	Each	
99C	Offset (Not shown on print.) 4" PL	Each	
99D	Offset (Not shown on print.) 6" PL	Each	
99E	Offset (Not shown on print.) 8" PL	Each	
99F	Offset (Not shown on print.) 12" ST	Each	

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,71
9A	Low Strength Concrete Backfill	Cu. Yd.	2,62

UnitID	UnitDesc	Unit	EstUnits
16	Cl. 16 - Install tie bars	Each	1,08
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	3,59
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	10,02
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	4,93
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	47
71	Cl. 71 - Concrete driveway	Sq. Yd.	10
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	13
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	27
61A-DSNM	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill in Sod Where Main Not Replaced	Each	
61BSNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Sod, Main Not Replaced, Direct Bury	Each	
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	23
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	1
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	

JobNo: 05-8331-0 ReqNo: G-4938 Jobname: 2005 CIBS MODULE 331 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	228
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	152
55A-CMINM	Install C-M Service (1" or 1 1/4") Insertion Where Main Not Replaced	Each	12
55A-RPR	Replace Plastic Riser Less Than 2"	Each	51
55CM2	Install C-M Service (2") Up to 70 ft.	Each	3
55CM3	Install C-M Service (3") Up to 70 ft.	Each	1

JobNo: 05-8353-4 ReqNo: G-4936 Jobname: 2005 CIBS MODULE 353 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	2,66
1A-IS	Length of 2" PL Gas Main - Insertion Sod	Lin. Ft.	38
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	1,25
1A-S	Length of 2" PL Gas Main-Sod DB	Lin. Ft.	
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	5,1
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	2,69
1L-IP	Length of 3" PL Gas Main - Insertion Pavement	Lin. Ft.	
5A	Authorized Satisfactory Test Fusion	Each	
7	Rock Excavation	Cu. Yd.	
8	Extra Depth	Cu. Yd.	
99A	Offset (Not shown on print.) 2" PL	Each	
99C	Offset (Not shown on print.) 4" PL	Each	
99D	Offset (Not shown on print.) 6" PL	Each	
99E	Offset (Not shown on print.) 8" PL	Each	

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,76
9A	Low Strength Concrete Backfill	Cu. Yd.	83

UnitID	UnitDesc	Unit	EstUnits
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	2,55
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	2,83
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	1,39
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	2,14
71	Cl. 71 - Concrete driveway	Sq. Yd.	1
93	Cl. 93 - Topsoil	Cu. Yd.	
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	

UnitID	UnitDesc	Unit	EstUnits
98	Fabricated Drip Pot	Each	
98B	Fabricated Drip Pot 8" PL	Each	
98D	Fabricated Drip Pot 4" PL	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	8
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	12
61A-DSNM	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill in Sod Where Main Not Replaced	Each	
61BSNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Sod, Main Not Replaced, Direct Bury	Each	1
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	18
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	

JobNo: 05-8353-4 ReqNo: G-4936 Jobname: 2005 CIBS MODULE 353 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	137
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	91
55A-CMINM	Install C-M Service (1" or 1 1/4") Insertion Where Main Not Replaced	Each	19
55A-RPR	Replace Plastic Riser Less Than 2"	Each	31
55CM2	Install C-M Service (2") Up to 70 ft.	Each	13

JobNo: 05-8354-2 ReqNo: G-4939 Jobname: 2005 CIBS MODULE 354 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	13
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	7,32
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	3
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	2,44
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	3,15
5A	Authorized Satisfactory Test Fusion	Each	
7	Rock Excavation	Cu. Yd.	3
8	Extra Depth	Cu. Yd.	3
99A	Offset (Not shown on print.) 2" PL	Each	
99C	Offset (Not shown on print.) 4" PL	Each	
99D	Offset (Not shown on print.) 6" PL	Each	
99E	Offset (Not shown on print.) 8" PL	Each	

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	1,23
9A	Low Strength Concrete Backfill	Cu. Yd.	2,17

UnitID	UnitDesc	Unit	EstUnits
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	4,37
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	8,74
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	4,30
93	Cl. 93 - Topsoil	Cu. Yd.	
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	

UnitID	UnitDesc	Unit	EstUnits
98	Fabricated Drip Pot	Each	
98B	Fabricated Drip Pot 8" PL	Each	
98D	Fabricated Drip Pot 4" PL	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	9
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	17
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	21
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	16
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	11
55A-RPR	Replace Plastic Riser Less Than 2"	Each	3
55CM2	Install C-M Service (2") Up to 70 ft.	Each	

JobNo: 05-8362-5 ReqNo: G-4935 Jobname: 2005 CIBS MODULE 362 Eng. DJS

UnitID	UnitDesc	Unit	EstUnits
1A-DP	Length of 2" PL Gas Main - Directional Drill Pavement	Lin. Ft.	10,514
1A-DS	Length of 2" PL Gas Main -Directional Drill sod	Lin. Ft.	650
1A-P	Length of 2" PL Gas Main - Pavement DB	Lin. Ft.	4,538
1A-S	Length of 2" PL Gas Main-Sod DB	Lin. Ft.	289
1C-DP	Length of 4" PL Gas Main - Directional Drill Pavement	Lin. Ft.	6,604
1C-DS	Length of 4" PL Gas Main - Directional Drill Sod	Lin. Ft.	1,298
1C-P	Length of 4" PL Gas Main - Pavement DB	Lin. Ft.	4,408
1C-S	Length of 4" PL Gas Main - Sod DB	Lin. Ft.	584
1E-DP	Length of 6" PL Gas Main - Directional Drill Pavement	Lin. Ft.	396
1E-DS	Length of 6" PL Gas Main - Directional Drill Sod	Lin. Ft.	547
1E-P	Length of 6" PL Gas Main - Pavement DB	Lin. Ft.	310
1E-S	Length of 6" PL Gas Main - Sod DB	Lin. Ft.	234
1P-DP	Length of 8" PL Gas Main - Directional Drill Pavement	Lin. Ft.	4
1P-P	Length of 8" PL Gas Main - Pavement DB	Lin. Ft.	2
4D	Valve Assembly 4" ST	Each	2
4E	Valve Assembly 6" ST	Each	6
5A	Authorized Satisfactory Test Fusion	Each	1
7	Rock Excavation	Cu. Yd.	84
8	Extra Depth	Cu. Yd.	84
99A	Offset (Not shown on print.) 2" PL	Each	1
99C	Offset (Not shown on print.) 4" PL	Each	1
99D	Offset (Not shown on print.) 6" PL	Each	1

UnitID	UnitDesc	Unit	EstUnits
9	Bankrun Gravel/Sand	Ton	2,091
9A	Low Strength Concrete Backfill	Cu. Yd.	751

UnitID	UnitDesc	Unit	EstUnits
32-E200	Cl. 32 - Asph. Concrete Surface (Over 200)	Sq. Yd.	853
33	Cl. 33 - Asphalt surf./Conc. base	Lin. Ft.	2,259
45	Cl. 45 - Asphalt surf./asph base	Lin. Ft.	1,112
61	Cl. 61 - Concrete sidewalk	Sq. Yd.	2,617
71	Cl. 71 - Concrete driveway	Sq. Yd.	836
93	Cl. 93 - Topsoil	Cu. Yd.	54
SWRAMP	Sidewalk Ramp with Detectable Warnings	Each	49

JobNo: 05-8362-5 ReqNo: G-4935 Jobname: 2005 CIBS MODULE 362 Eng: DJS

UnitID	UnitDesc	Unit	EstUnits
55A-RE	Test and Re-light Existing Service	Each	20
61A-5DPNM	Install M-C Long-Side Service Piping (1/2") Drill in Pavement Where Main Not Replaced	Each	3
61A-D	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill	Each	39
61A-DSNM	Install M-C Long-Side Service Piping (1" or 1 1/4") Drill in Sod Where Main Not Replaced	Each	3
61BPNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Pavement, Main Not Replaced, Direct Bury	Each	4
61BSNM	Install M-C Short-Side Service Piping (1" or 1 1/4") In Sod, Main Not Replaced, Direct Bury	Each	
62A	Install M-C Short-Side Service Piping (1" or 1 1/4") Direct Bury	Each	39
63A-D	Install M-C Long-Side Service Piping 2" Drill	Each	1
63A-D3	Install M-C Long-Side Service Piping 3" Drill	Each	
64A	Install M-C Short-Side Service Piping 2" Direct Bury	Each	2
64A1	Install M-C Short-Side Service Piping 3" Direct Bury	Each	

UnitID	UnitDesc	Unit	EstUnits
55A-CMD	Install C-M Service (1" or 1 1/4") Direct Bury	Each	34
55A-CMI	Install C-M Service (1" or 1 1/4") Insertion	Each	23
55A-CMINM	Install C-M Service (1" or 1 1/4") Insertion Where Main Not Replaced	Each	9
55A-RPR	Replace Plastic Riser Less Than 2"	Each	7
55CM2	Install C-M Service (2") Up to 70 ft.	Each	3
55CM3	Install C-M Service (3") Up to 70 ft.	Each	

ReqNo: G-4945 9/15/2005

Due Date: 10/10/2005

JobNo: 03-0033-5 JobName: CREW HOUR+ EQUIPMENT Sponsor: Paul Ziegler
Work Start: 12/1/2006 Work Finish 12/31/2006

Contractors to Invite:

AMS Construction
8915 Blue Ash Rd , BlueAsh, OH 45242
Phone:; & Phone & (invalid) 513-794-0414
Arby Construction, Inc.
19705 W. Lincoln Avenue, New Berlin, WI 53146
Phone:; & Phone & (invalid) 262-548-3655
Brewer Co.
1354 US Highway 50, Milford, OH 45150
Phone:; & Phone & (invalid) 576-1414
C.J. Hughes
75 West Third Ave, Huntington, Wv 25776-7305
Phone:; & Phone & (invalid) 304-522-2729
Henkels & McCoy Inc.
13338 E. Broad Street , Rt 16, Pataskala, OH 43062
Phone:; & Phone & (invalid) 740-927-9632
Infrasource Underground Construction
4033 E. Morgan Rd., Ypsilanti, MI 48197
Phone:; & Phone & (invalid)
KS Energy Services, Inc
1988 Energy Drive, East Troy, WI 53120
Phone:; & Phone & (invalid) 262-642-9222
Miller Pipeline Corp.
10967 State St RT 128, Harrison, OH 45030
Phone:; & Phone & (invalid) 513-679-2363
RLA INVESTMENTS
603 Shepherd Drive, Cincinnati, OH 45215
Phone:; & Phone & (invalid)

03-0033-5

UnitId	Unit Description	Unit	Est. Units
AIR COMPRE	185 Air Compressor	Hour	1
ARROWBOARD	Flashing Arrow Board	Hour	1
BACKHOE	Backhoe	Hour	1
CREW TRUCK	Crew Truck	Hour	1
CREWLEAD	Crew Leader	Hour	1
CREWLEAD15	Crew Leader Overtime	Hour	1
CREWLEAD2	Crew Leader Doubletime	Hour	1
DOZER D4	Dozer D4 or less	Hour	1
DOZER D5	Dozer D5 or larger	Hour	1
DRIVER	Driver	Hour	1
DRIVER15	Driver Overtime	Hour	1
DRIVER2	Driver Doubletime	Hour	1

EARTHSAW	Earth Saw	Hour	1
EXCAVATOR	Small Excavator	Hour	1
FLAGMAN	Flagman	Hour	1
FLAGMAN15	Flagman Overtime	Hour	1
FLAGMAN2	Flagman Doubletime	Hour	1
FUSER	Fuser	Hour	1
FUSER1-4	1 - 4" Fusing Equip. w/ generator	Hour	1
FUSER15	Fuser Overtime	Hour	1
FUSER2	Fuser Doubletime	Hour	1
FUSER6-8	6 - 8" Fusing Equip. w/ generator	Hour	1
GENERATOR	Generator	Hour	1
HYDRO	Hydrocrane	Hour	1
LABORER	Laborer	Hour	1
LABORER15	Laborer Overtime	Hour	1
LABORER2	Laborer Doubletime	Hour	1
LIGHT BAR	Light Bar	Hour	1
NAV-1620	1620 Navigator or equivalent	Hour	1
NAV-2440	2440 Navigator or equivalent	Hour	1
NAVIGAT711	711 Navigator or equivalent	Hour	1
OPERATOR	Operator	Hour	1
OPERATOR15	Operator Overtime	Hour	1
OPERATOR2	Operator Doubletime	Hour	1
PICKUP	Pickup Truck	Hour	1
PIPE	Crew hours for Pipe Crane	Hour	1
PLOW	Service Plow	Hour	1
P/A DUMP	Dump Truck	Hour	1
SKIDSTEER	Skid Steer	Hour	1
TANDUMP	Tandem dump	Hour	1
TAPEQUIP2	Tapping Equip. 2 - 4" Stopple	Hour	1
TAPEQUIP6	Tapping Equip. 6 - 12" Stopple	Hour	1
TRACTOR	Trencher Tractor type	Hour	1
TRENCHER	Trencher - Walk behind	Hour	1
VACUUM	Vacuum rig	Hour	1
WELDER	Welder	Hour	1
WELDER RIG	Welder Rig	Hour	1
WELDER15	Welder Overtime	Hour	1
WELDER2	Welder Doubletime	Hour	1

STANDARD WELDING PROCEDURE

SPECIFICATION NO. 501-2

COVERING

PROCESS GROUP	DIAMETER GROUP	MATERIAL GROUP	THICKNESS GROUP
SA	II	A	II

THE CINCINNATI GAS & ELECTRIC COMPANY

THE UNION LIGHT, HEAT AND POWER COMPANY

LAWRENCEBURG GAS COMPANY

THE CINCINNATI GAS & ELECTRIC COMPANY
AND SUBSIDIARY COMPANIES

GAS OPERATIONS

501-2

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEEL PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

I attest that the tests required by this document were performed and that the results of the tests were as indicated above.

George W Warren

State of Ohio
County of Hamilton

Before me, a Notary Public, in and for said county, personally appeared George W. Warren who being by me duly sworn deposes and says that the tests required by this document have been performed and says that the results of the tests were as indicated above.

Sworn to and subscribed in my presence this 31st day of May, 1978.

Philip D. Spiess
Notary Public — STATE OF OHIO
PHILIP D. SPIESS

My Commission Expires March 31, 1982

THE CINCINNATI GAS & ELECTRIC COMPANY
AND SUBSIDIARY COMPANIES

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEEI PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

Forward

This standard welding procedure fulfills the requirements set forth:

Department of Transportation: Transportation of Natural and Other Gas by Pipeline Minimum Safety Standards, Subpart "E", Welding of Steel in Pipelines §192.223 - General.

For purposes of identifying welding procedure specification the following grouping applies:

Material Group	Application
A	All API 5L and ASTM Pipe Specifications having Specified Minimum Yield Strength of 42,000 psi or less.
B	All API 5LX Pipe Specifications having Specified Minimum Yield Strengths between 42,000 psi and 60,000 psi.
C	All API 5LX Pipe Specifications having a Specified Minimum Yield Strength 60,000 psi or greater.

Diameter Group	Application
I	Pipe having O.D. less than 2 3/8".
II	Pipe having O.D. from 2 3/8", to and including 12 3/4".
III	Pipe having O.D. in excess of 12 3/4".

Thickness Group	Application
I	Less than .188".
II	.188" to but not including .250".
III	.250" to but not including .344".
IV	.344" to and including .500".

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Process Group	Application
SA	Manual Shielded Metal Arc Process
MIG	Semi-Automatic Consumable Electrode Inert-Gas-Shielded Process
O	Oxyacetylene Process

THE CINCINNATI GAS & ELECTRIC COMPANY
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A. Process: Manual Shielded Arc

B. Material: See Note "A"

C. Diameter and Wall Thickness: See Note "B"

D. Joint Design: V-Groove

E. Filler Metal and Number of Beads: Page 17, Table 1

F. Electrical or Flame Characteristics: Page 17, Table 2

G. Position: Horizontal

H. Direction of Welding: Vertical Down

I. Number of Welders: See Note "C"

J. Time Lapse between Passes: See Note "D"

K. Type of Line-up Clamp: See Note "E"

L. Removal of Line-up Clamp: See Note "F"

M. Cleaning: See Note "G"

N. Preheat, Stress Relief: See Note "H"

O. Shielding Gas and Flow Rate: Not Applicable

P. Shielding Flux: Page 23

Q. Speed of Travel: 4 To 12 Inches Per Minute

R. Sketches and Tabulations: (See Pages 4 & 5)

Tested: 9-26-77 (Date) By: [signature]

Approved: 6/27/78 (Date) Operating: [signature]

Adopted: 10-1-77 (Date) Pipeline Engr.: [signature]

Certified by: [signature] P.E.

Title: Principle Gas Engr.

Date: 10-1-77

Revised 8/8/83

Gas Oper. [signature]

Gas E&P [signature]

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEEL PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
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Notes to Page 1:

A - Material: Pipe API Specification, and all pipe furnished under API and ASTM having Specified Minimum Yield Strengths 42,000 psi and less.

B - Diameter and Wall Thickness: 12 3/4" O.D. 0.219" wall and all diameters 2 3/8" to and including 12 3/4" and all wall thicknesses 0.188 to but not including 0.250".

C - Number of Welders:

Minimum Root Bead Welders: 1
Minimum Second Bead Welders: 1

D - Time Lapse Between Passes: During manual shielded metal arc welding, the time interval between application of the root bead and second or "hot" pass shall be the minimum time required for thorough cleaning of the root bead. A delay between the second, third and succeeding passes, sufficient for cleaning welds and allowing welders and equipment to move along the line, will be permitted. All welds shall be completed without allowing the work to cool to ambient temperature between successive passes. If the weld cannot be completed without cooling to ambient temperature, the final phases of the weld shall be completed as directed by the Engineer. Any weld not completed as specified in this paragraph shall be cut out of the line. If welding is done by the MIG process, no special provisions are required for completion if the weld cools to ambient temperature between passes.

(R) E - Line-Up Clamps: Line-Up Clamps are to be used on all butt-welds except for certain fittings where it is impracticable. Line-Up Clamps are not required for fillet welds. External line-up clamps should be used for butt welding pipe sizes to and including 12-inch and internal type clamps should be used for pipe sizes 14" and larger.

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Notes to Page 1: (Cont'd.)

R) F - Removal of Line-Up Clamp: In no case shall the line-up clamp be removed before 20% of the root bead, uniformly distributed around the circumference, is completed.

G - Cleaning: All slag, protrusions of filler metal from the preceding pass, pin holes and similar defects shall be removed before depositing the next pass. For this operation a power grinder or a hand or power driven diamond point or round nose chisel shall be used.

H - Preheating and Stress Relief: Not normally required for work performed under this specification, except that under field conditions when the ambient temperature is less than 32° F., local preheating to a hand-hot condition shall be required. API 5L, and API 5LX pipe shall be preheated to a minimum temperature of 200° F., when the ambient temperature is less than 32° F. The preheat temperature shall be checked by use of temperature indicating crayons, and shall be maintained until the weld is completed. Preheating may be accomplished by any suitable method, provided that it is uniform and that the temperature does not fall below the prescribed minimum during the actual welding operations.

R) Preheating is required to remove moisture from the pipe prior to welding.

THE CINCINNATI GAS & ELECTRIC COMPANY
AND SUBSIDIARY COMPANIES

GAS OPERATIONS

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APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

Procedure No. SA II A II
Test No. 100-96

Location 2120 Dana Avenue — Date 9-26-77

Contractor N/A — Sub-Contractor N/A

Date of Weld 9-26-77 — Roll Weld N/A — Fixed Position Weld 6-G

Welder D. Van Landingham — Mark V-4

Welding Time 30 Min. — Time of Day 2:00 P.M. — Temperature 70 °F

Weather Condition Inside Building — Wind Break Used N/A

Make of Welding Machine Lincoln — Size 300

Brand of Electrode Lincoln — Voltage 25 — Amperage 150

Pipe Mfr. U.S. Steel — Pipe Specification API 5L Gr. B

Wall Thickness 0.219" — Dia. O.D. 12 3/4" — Wt./Ft. 29.3 lb/ft — Joint Length Nipple

Bead No.	1	2	3	4	5	6	7
Size of Electrode	1/8	5/32	5/32				
No. of Electrode	E6010	E6010	E6010				

Tensile Specimen No.	T1	T3	T2	T4
Cross-Section Dimensions	0.930x0.219	0.941 0.219		
Cross-Section Area	0.204 In.^{2}	0.206 In.^{2}		
Maximum Load	17,500 lb.	17,000 lb.		
Tensile Strength	85,784lb/In.^{2}	82,524 lb/In.^{2}		

Ave. Tensile Strength 90,516 lb/In.^{2}

Remarks on Tensile Test Satisfactory - Failure in Base Metal

Nick-Break Specimen No.	N1	N2	N3	N4
Cross-Sectional Area of Break	0.1673 In.^{2}	0.1667 In.^{2}		
No. of Gas Pockets Per Sq. In.	0	0		
Gas Pockets with Greatest Dimension Exceeding 1/16 In.	0	0		
Slag Inclusions Greater than 1/32 In. Depth and 3/8 in. or ¼ the Wall Thick. in Length	0	0		
Complete Penetration	Yes	Yes		
Complete Fusion	Yes	Yes		

Remarks on Nick-Break Tests No porosity or inclusions which exceed code limits.

Remarks on Bend Tests No visibile defects.

☒ Procedure ☐ Welder — ☒ Qualifying Test ☐ Line Test — ☒ Qualified ☐ Disqualified

Test Made At 2120 Dana Ave. — Date 9-26-77

Tested By The Cincinnati Gas & Electric Co. — Supervised By G. W. Warren

Certified By R. H. [illegible] V.P.

Title Principal Gas Engr.

Date 10-7-77

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEEL PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
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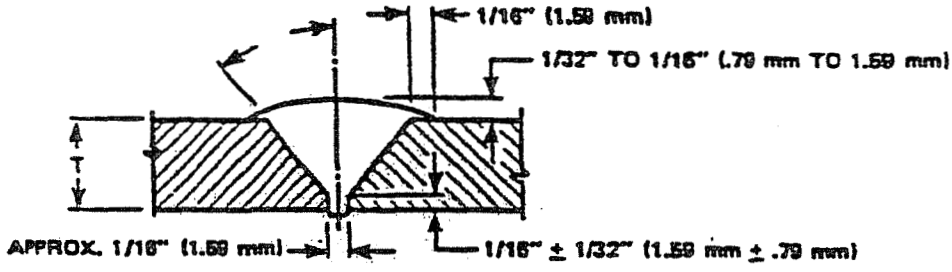
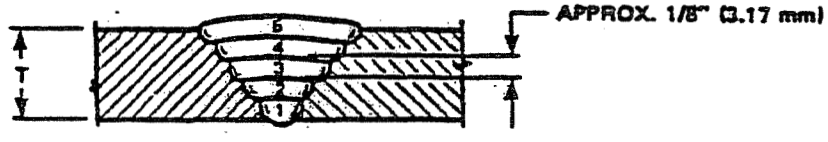


STANDARD "V" BEVEL BUTT JOINT



SEQUENCE OF BEADS

ELECTRODE SIZE & NUMBERS OF BEADS

PIPE WALL THICKNESS	NUMBER OF BEADS 1/8" ELECTRODE	*5/32" ELECTRODE	*3/16" ELECTRODE	TOTAL NUMBER OF BEADS
0.219	1	2	0	3

NOTE: FIRST PASS ONLY 1/8"
REMAINING PASSES USE * 5/32"
COVER BEAD MAY BE MADE WITH * 3/16"

* - Maximum sizes - Smaller diameter electrodes may be used.

VOLTAGE & AMPERAGE RANGE

ELECTRODE DIAMETER	AMPERAGE	ARC VOLTS
3/32"	50 - 75	19 - 21
1/8"	75 - 100	19 - 21
5/32"	90 - 150	19 - 21
3/16"	130 - 100	19 - 21

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1.0 Qualification of Welding Procedure:

The test weld made under this specification shall qualify the welding procedure for welding on pipelines:

Material Group	Diameter Group	Thickness Group
42,000 psi and less)	(2 3/8" to and including 12 3/4")	(0.188" to but not including 0.250")

1.01 Test Coupon:

The test coupon shall be:
12 3/4" O.D. API 5L, Gr. B, 0.219" Wall.

1.02 Welding Procedure Records:

Records of the pipe joint welding procedure shall be recorded in detail on the forms herein provided (Pages 4 & 5) and shall be adhered to during subsequent construction, except where a change is specifically authorized by the Pipeline Engineer.

1.03 Welding Procedure Essential Variables:

This welding procedure shall be re-established as a new procedure specification and shall be completely re-qualified when any of the changes listed below are made in the procedure. Changes other than those given below may be made in the procedure without the necessity for re-qualification, provided the specification is revised to show these changes:

(a) Change in welding process.

(b) Change in pipe metal. (From ASTM or API 5L and 5LX Grade 42 groups to API 5LX groups in excess of Grade X42 and vice versa.)

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(c) Change in joint design. (From V-groove to U-groove, etc. Changes in the dimensions of the welding groove, however, are not considered essential variables.)

(d) Change in position (for butt welds only). (A change from vertical to horizontal or vice versa.)

(e) Change in pipe size and wall thickness. (For groove welds, a change from one diameter group - wall thickness group combination to another and for fillet welds, a change from one wall thickness group to another group.)

(f) Change in filler metal. (From one classification group to another. See Page 23.)

(g) Change in filler metal size.

(h) Decrease in number of root bead welders.

(i) Change in time lapse between root and second bead.

(j) Change in direction. (Vertical-down to Vertical-up or vice versa.)

(k) Change in shielding gas. (From one gas to another, from one mixture of gases to a different mixture of the same gases.)

(l) Change in flow rate. (Decrease or increase in flow rate.)

(m) Change in shielding flux. (Change in type or size of flux particles.)

(n) Major change in speed of travel.

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2.0 Qualification Test:

Two pipe nipples shall be joined by following all of the details of the procedure specification.

2.01 Compliance with Procedure Specification:

The welding process, pipe material, filler metal and welding procedure shall comply with the procedure specification.

2.02 Test Pipe Material:

The pipe material shall consist of pipe nipples of the same diameter group, wall thickness group, and specifications as the pipe used in the line.

2.03 Welding Technique and Speed:

The weld shall be made using the same welding technique, and with approximately the same arc-welding speed to be used in actual line work.

2.04 Test Specimen - Number and Type:

The type and number of test specimens shall be as follows:

	Number of Specimens					
Pipe Size, Outside Diameter - Inches	Tensile	Nick Break	Root Bend	Face Bend	Side Bend	Total
20" O.D. API 5L Gr. B, 0.250" Wall	2	2	2	2	0	8

2.05 Test Specimen - Removal and Preparation:

Test specimens shall be removed as shown on Page 18 and shall be prepared for test as shown on Pages 19 & 20.

2.06 Test Requirements:

The full section specimen shall be tested in accordance with Section 2.071 and it shall meet the requirements of that section.

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2.07 Tensile Strength:

The specimens (Page 20) shall be approximately 9" long and 1" wide. They may be machine-cut or oxygen-cut and no other preparation is needed unless the sides are notched or are not parallel. If necessary, the specimens shall be machined so that the sides are smooth and parallel.

Tensile test specimens shall be broken under tensile load with equipment capable of measuring the load at which failure occurs. The tensile strength shall be computed by dividing the maximum load at failure by the least cross-sectional area of the specimen as measured before load is applied.

The tensile strength of the weld including the fusion zone of each specimen shall be equal to or greater than the specified minimum tensile strength of the pipe material, but need not be equal or greater than the actual tensile strength of the pipe material. If the specimen breaks outside the weld and fusion zone; i.e., in parent pipe material, and meets the specification minimum tensile strength requirements then the weld shall be accepted as meeting the requirements.

If the specimen breaks in the weld or fusion zone and the observed strength is equal to or greater than the specified minimum tensile strength of the pipe material and meets the requirements for soundness as set forth in the Nick-Break Test (Par. 2.084), then the weld shall be accepted as meeting the requirements.

If the specimen breaks below the specificd minimum tensile strength of the pipe material, then the weld shall be set aside and a new test weld made.

2.08 Nick Break Test:

The specimens (Page 19) shall be approximately 9" long and 1" wide and they may be machine-cut or oxygen-cut. They shall be notched with a hacksaw on each side at the center of the weld and each notch shall be approximately 1/8" deep.

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2.081 Nick-break specimens prepared in this manner from welds made with certain automatic and semi-automatic processes may fail through the pipe instead of the weld. When previous testing experience indicates failures through the pipe are to be expected, the external reinforcement may be notched to a depth not to exceed 1/16" measured from the original weld surface.

2.082 The nick-break specimens intended for qualifying a procedure using a semi-automatic or automatic welding process may be macro etched prior to their being nicked. Ammonium persulfate should be used as the etchant.

2.083 The specimens shall be broken by pulling in a tensile machine by supporting the ends and striking the center, or by supporting one end and striking the other end with a hammer. The exposed area of the fracture shall be at least 3/4" wide.

2.084 The exposed surfaces of each specimen shall show complete penetration and fusion and: (a) there shall be no more than six gas pockets per sq. in. of surface area with the greatest dimension not to exceed 1/16", (b) slag inclusions shall not be more than 1/32" in depth nor 1/8" or one-half the nominal wall thickness in length, whichever is shorter, and there shall be at least 1/2" of sound weld metal between adjacent inclusions. The dimensions should be measured as shown in Appendix L.

2.09 Root and Face Bend Test:

The specimens (Page 20) shall be at least 8" long by 1" wide and the long edges shall be rounded. They may be machine-cut or oxygen-cut. The cover and root bead reinforcement shall be removed flush with the surface of the specimen. These surfaces shall be smooth and any scratches which exist shall be light and transverse to the weld.

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2.091 The specimens shall be bent in a guided bend test jig similar to that shown in Appendix H. Each specimen shall be placed on the die with the weld at mid span. Face bend specimens shall be placed with the face of the weld directed toward the gap and root bend specimens shall be placed with the root of the weld directed toward the gap. The plunger shall be forced into the gap until the curvature of the specimen is approximately U-shaped.

2.092 The bend test shall be considered acceptable if no crack or other defect exceeding 1/8" or 1/2 the nominal wall thickness, whichever is smaller, in any direction is present in the weld or between the weld and the fusion zone after bending. Cracks which originate along the edges of the specimen during testing and which are less than 1/4" measured in any direction shall not be considered unless obvious defects are observed. Each specimen subjected to the bend test shall meet these requirements.

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3.0 Production Welding:

This specification shall apply to field welding of new steel pipe or used steel pipe that has been visually examined with care and found to be in good condition, free from split seams or other defects that would cause leakage and provided that weldability has been established either by proof that the pipe has been manufactured in accordance with one of the pipe material specifications listed on Page 24 or by qualification under the provisions of OPSO, Appendix "B", Section II "Steel Pipe of Unknown or Unlisted Specification".

3.01 Welding Machines:

Welding machines shall be operated within the amperage and voltage ranges recommended for each size and type of electrode (Page 17).
Gas welding equipment shall be operated with the flame characteristics and tip sizes given in the qualified welding procedure.

3.011 Welding machines and their accessories shall be of size and type suitable for the work and shall be maintained in such condition as to make acceptable welds possible and to assure continuity of operation and safety of personnel.

3.02 Other Equipment:

Hoisting equipment, cutting and beveling equipment, line-up clamps, and hand tools shall be maintained in such condition as to make acceptable welds possible, and to assure continuity of operation and safety of personnel.

3.03 Repair and Replacement:

Any equipment which does not meet these requirements shall be repaired or replaced.

3.04 Welding:

The welding of piping in accordance with this specification shall be performed by qualified welders using qualified procedures. The surfaces to be welded shall be smooth, uniform, free of fins, laminations, tears, scale, slag, grease, paint and other deleterious material which might adversely affect the welding. The joint design and spacing between abutting ends shall be in accordance with the welding procedure specification to be used.

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3.041 All position welds shall be made with the parts to be joined secured against movement and with adequate clearance around the joint to allow the welder or welders space in which to work.

3.042 The number of beads shall be such that the completed weld shall have a substantially uniform cross section around the entire circumference of the pipe. At no point shall the crown surface be below the outside surface of the pipe, nor should it be raised above the parent metal by more than 1/16".

3.043 Two beads shall not be started at the same location. The face of the completed weld should be approximately 1/8" greater than the width of the original groove. The completed weld shall be thoroughly brushed and cleaned.

3.05 Alignment:

The alignment of the abutting ends shall be such as to minimize the offset between surfaces. For pipe of the same nominal wall thickness, the offset shall not exceed 1/16". Any greater offset, provided it is caused by dimensional variations, shall be equally distributed around the circumference of the pipe. Hammering of the pipe to obtain proper lineup should be held to a minimum.

3.06 Clamps:

Line-up clamps shall be used in accordance with the requirements of the procedure specification. When it is permissible to remove the line-up clamp before completion of the root bead, the completed part of this bead shall be in approximately equal segments and these shall be approximately equally spaced around the circumference of the joint.

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However, when an internal line-up clamp is used and conditions make it difficult to prevent movement of the pipe, or if the weld will be unduly stressed, the root bead shall be completed before releasing clamp tension. Root bead segments used in connection with external clamps shall be uniformly spaced around the circumference of the pipe and shall have an accumulative length of not less than 50 per cent of the pipe circumference before the clamp may be removed.

3.07 Bevels:

Pipe ends shall be provided with mill bevels conforming to the joint design used in the welding procedure specification.

3.071 Pipe ends should be field beveled by machine tool or machine oxygen cutting. Manual oxygen cutting may also be used if so authorized by the Engineer. The beveled ends shall be reasonably smooth and uniform, and dimensions shall be in accordance with the qualified welding procedure.

3.08 Weather Conditions:

Welding shall not be done when the quality of the completed weld would be impaired by the prevailing weather conditions, including but not limited to airborne moisture, blowing sands, or high winds. Windshields may be used when practical. The Engineer shall decide if weather conditions are suitable for welding.

3.09 Clearance:

When the pipe is welded above ground, the working clearance around the pipe at the weld should not be less than 16". When the pipe is welded in the trench, the bell hole shall be of sufficient size to provide the welder or welders ready access to the joint.

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEE PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

3.10 Cleaning:

Scale and slag shall be removed from each bead and groove. Cleaning may be done with either hand or power tools.

3.11 Inspection:

The quality of production welds will be determined by either destructive or non-destructive methods. Inspection may be made both during the welding operation or after the weld has been completed. Any weld not meeting the requirements of this specification shall be rejected.

3.12 Defects:

Defects, except cracks, in the root and filler beads may be repaired with prior authorization by the Engineer. Defects, except cracks in the cover pass, may be repaired without authorization. Cracks shall not be repaired. All repairs shall meet the Standards of Acceptability - Non-destructive Testing, Par. 6.0 API Standard 1104, Edition, currently accepted by OPSO.

3.121 Before repairs are made, injurious defects shall be entirely removed to clean metal. All slag and scale shall be removed to clean metal. All slag and scale shall be removed by wire brushing. Preheating of such an area is required.

3.122 Such repaired areas shall be re-radiographed, or inspected by the same means previously used. No further repairs shall be allowed in these areas.

3.123 The Engineer may re-inspect all of a weld containing a repair in the same manner as any production weld.

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APPENDIX TO WELDING PROCEDURE

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Table 1

Electrode Type and Size for Manual Shielded Metal Arc Process

	Pipe Wall Thickness (Inches)	Passes	Pass No.	Rod Size
I.	5/32 (.156) to 7/32 (.219) inclusive	3	1	1/8
			2	5/32
			3	5/32
II.	1/4 (.250)	3	1	5/32
			2	5/32
			3	3/16
III.	9/32 (.281) & 5/16 (.312)	4	1	5/32
			2	5/32
			3	3/16
			4	3/16
IV.	11/32 (.344) & 3/8 (.375)	5	1	5/32
			2	5/32
			3	3/16
			4	3/16
			5	3/16

Note 1: All electrodes are to be A.W.S. approved E 6010 or E 7010.

Note 2: Minimum number of passes. Additional passes may be applied.

Note 3: Smaller diameter electrodes may be used.

Table 2

Electrode Current and Voltage Ranges

Electrode Size	E 6010 Current (Amps) Min.	E 6010 Current (Amps) Max.	E 7010 Current (Amps) Min.	E 7010 Current (Amps) Max.	Volts Min.	Volts Max.
3/32"	50	75	50	75	19	21
1/8"	75	100	75	100	19	21
5/32"	90	150	90	150	19	21
3/16"	130	200	130	200	19	21

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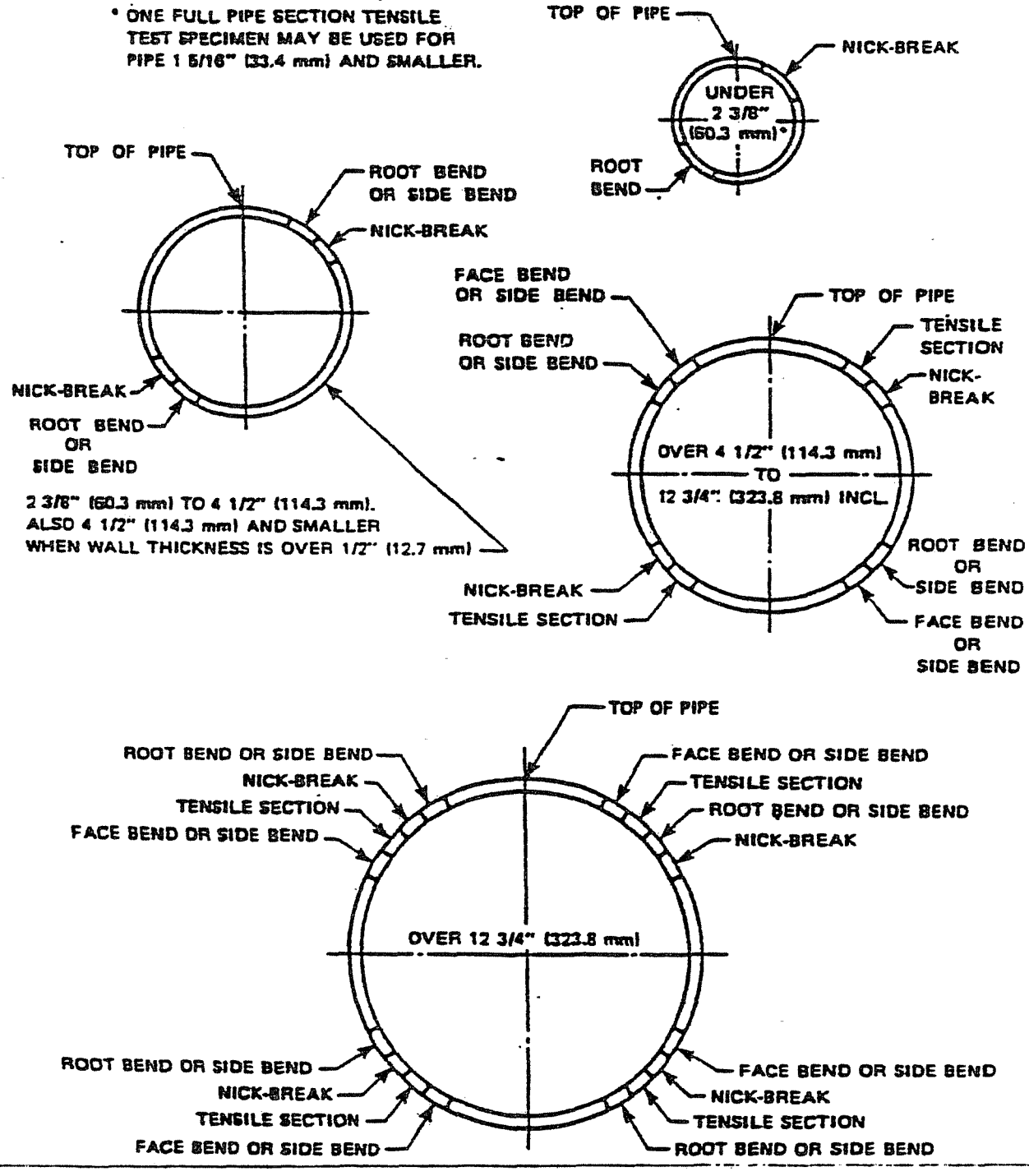

NOTE: AT THE COMPANY'S OPTION, THE LOCATIONS MAY BE ROTATED PROVIDED THEY ARE EQUALLY SPACED AROUND THE PIPE EXCEPT SPECIMENS SHALL NOT INCLUDE THE LONGITUDINAL WELD.

FIGURE 1

LOCATION OF TEST SPECIMENS - BUTT WELD
PROCEDURE QUALIFICATION TEST WELD

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APPROVED	APPROVED	
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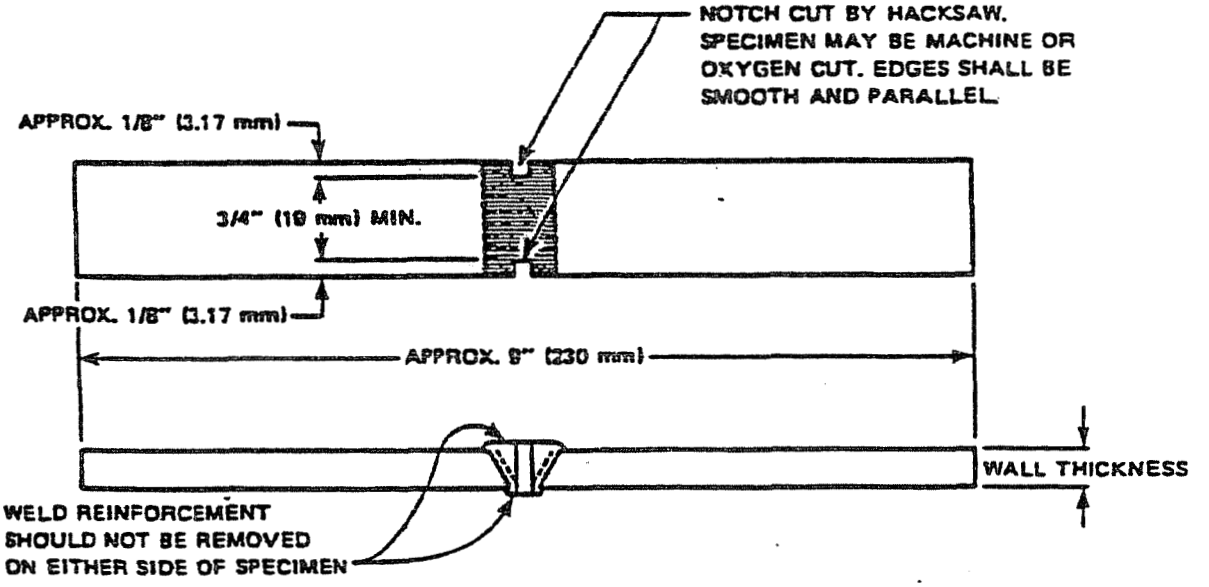

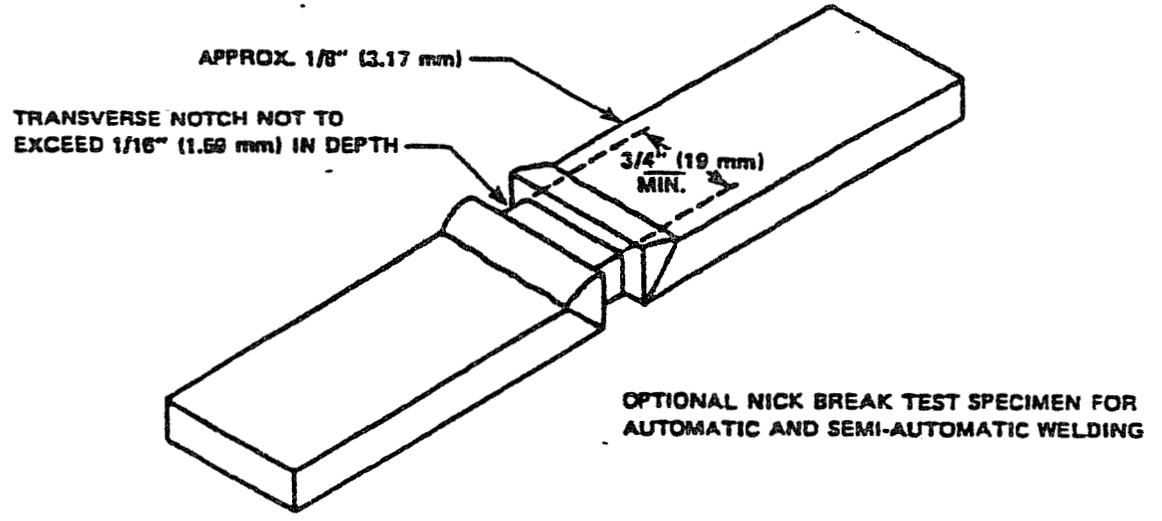

OPTIONAL NICK BREAK TEST SPECIMEN FOR AUTOMATIC AND SEMI-AUTOMATIC WELDING

FIGURE 3

NICK BREAK TEST SPECIMEN

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEEL PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
APPROVED	APPROVED	
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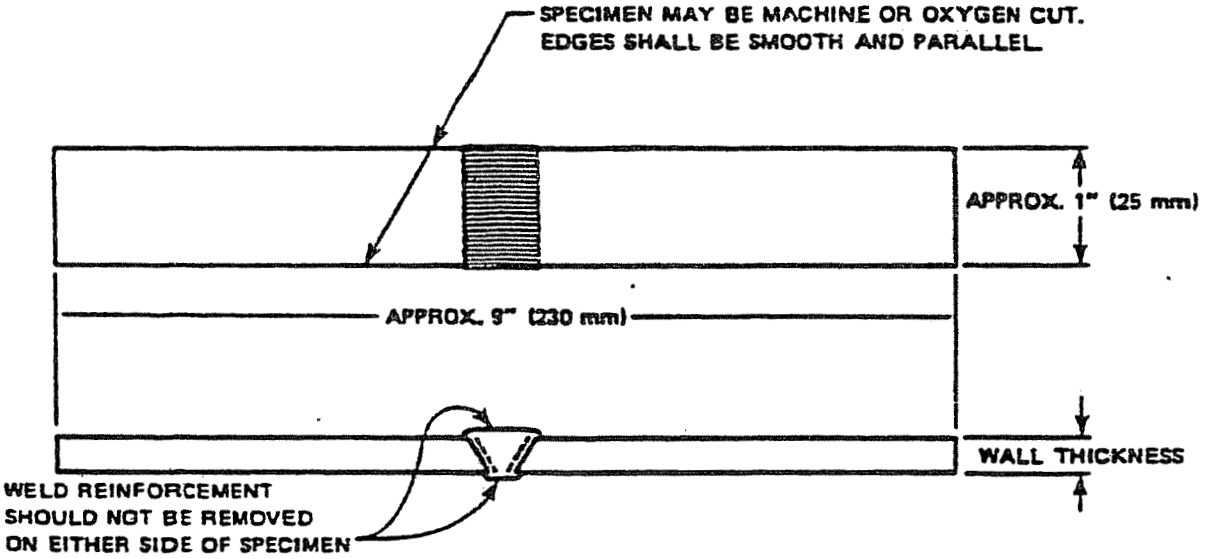

FIGURE 2

TENSILE TEST SPECIMEN

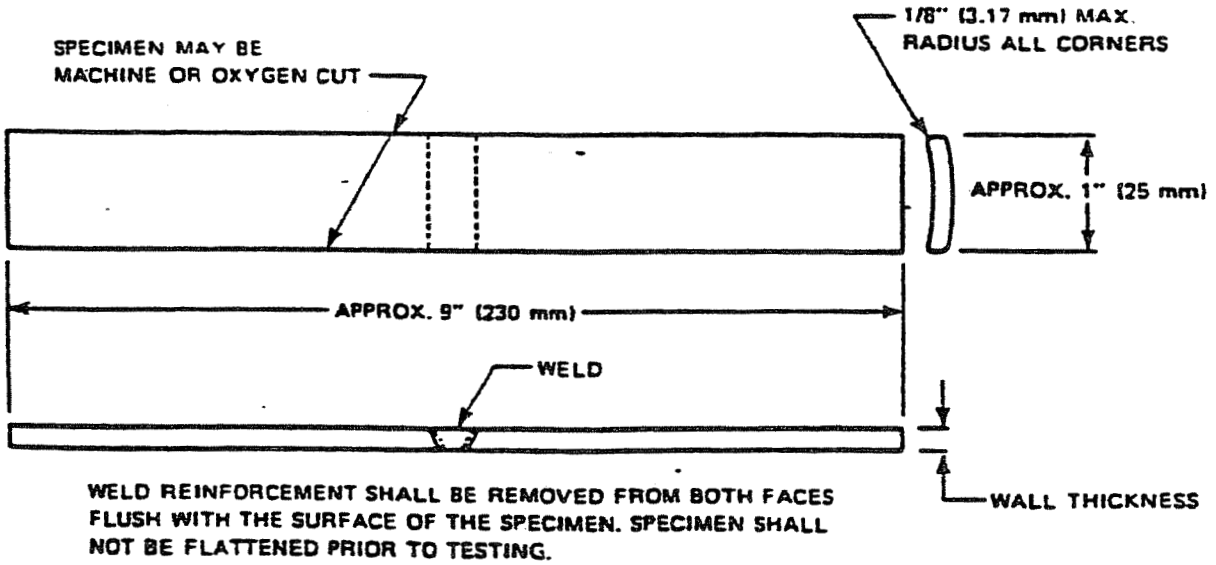

FIGURE 4

ROOT BEND AND FACE BEND TEST SPECIMEN
WALL THICKNESSES OF 0.5 IN. (12.7 mm) AND LESS

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STEE PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
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RADIUS OF PLUNGER A = 1 3/4 INCHES (44.45 mm)

RADIUS OF DIE B = 2 5/16 INCHES (58.74 mm)

WIDTH OF DIE C = 2 INCHES (50.8 mm)

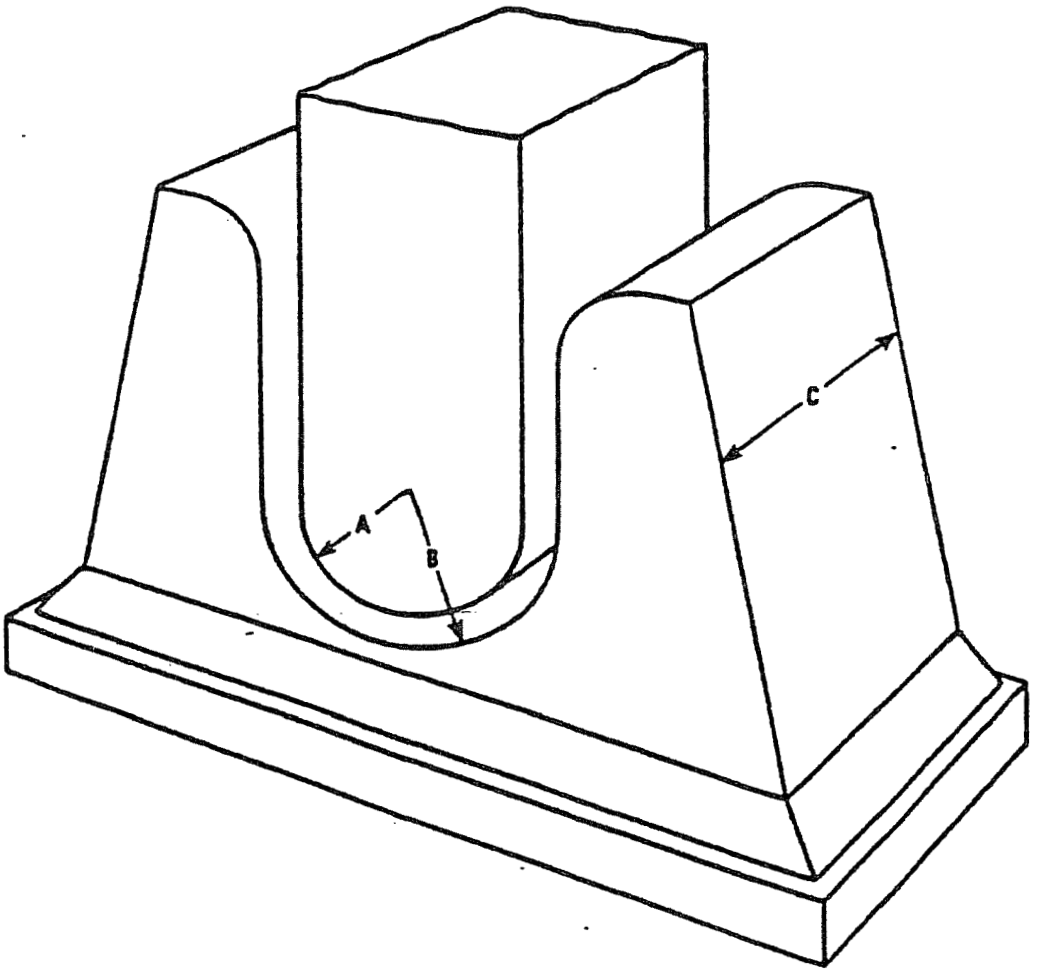

FIGURE 5

JIG FOR GUIDED BEND TESTS
(NOT TO SCALE)

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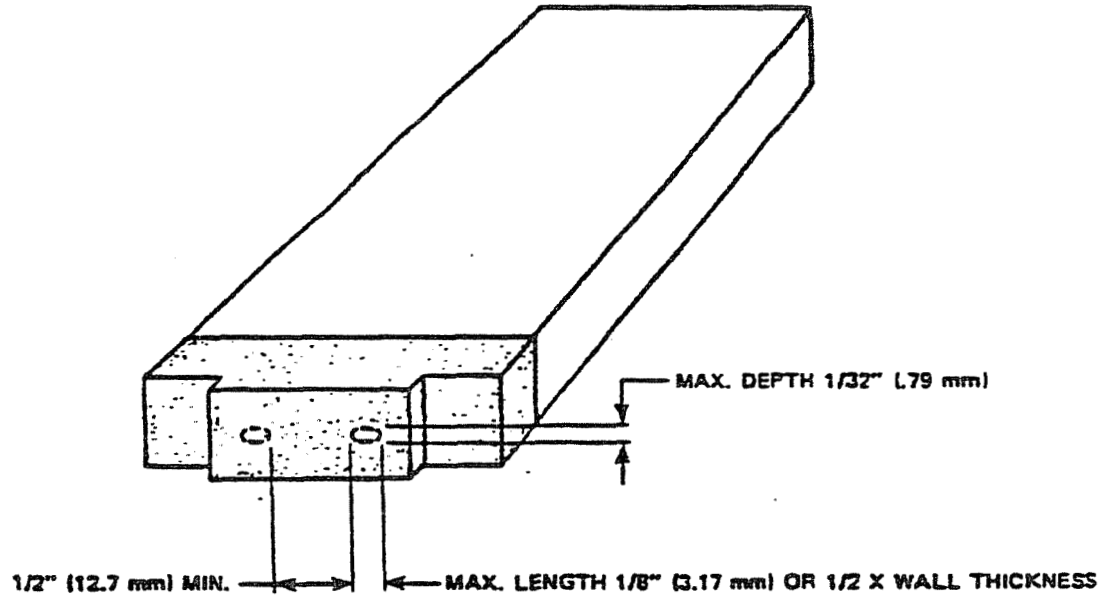

DIMENSIONING OF DISCONTINUITIES IN WELD SPECIMENS

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-II-A-II FOR STE. PIPE WITH O.D. FROM 2 3/8" TO, AND INCLUDING, 12 3/4" AND WALL THICKNESS 0.188" TO, BUT NOT INCLUDING, 0.250"
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Filler Metal Classification Groups

Group	ASTM Spec.*	AWS Spec.*	Shielding Gas	Electrode	Remarks
I	A233-64 A316-64	A5.1-64 A5.5-64		EXX10 EXX11	
II	A233-64 A316-64	A5.1-64 A5.5-64		EXX15 EXX16 EXX18	
IV	A559-65	A5.18-65	Argon and Oxygen	E60S-1 E60S-2 E60S-3	
V	A559-65	A5.18-65	Carbon Dioxide	E60S-2 E60S-3 E70S-4 E70S-5 E70S-6	
VI	A559-65	A5.18-65	Not Specified	E70S-6	Welding power not specified.
VII	A559-65	A5.18-65	Carbon Dioxide	E70T-1 E70T-2 E70T-5	
VIII	A559-65	A5.18-65	No Shielding	E70T-3 E70T-4 E70T-5	
IX	A559-65	A5.18-65	Not Specified	E70T-6	Welding power not specified.
X	A559-65	A5.18-65	Argon or Argon and Oxygen	E70U-1	
XI	A251-66	A5.2-66		RG45 RG60 RG65	

Note: Covering and filler metal types not listed above may be used but shall require separate welder qualification.

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Specification	Grade	Type (1)	SMYS (psi)
API 5L	A25	BW, ERW, S	25,000
API 5L	A	ERW, FW, S	30,000
API 5L	B	ERW, FW, S	35,000
API 5LS (2)	A	ERW, DSA	30,000
API 5LS	B	ERW, DSA	35,000
API 5LS	X42	ERW, DSA	42,000
API 5LS	X46	ERW, DSA	46,000
API 5LS	X52	ERW, DSA	52,000
API 5LS	X56	ERW, DSA	56,000
API 5LS	X60	ERW, DSA	60,000
API 5LS	X65	ERW, DSA	65,000
API 5LX (2)	X42	ERW, FW, S, DSA	42,000
API 5LX	X46	ERW, FW, S, DSA	46,000
API 5LX	X52	ERW, FW, S, DSA	52,000
API 5LX	X56	ERW, FW, S, DSA	56,000
API 5LX	X60	ERW, FW, S, DSA	60,000
API 5LX	X65	ERW, FW, S, DSA	65,000
• API 5LX	70T	ERW, FW, S, DSA	70,000
• API 5LU	U80	S, DSA	80,000
• API 5LU	U100	S, DSA	100,000
ASTM A53	Open Hearth, Basic Oxygen, Elect. Furnace	BW	25,000
ASTM A53	Bessemer	BW	30,000
ASTM A53	A	ERW, S	30,000
ASTM A53	B	ERW, S	35,000
ASTM A106	A	S	30,000
ASTM A106	B	S	35,000
ASTM A106	C	S	40,000
ASTM A135	A	ERW	30,000
ASTM A135	B	ERW	35,000
ASTM A139	A	EFW	30,000
ASTM A139	B	EFW	35,000
ASTM A381	Class Y-35	DSA	35,000
ASTM A381	Class Y-42	DSA	42,000
ASTM A381	Class Y-46	DSA	46,000
ASTM A381	Class Y-48	DSA	48,000
ASTM A381	Class Y-50	DSA	50,000
ASTM A381	Class Y-52	DSA	52,000
ASTM A381	Class Y-56	DSA	56,000
ASTM A381	Class Y-60	DSA	60,000
ASTM A381	Class Y-65	DSA	65,000
ASTM A134	—	EFW	(3)
ASTM A155	—	EFW	(3)
ASTM A333	1	S, ERW	30,000
ASTM A333	3	S, ERW	35,000
ASTM A333	4	S	35,000
ASTM A333	6	S, ERW	35,000
ASTM A333	7	S, ERW	35,000
ASTM A333	8	S, ERW	75,000
ASTM A333	9	S, ERW	46,000
ASTM A539	—	ERW	35,000

NOTES • While these new API Pipe Specifications are in print, they have not yet been formally approved by the Department of Transportation, Office of Pipeline Safety.

(1) Abbreviations: BW – Furnace butt-welded; ERW – Electric resistance welded; S – Seamless; FW – Flash welded; EFW – Electric fusion welded; DSA – Double submerged-arc welded.

(2) Intermediate grades are available in API 5LS and 5LX.

(3) See applicable plate specification for SMYS.

STANDARD WELDING PROCEDURE

SPECIFICATION NO. 501-3

COVERING

PROCESS GROUP	DIAMETER GROUP	MATERIAL GROUP	THICKNESS GROUP
SA	III	A	III

THE CINCINNATI GAS & ELECTRIC COMPANY

THE UNION LIGHT, HEAT AND POWER COMPANY

LAWRENCEBURG GAS COMPANY

THE CINCINNATI GAS & ELECTRIC COMPANY
AND SUBSIDIARY COMPANIES

GAS OPERATIC

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ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-III-A-III FOR STEEL PIPE WITH O.D. GREATER THAN 12 3/4" AND WALL THICKNESS 0.250" TO, BUT NOT INCLUDING, 0.344"
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

I attest that the tests required by this document were performed and that the results of the tests were as indicated above.

George W. Warren

State of Ohio
County of Hamilton

Before me, a Notary Public, in and for said county, personally appeared George W. Warren who being by me duly sworn deposes and says that the tests required by this document have been performed and says that the results of the tests were as indicated above.

Sworn to and subscribed in my presence this 31st day of May, 1978.

Philip D. Spiess
Notary Public — STATE OF OHIO
PHILIP D. SPIESS

My Commission Expires March 31, 1982

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-III-A-III FOR STEEL PIPE WITH O.D. GREATER THAN 12 3/4" AND WALL THICKNESS 0.250" TO, BUT NOT INCLUDING, 0.344"
APPROVED	APPROVED	
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Forward

This standard welding procedure fulfills the requirements set forth:

Department of Transportation: Transportation of Natural and Other Gas by Pipeline Minimum Safety Standards, Subpart "E", Welding of Steel in Pipelines §192.223 - General.

For purposes of identifying welding procedure specification the following grouping applies:

Material Group	Application
A	All API 5L and ASTM Pipe Specifications having Specified Minimum Yield Strength of 42,000 psi or less.
B	All API 5LX Pipe Specifications having Specified Minimum Yield Strengths between 42,000 psi and 60,000 psi.
C	All API 5LX Pipe Specifications having a Specified Minimum Yield Strength 60,000 psi or greater.

Diameter Group	Application
I	Pipe having O.D. less than 2 3/8".
II	Pipe having O.D. from 2 3/8", to and including 12 3/4".
III	Pipe having O.D. in excess of 12 3/4".

Thickness Group	Application
I	Less than .188".
II	.188" to but not including .250".
III	.250" to but not including .344".
IV	.344" to and including .500".

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-III-A-III FOR STEEL PIPE WITH O.D. GREATER THAN 12 3/4" AND WALL THICKNESS 0.250" TO, BUT NOT INCLUDING, 0.344"
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Process Group	Application
SA	Manual Shielded Metal Arc Process
MIG	Semi-Automatic Consumable Electrode Inert-Gas-Shielded Process
O	Oxyacetylene Process

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APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

A. Process: Manual Shielded Arc

B. Material: See Note "A"

C. Diameter and Wall Thickness: See Note "B"

D. Joint Design: V-Groove

E. Filler Metal and Number of Beads: Page 17, Table 1

F. Electrical or Flame Characteristics: Page 17, Table 2

G. Position: Horizontal

H. Direction of Welding: Vertical Down

Number of Welders: See Note "C"

J. Time Lapse between Passes: See Note "D"

K. Type of Line-up Clamp: See Note "E"

L. Removal of Line-up Clamp: See Note "F"

M. Cleaning: See Note "G"

N. Preheat, Stress Relief: See Note "H"

O. Shielding Gas and Flow Rate: Not Applicable

P. Shielding Flux: Page 23

Q. Speed of Travel: 4 to 12 Inches Per Minute

R. Sketches and Tabulations: (See Pages 4 & 5)

Tested: 5-2-77 (Date) By: [signature]

Approved: 6/27/78 (Date) Operating: [signature]

Adopted: 6-1-77 (Date) Pipeline Engr.: [signature]

Certified by: R. R. [illegible] P.E. Revised 8/8/83

Title: Principal [illegible] Gas Oper. [illegible]

ISSUED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-III-A-III FOR STEEL PIPE WITH O.D. GREATER THAN 12 3/4" AND WALL THICKNESS 0.250" TO, BUT NOT INCLUDING, 0.344"
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

Notes to Page 1:

A - Material: Pipe API Specification, and all pipe furnished under API and ASTM having Specified Minimum Yield Strengths 42,000 psi and less.

B - Diameter and Wall Thickness: 20" O.D. 0.250" wall and all diameters greater than 12 3/4" and all wall thicknesses from 0.250" to but not including 0.344".

C - Number of Welders:

Minimum Root Bead Welders: 1
Minimum Second Bead Welders: 1

D - Time Lapse Between Passes: During manual shielded metal arc welding, the time interval between application of the root bead and second or "hot" pass shall be the minimum time required for thorough cleaning of the root bead. A delay between the second, third and succeeding passes, sufficient for cleaning welds and allowing welders and equipment to move along the line, will be permitted. All welds shall be completed without allowing the work to cool to ambient temperature between successive passes. If the weld cannot be completed without cooling to ambient temperature, the final phases of the weld shall be completed as directed by the Engineer. Any weld not completed as specified in this paragraph shall be cut out of the line. If welding is done by the MIG process, no special provisions are required for completion if the weld cools to ambient temperature between passes.

E - Line-Up Clamps: Line-Up Clamps are to be used on all butt-welds except for certain fittings where it is impracticable. Line-Up Clamps are not required for fillet welds. External line-up clamps should be used for butt welding pipe sizes to and including 12-inch and internal type clamps should be used for pipe sizes 14" and larger.

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APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

Notes to Page 1: (Cont'd.)

F - Removal of Line-Up Clamp: In no case shall the line-up clamp be removed before 20% of the root bead, uniformaly distributed around the circumference, is completed.

G - Cleaning: All slag, protrusions of filler metal from the preceding pass, pin holes and similar defects shall be removed before depositing the next pass. For this operation a power grinder or a hand or power driven diamond point or round nose chisel shall be used.

H - Preheating and Stress Relief: Not normally required for work performed under this specification, except that under field conditions when the ambient temperature is less than 32° F., local preheating to a hand-hot condition shall be required. API 5L, and API 5LX pipe shall be preheated to a minimum temperature of 200° F., when the ambient temperature is less than 32° F. The preheat temperature shall be checked by use of temperature indicating crayons, and shall be maintained until the weld is completed. Preheating may be accomplished by any suitable method, provided that it is uniform and that the temperature does not fall below the prescribed minimum during the actual welding operations.

Preheating is required to remove moisture from the pipe prior to welding.

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APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	

Procedure No. SA III A III
Test No. 2-77

Location 2120 Dana Ave. Date 5-2-77
Contractor N/A Sub-Contractor N/A
Date of Weld 5-2-77 Roll Weld N/A Fixed Position Weld 6-G
Welder R. Kallmyer Mark K-3
Welding Time 45 Min. Time of Day 2:00 P.M. Temperature 75 °F
Weather Condition Inside Building Wind Break Used N/A
Make of Welding Machine Lincoln Size 300
Brand of Electrode Lincoln Voltage 21 Amperage 190
Pipe Mfr. U.S. Steel Pipe Specification API 5L Gr. B
Wall Thickness 0.250" Dia. O.D. 20" Wt./Ft. 52.7 lb/Ft Joint Design Nipple

Bead No.	1	2	3	4	5	6	7
Size of Electrode	5/32	5/32	5/32				
No. of Electrode	E6010	E6010	E6010				

Tensile Specimen No.	T1	T2	T3	T4
Cross-Section Dimensions	1.329x0.250	1.331x0.250	1.294x0.250	1.334x0.250
Cross-Section Area	0.332 In.^{2}	0.332 In.^{2}	0.324 In.^{2}	0.336 In.^{2}
Maximum Load	25,000 lb.	28,000 lb.	25,000 lb.	25,000 lb.
Tensile Strength	75,301lb/In.^{2}	84,337lb/In.^{2}	77,160lb/In.^{2}	74,404lb/In.^{2}

Ave. Tensile Strength 77,800lb/In.^{2}
Remarks on Tensile Test Satisfactory - Failure in Base Metal.

Nick-Break Specimen No.	N1	N2	N3	N4
Cross-Sectional Area of Break	0.203 In.^{2}	0.200 In.^{2}	0.221 In.^{2}	0.204 In.^{2}
No. of Gas Pockets Per Sq. In.	0	0	0	0
Gas Pockets with Greatest Dimension Exceeding 1/16 In.	0	0	0	0
Slag Inclusions Greater Than 1/32 In. Depth and 1/8 In. or ¼ the Wall Thick. in Length	0	0	0	0
Complete Penetration	Yes	Yes	Yes	Yes
Complete Fusion	Yes	Yes	Yes	Yes

Remarks on Nick-Break Tests No porosity or inclusions which exceed code limits.

Remarks on Bend Tests No visible defects.

☒ Procedure ☐ Welder ☒ Qualifying Test ☐ Line Test ☒ Qualified ☐ Disqualified

Test Made At 2120 Dana Ave. Date 5-2-77
Tested By The Cincinnati Gas & Electric Co. Supervised By G. W. Warren
Certified By [signature] P.E.
Title Principal Design Engr.
Date 6-7-77

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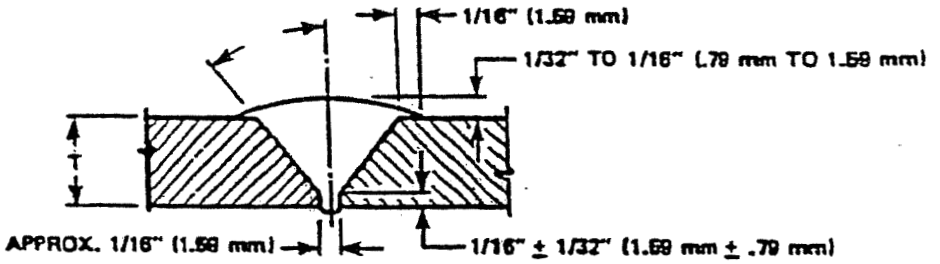
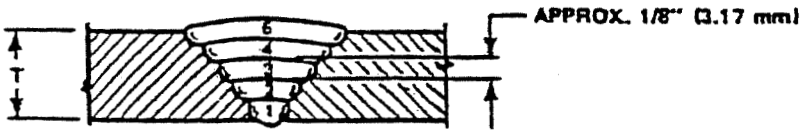
APPROVED	APPROVED	
RBG/HRM	DATE 8/8/83	



STANDARD "V" BEVEL BUTT JOINT



SEQUENCE OF BEADS

ELECTRODE SIZE & NUMBERS OF BEADS

PIPE WALL THICKNESS	NUMBER OF BEADS 1/8" ELECTRODE	*5/32" ELECTRODE	*3/16" ELECTRODE	TOTAL NUMBER OF BEADS
0.250"	0	3	0	3

NOTE: FIRST PASS ONLY	5/32"
REMAINING PASSES USE	*5/32"
COVER BEAD MAY BE MADE WITH	*3/16"

*Maximum size - smaller diameter electrodes may be used.

VOLTAGE & AMPERAGE RANGE

ELECTRODE DIAMETER	AMPERAGE	ARC VOLTS
3/32"	50- 75	19-21
1/8"	75-100	19-21
5/32"	90-150	19-21
3/16"	130-200	19-21

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1.0 Qualification of Welding Procedure:

The test weld made under this specification shall qualify the welding procedure for welding on pipelines:

Material Group	Diameter Group	Thickness Group
42,000 psi and less)	(Greater than 12 3/4")	(0.250" to but not including 0.344")

1.01 Test Coupon:

The test coupon shall be:
20" O.D. API 5L, Gr. B, 0.250" Wall.

1.02 Welding Procedure Records:

Records of the pipe joint welding procedure shall be recorded in detail on the forms herein provided (Pages 4 & 5) and shall be adhered to during subsequent construction, except where a change is specifically authorized by the Pipeline Engineer.

1.03 Welding Procedure Essential Variables:

This welding procedure shall be re-established as a new procedure specification and shall be completely re-qualified when any of the changes listed below are made in the procedure. Changes other than those given below may be made in the procedure without the necessity for re-qualification, provided the specification is revised to show these changes:

(a) Change in welding process.

(b) Change in pipe metal. (From ASTM or API 5L and 5LX Grade 42 groups to API 5LX groups in excess of Grade X42 and vice versa.)

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(c) Change in joint design. (From V-groove to U-groove, etc. Changes in the dimensions of the welding groove, however, are not considered essential variables.)

(d) Change in position (for butt welds only). (A change from vertical to horizontal or vice versa.)

(e) Change in pipe size and wall thickness. (For groove welds, a change from one diameter group - wall thickness group combination to another and for fillet welds, a change from one wall thickness group to another group.)

(f) Change in filler metal. (From one classification group to another. See Page 23.)

(g) Change in filler metal size.

(h) Decrease in number of root bead welders.

(i) Change in time lapse between root and second bead.

(j) Change in direction. (Vertical-down to Vertical-up or vice versa.)

(k) Change in shielding gas. (From one gas to another, from one mixture of gases to a different mixture of the same gases.)

(l) Change in flow rate. (Decrease or increase in flow rate.)

(m) Change in shielding flux. (Change in type or size of flux particles.)

(n) Major change in speed of travel.

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2.0 Qualification Test:

Two pipe nipples shall be joined by following all of the details of the procedure specification.

2.01 Compliance with Procedure Specification:

The welding process, pipe material, filler metal and welding procedure shall comply with the procedure specification.

2.02 Test Pipe Material:

The pipe material shall consist of pipe nipples of the same diameter group, wall thickness group, and specifications as the pipe used in the line.

2.03 Welding Technique and Speed:

The weld shall be made using the same welding technique, and with approximately the same arc-welding speed to be used in actual line work.

2.04 Test Specimen - Number and Type:

The type and number of test specimens shall be as follows:

	Number of Specimens					
Pipe Size, Outside Diameter - Inches	Tensile	Nick Break	Root Bend	Face Bend	Side Bend	Total
20" O.D. API 5L Gr. B, 0.250" Wall	4	4	4	4	0	16

2.05 Test Specimen - Removal and Preparation:

Test specimens shall be removed as shown on Page 18 and shall be prepared for test as shown on Pages 19 & 20.

2.06 Test Requirements:

The full section specimen shall be tested in accordance with Section 2.071 and it shall meet the requirements of that section.

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2.07 Tensile Strength:

The specimens (Page 20 ; shall be approximately 9" long and 1" wide. They may be machine-cut or oxygen-cut and no other preparation is needed unless the sides are notched or are not parallel. If necessary, the specimens shall be machined so that the sides are smooth and parallel.

Tensile test specimens shall be broken under tensile load with equipment capable of measuring the load at which failure occurs. The tensile strength shall be computed by dividing the maximum load at failure by the least cross-sectional area of the specimen as measured before load is applied.

The tensile strength of the weld including the fusion zone of each specimen shall be equal to or greater than the specified minimum tensile strength of the pipe material, but need not be equal or greater than the actual tensile strength of the pipe material. If the specimen breaks outside the weld and fusion zone; i.e., in parent pipe material, and meets the specification minimum tensile strength requirements then the weld shall be accepted as meeting the requirements.

If the specimen breaks in the weld or fusion zone and the observed strength is equal to or greater than the specified minimum tensile strength of the pipe material and meets the requirements for soundness as set forth in the Nick-Break Test (Par. 2.084), then the weld shall be accepted as meeting the requirements.

If the specimen breaks below the specified minimum tensile strength of the pipe material, then the weld shall be set aside and a new test weld made.

2.08 Nick Break Test:

The specimens (Page 19) shall be approximately 9" long and 1" wide and they may be machine-cut or oxygen-cut. They shall be notched with a hacksaw on each side at the center of the weld and each notch shall be approximately 1/8" deep.

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2.081 Nick-break specimens prepared in this manner from welds made with certain automatic and semi-automatic processes may fail through the pipe instead of the weld. When previous testing experience indicates failures through the pipe are to be expected, the external reinforcement may be notched to a depth not to exceed 1/16" measured from the original weld surface.

2.082 The nick-break specimens intended for qualifying a procedure using a semi-automatic or automatic welding process may be macro etched prior to their being nicked. Ammonium persulfate should be used as the etchant.

2.083 The specimens shall be broken by pulling in a tensile machine by supporting the ends and striking the center, or by supporting one end and striking the other end with a hammer. The exposed area of the fracture shall be at least 3/4" wide.

2.084 The exposed surfaces of each specimen shall show complete penetration and fusion and: (a) there shall be no more than six gas pockets per sq. in. of surface area with the greatest dimension not to exceed 1/16", (b) slag inclusions shall not be more than 1/32" in depth nor 1/8" or one-half the nominal wall thickness in length, whichever is shorter, and there shall be at least 1/2" of sound weld metal between adjacent inclusions. The dimensions should be measured as shown in Appendix L.

2.09 Root and Face Bend Test:

The specimens (Page 20) shall be at least 8" long by 1" wide and the long edges shall be rounded. They may be machine-cut or oxygen-cut. The cover and root bead reinforcement shall be removed flush with the surface of the specimen. These surfaces shall be smooth and any scratches which exist shall be light and transverse to the weld.

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2.091 The specimens shall be bent in a guided bend test jig similar to that shown in Appendix H. Each specimen shall be placed on the die with the weld at mid span. Face bend specimens shall be placed with the face of the weld directed toward the gap and root bend specimens shall be placed with the root of the weld directed toward the gap. The plunger shall be forced into the gap until the curvature of the specimen is approximately U-shaped.

2.092 The bend test shall be considered acceptable if no crack or other defect exceeding 1/8" or 1/2 the nominal wall thickness, whichever is smaller, in any direction is present in the weld or between the weld and the fusion zone after bending. Cracks which originate along the edges of the specimen during testing and which are less than 1/4" measured in any direction shall not be considered unless obvious defects are observed. Each specimen subjected to the bend test shall meet these requirements.

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3.0 Production Welding:

This specification shall apply to field welding of new steel pipe or used steel pipe that has been visually examined with care and found to be in good condition, free from split seams or other defects that would cause leakage and provided that weldability has been established either by proof that the pipe has been manufactured in accordance with one of the pipe material specifications listed on Page 24 or by qualification under the provisions of OPSO, Appendix "B", Section II "Steel Pipe of Unknown or Unlisted Specification".

3.01 Welding Machines:

Welding machines shall be operated within the amperage and voltage ranges recommended for each size and type of electrode (Page 17).
Gas welding equipment shall be operated with the flame characteristics and tip sizes given in the qualified welding procedure.

3.011 Welding machines and their accessories shall be of size and type suitable for the work and shall be maintained in such condition as to make acceptable welds possible and to assure continuity of operation and safety of personnel.

3.02 Other Equipment:

Hoisting equipment, cutting and beveling equipment, line-up clamps, and hand tools shall be maintained in such condition as to make acceptable welds possible, and to assure continuity of operation and safety of personnel.

3.03 Repair and Replacement:

Any equipment which does not meet these requirements shall be repaired or replaced.

3.04 Welding:

The welding of piping in accordance with this specification shall be performed by qualified welders using qualified procedures. The surfaces to be welded shall be smooth, uniform, free of fins, laminations, tears, scale, slag, grease, paint and other deleterious material which might adversely affect the welding. The joint design and spacing between abutting ends shall be in accordance with the welding procedure specification to be used.

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3.041 All position welds shall be made with the parts to be joined secured against movement and with adequate clearance around the joint to allow the welder or welders space in which to work.

3.042 The number of beads shall be such that the completed weld shall have a substantially uniform cross section around the entire circumference of the pipe. At no point shall the crown surface be below the outside surface of the pipe, nor should it be raised above the parent metal by more than 1/16".

3.043 Two beads shall not be started at the same location. The face of the completed weld should be approximately 1/8" greater than the width of the original groove. The completed weld shall be thoroughly brushed and cleaned.

3.05 Alignment:

The alignment of the abutting ends shall be such as to minimize the offset between surfaces. For pipe of the same nominal wall thickness, the offset shall not exceed 1/16". Any greater offset, provided it is caused by dimensional variations, shall be equally distributed around the circumference of the pipe. Hammering of the pipe to obtain proper lineup should be held to a minimum.

3.06 Clamps:

Line-up clamps shall be used in accordance with the requirements of the procedure specification. When it is permissible to remove the line-up clamp before completion of the root bead, the completed part of this bead shall be in approximately equal segments and these shall be approximately equally spaced around the circumference of the joint.

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However, when an internal line-up clamp is used and conditions make it difficult to prevent movement of the pipe, or if the weld will be unduly stressed, the root bead shall be completed before releasing clamp tension. Root bead segments used in connection with external clamps shall be uniformly spaced around the circumference of the pipe and shall have an accumulative length of not less than 50 per cent of the pipe circumference before the clamp may be removed.

3.07 Bevels:

Pipe ends shall be provided with mill bevels conforming to the joint design used in the welding procedure specification.

3.071 Pipe ends should be field beveled by machine tool or machine oxygen cutting. Manual oxygen cutting may also be used if so authorized by the Engineer. The beveled ends shall be reasonably smooth and uniform, and dimensions shall be in accordance with the qualified welding procedure.

3.08 Weather Conditions:

Welding shall not be done when the quality of the completed weld would be impaired by the prevailing weather conditions, including but not limited to airborne moisture, blowing sands, or high winds. Windshields may be used when practical. The Engineer shall decide if weather conditions are suitable for welding.

3.09 Clearance:

When the pipe is welded above ground, the working clearance around the pipe at the weld should not be less than 16". When the pipe is welded in the trench, the bell hole shall be of sufficient size to provide the welder or welders ready access to the joint.

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3.10 Cleaning:

Scale and slag shall be removed from each bead and groove. Cleaning may be done with either hand or power tools.

3.11 Inspection:

The quality of production welds will be determined by either destructive or non-destructive methods. Inspection may be made both during the welding operation or after the weld has been completed. Any weld not meeting the requirements of this specification shall be rejected.

3.12 Defects:

Defects, except cracks, in the root and filler beads may be repaired with prior authorization by the Engineer. Defects, except cracks in the cover pass, may be repaired without authorization. Cracks shall not be repaired. All repairs shall meet the Standards of Acceptability - Non-destructive Testing, Par. 6.0 API Standard 1104, Edition, currently accepted by OPSO.

3.121 Before repairs are made, injurious defects shall be entirely removed to clean metal. All slag and scale shall be removed to clean metal. All slag and scale shall be removed by wire brushing. Preheating of such an area is required.

3.122 Such repaired areas shall be re-radiographed, or inspected by the same means previously used. No further repairs shall be allowed in these areas.

3.123 The Engineer may re-inspect all of a weld containing a repair in the same manner as any production weld.

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APPENDIX TO WELDING PROCEDURE

ED 10/1/77	REVISION NO. 1	STANDARD WELDING PROCEDURE SA-III-A-III FOR STEEL PIPE WITH O.D. GREATER THAN 12 3/4" AND WALL THICKNESS 0.250" TO, BUT NOT INCLUDING, 0.344"
APPROVED:	APPROVED	
RBG/HRM	DATE 8/8/83	

Table 1

Electrode Type and Size for Manual Shielded Metal Arc Process

	Pipe Wall Thickness (Inches)	Passes	Pass No.	Rod Size
I.	5/32 (.156) to 7/32 (.219) inclusive	3	1	1/8
			2	5/32
			3	5/32
II.	1/4 (.250)	3	1	5/32
			2	5/32
			3	3/16
III.	9/32 (.281) & 5/16 (.312)	4	1	5/32
			2	5/32
			3	3/16
			4	3/16
IV.	11/32 (.344) & 3/8 (.375)	5	1	5/32
			2	5/32
			3	3/16
			4	3/16
			5	3/16

Note 1: All electrodes are to be A.W.S. approved E 6010 or E 7010.

Note 2: Minimum number of passes. Additional passes may be applied.

Note 3: Smaller diameter electrodes may be used.

Table 2

Electrode Current and Voltage Ranges

Electrode Size	E 6010 Current (Amps) Min.	E 6010 Current (Amps) Max.	E 7010 Current (Amps) Min.	E 7010 Current (Amps) Max.	Volts Min.	Volts Max.
3/32"	50	75	50	75	19	21
1/8"	75	100	75	100	19	21
5/32"	90	150	90	150	19	21
3/16"	130	200	130	200	19	21

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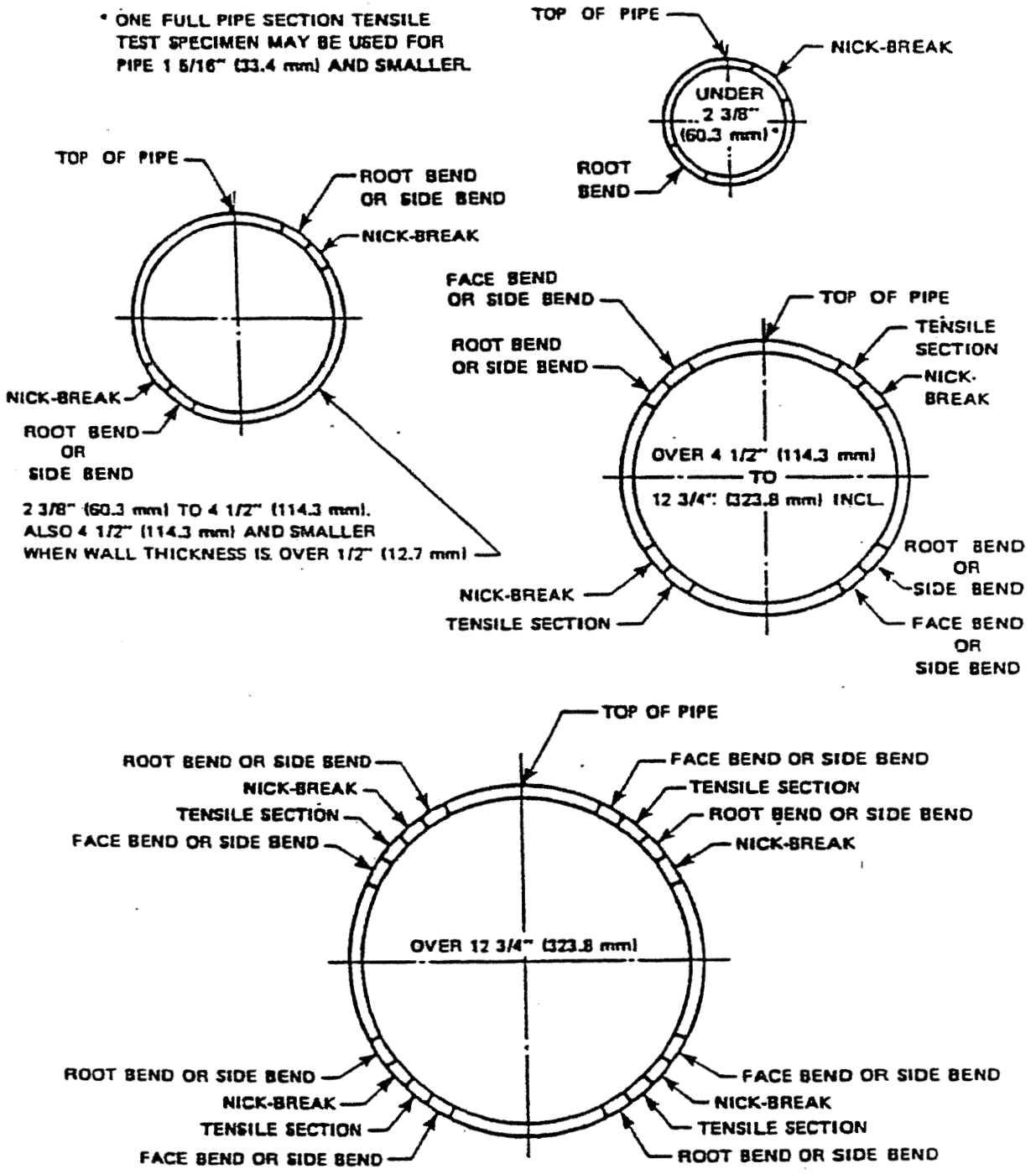

NOTE: AT THE COMPANY'S OPTION, THE LOCATIONS MAY BE ROTATED PROVIDED THEY ARE EQUALLY SPACED AROUND THE PIPE EXCEPT SPECIMENS SHALL NOT INCLUDE THE LONGITUDINAL WELD.

FIGURE 1

LOCATION OF TEST SPECIMENS - BUTT WELD
PROCEDURE QUALIFICATION TEST WELD

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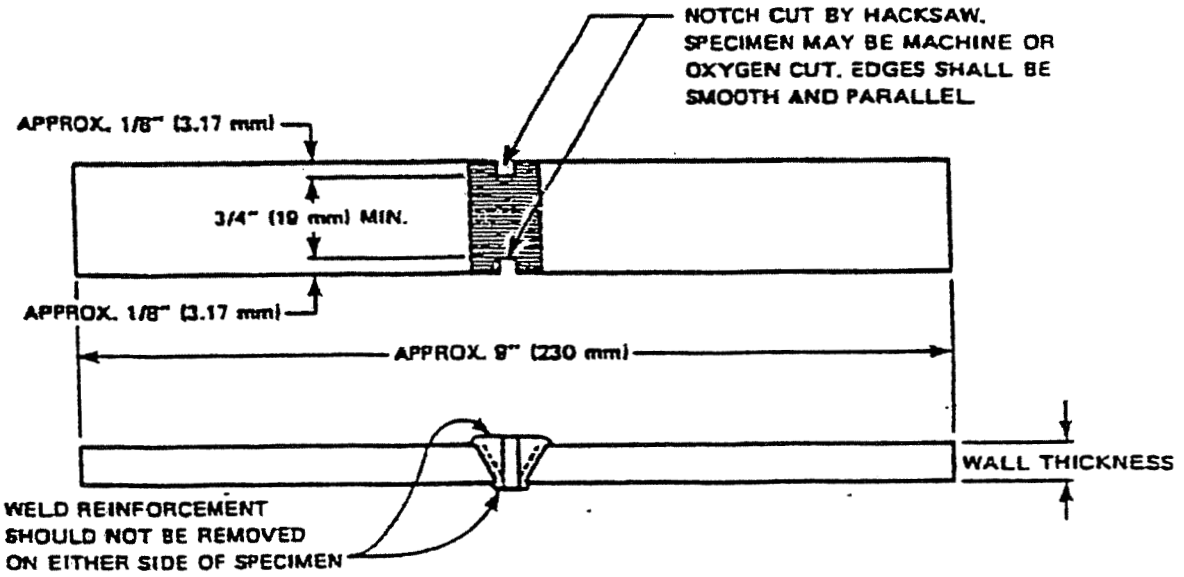

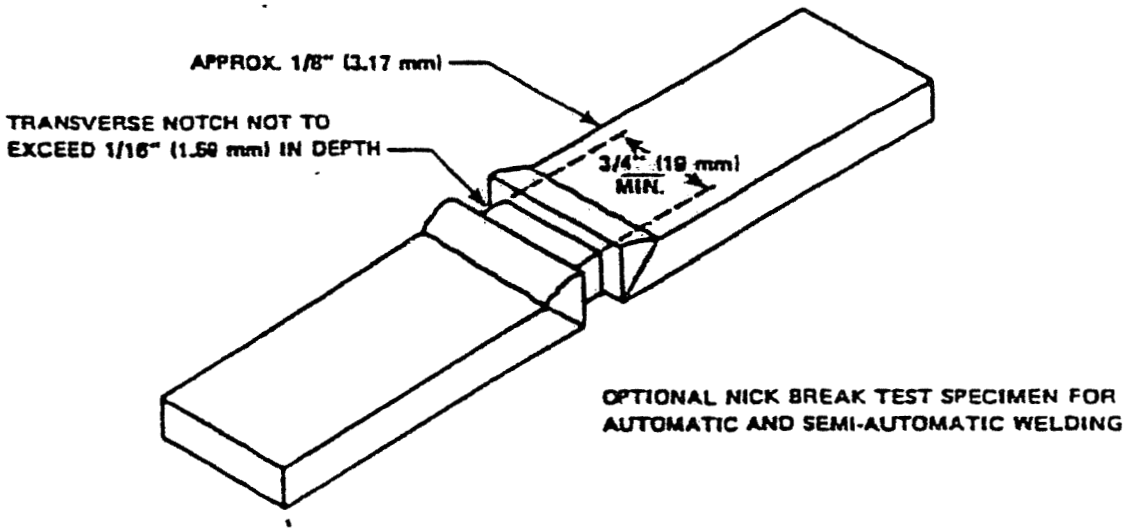

FIGURE 3

NICK BREAK TEST SPECIMEN

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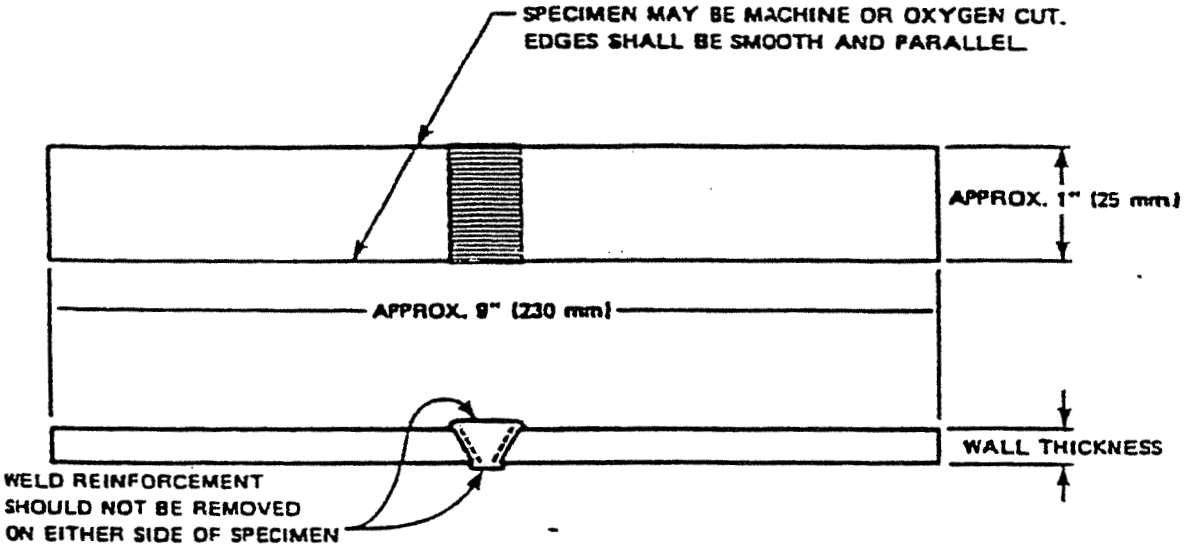

FIGURE 2

TENSILE TEST SPECIMEN

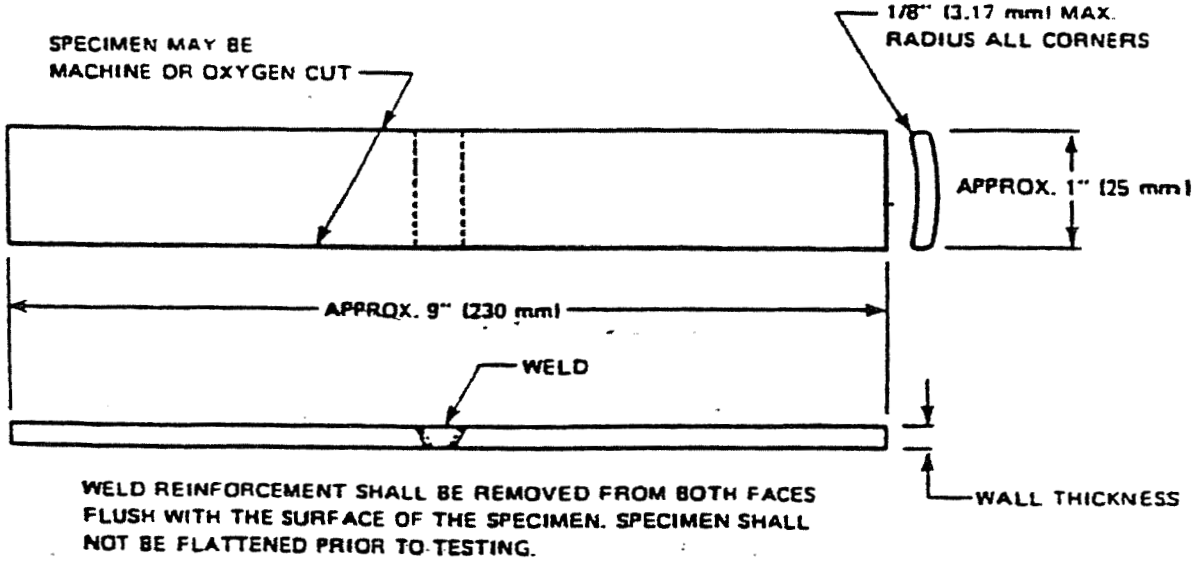

FIGURE 4

ROOT BEND AND FACE BEND TEST SPECIMEN
WALL THICKNESSES OF 0.5 IN. (12.7 mm) AND LESS

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RADIUS OF PLUNGER A = 1 3/4 INCHES (44.45 mm)

RADIUS OF DIE B = 2 6/16 INCHES (58.74 mm)

WIDTH OF DIE C = 2 INCHES (60.8 mm)

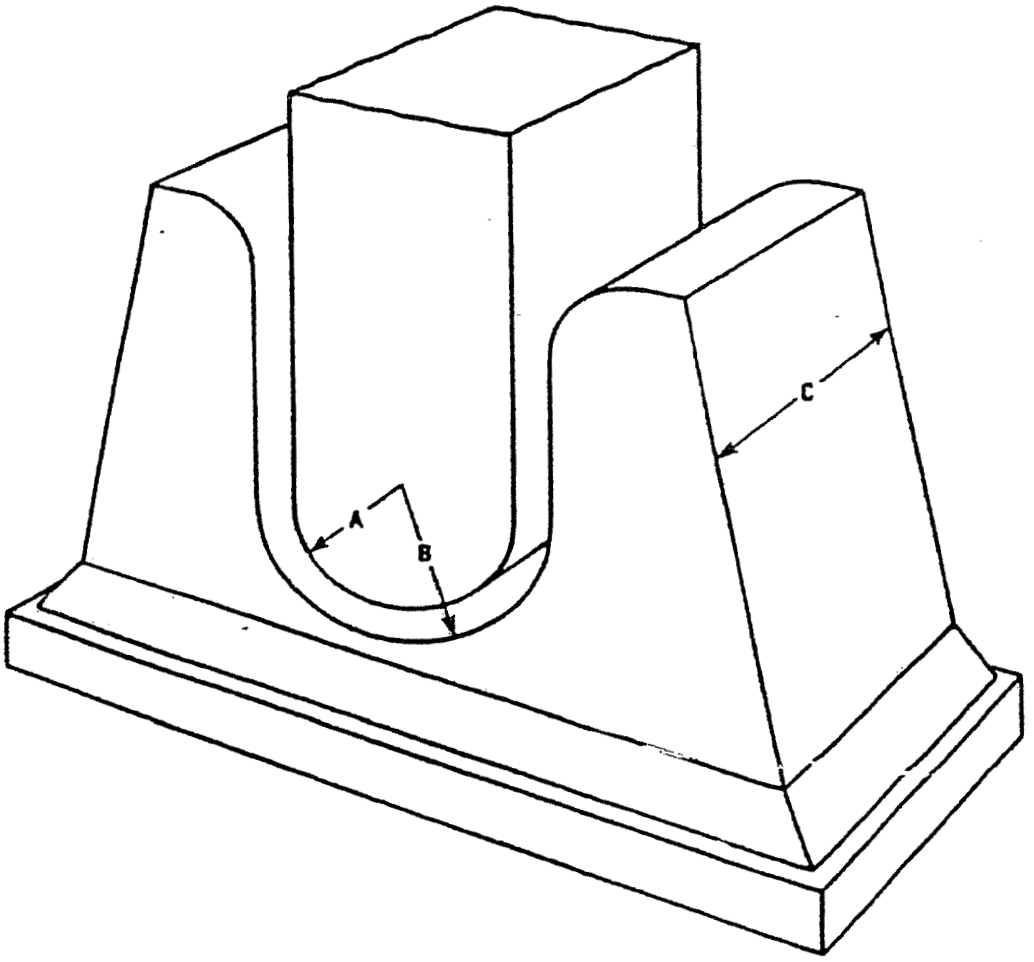

FIGURE 5

JIG FOR GUIDED BEND TESTS
(NOT TO SCALE)

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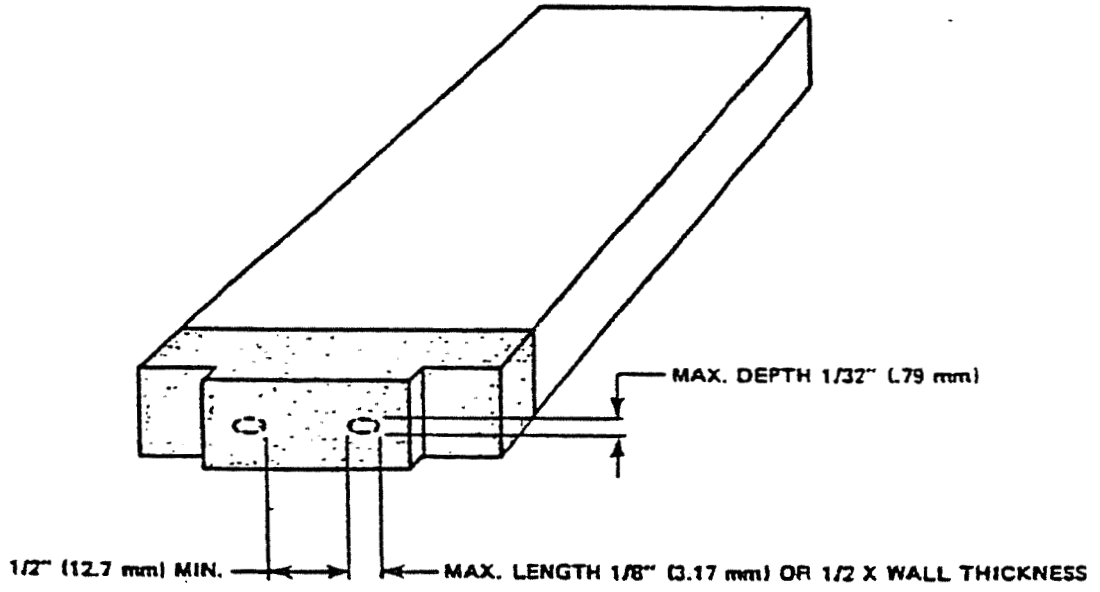

DIMENSIONING OF DISCONTINUITIES IN WELD SPECIMENS

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Filler Metal Classification Groups

Group	ASTM Spec.*	AWS Spec.*	Shielding Gas	Electrode	Remarks
I	A233-64 A316-64	A5.1-64 A5.5-64		EXX10 EXX11	
II	A233-64 A316-64	A5.1-64 A5.5-64		EXX15 EXX16 EXX18	
IV	A559-65	A5.18-65	Argon and Oxygen	E60S-1 E60S-2 E60S-3	
V	A559-65	A5.18-65	Carbon Dioxide	E60S-2 E60S-3 E70S-4 E70S-5 E70S-6	
VI	A559-65	A5.18-65	Not Specified	E70S-G	Welding power not specified.
VII	A559-65	A5.18-65	Carbon Dioxide	E70T-1 E70T-2 E70T-5	
VIII	A559-65	A5.18-65	No Shielding	E70T-3 E70T-4 E70T-5	
IX	A559-65	A5.18-65	Not Specified	E70T-G	Welding power not specified.
X	A559-65	A5.18-65	Argon or Argon and Oxygen	E70U-1	
XI	A251-66	A5.2-66		RG45 RG60 RG65	

Note: Covering and filler metal types not listed above may be used but shall require separate welder qualification.

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Specification	Grade	Type (1)	SMYS (psi)
API 5L	A25	BW, ERW, S	25,000
API 5L	A	ERW, FW, S	30,000
API 5L	B	ERW, FW, S	35,000
API 5LS (2)	A	ERW, DSA	30,000
API 5LS	B	ERW, DSA	35,000
API 5LS	X42	ERW, DSA	42,000
API 5LS	X46	ERW, DSA	46,000
API 5LS	X52	ERW, DSA	52,000
API 5LS	X56	ERW, DSA	56,000
API 5LS	X60	ERW, DSA	60,000
API 5LS	X65	ERW, DSA	65,000
API 5LX (2)	X42	ERW, FW, S, DSA	42,000
API 5LX	X46	ERW, FW, S, DSA	46,000
API 5LX	X52	ERW, FW, S, DSA	52,000
API 5LX	X56	ERW, FW, S, DSA	56,000
API 5LX	X60	ERW, FW, S, DSA	60,000
API 5LX	X65	ERW, FW, S, DSA	65,000
• API 5LX	70T	ERW, FW, S, DSA	70,000
• API 5LU	U80	S, DSA	80,000
• API 5LU	U100	S, DSA	100,000
ASTM A53	Open Hearth, Basic Oxygen, Elect. Furnace	BW	25,000
ASTM A53	Bessemer	BW	30,000
ASTM A53	A	ERW, S	30,000
ASTM A53	B	ERW, S	35,000
ASTM A106	A	S	30,000
ASTM A106	B	S	35,000
ASTM A106	C	S	40,000
ASTM A135	A	ERW	30,000
ASTM A135	B	ERW	35,000
ASTM A139	A	EFW	30,000
ASTM A139	B	EFW	35,000
ASTM A381	Class Y-35	DSA	35,000
ASTM A381	Class Y-42	DSA	42,000
ASTM A381	Class Y-46	DSA	46,000
ASTM A381	Class Y-48	DSA	48,000
ASTM A381	Class Y-50	DSA	50,000
ASTM A381	Class Y-52	DSA	52,000
ASTM A381	Class Y-56	DSA	56,000
ASTM A381	Class Y-60	DSA	60,000
ASTM A381	Class Y-65	DSA	65,000
ASTM A134	–	EFW	(3)
ASTM A155	–	EFW	(3)
ASTM A333	1	S, ERW	30,000
ASTM A333	3	S, ERW	35,000
ASTM A333	4	S	35,000
ASTM A333	6	S, ERW	35,000
ASTM A333	7	S, ERW	35,000
ASTM A333	8	S, ERW	75,000
ASTM A333	9	S, ERW	46,000
ASTM A539	–	ERW	35,000

NOTES • While these new API Pipe Specifications are in print, they have not yet been formally approved by the Department of Transportation, Office of Pipeline Safety.

(1) Abbreviations: BW – Furnace butt-welded; ERW – Electric resistance welded; S – Seamless; FW – Flash welded; EFW – Electric fusion welded; DSA – Double submerged-arc welded.

(2) Intermediate grades are available in API 5LS and 5LX.

(3) See applicable plate specification for SMYS.

STANDARD WELDING PROCEDURE

SPECIFICATION NO. 501-20

COVERING

PROCESS GROUP	DIAMETER GROUP	MATERIAL GROUP	THICKNESS GROUP
SA	F1	A	V

THE CINCINNATI GAS & ELECTRIC COMPANY

THE UNION LIGHT, HEAT AND POWER COMPANY

LAWRENCEBURG GAS COMPANY

L 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
OVED	APPROVED	
D/PHM	DATE	

Forward

his standard welding procedure fulfills the requirements set orth:

Department of Transportation: Transportation of Natural and Other Gas by Pipeline Minimum Safety Standards, Subpart "E", Welding of Steel in Pipelines §192.223 - General.

'or purposes of identifying welding procedure specification the :ollowing grouping applies:

Material Group	Application
A	All API 5L and ASTM Pipe Specifications having Specified Minimum Yield Strength of 42,000 psi or less.
B	All API 5LX Pipe Specifications having Specified Minimum Yield Strengths between 42,000 psi and 60,000 psi.
C	All API 5LX Pipe Specifications having a Specified Minimum Yield Strength 60,000 psi or greater.
S	304 Stainless Steel

Diameter Group	Application
I	Pipe having O.D. less than 2 3/8".
II	Pipe having O.D. from 2 3/8", to and including 12 3/4".
III	Pipe having O.D. in excess of 12 3/4".

F1 & F2 Fillet Welds

Thickness Group	Application
I	Less than 0.188".
II	0.188" to but not including 0.250".
III	0.250" to but not including 0.344".
IV	0.344" to and including 0.500".
V	0.188" to and including 0.500" (Fillet)

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Process Group	Application
SA	Manual Shielded Metal Arc Process
MIG	Semi-Automatic Consumable Electrode Inert-Gas-Shielded Process
O	Oxyacetylene Process

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APPROVED RWD/PHM	APPROVED	
	DATE	

A. Process: Manual Shielded Metal Arc

B. Material: See Note "A"

C. Diameter and Wall Thickness: See Note "B"

D. Joint Design: Fillet

E. Filler Metal and Number of Beads: Page 18 Table 1

F. Electrical or Flame Characteristics: Page 18 Table 2

G. Position: Horizontal

H. Direction of Welding: Vertical Down

I. Number of Welders: See Note "C"

J. Time Lapse between Passes: See Note "D"

K. Type of Line-up Clamp: See Note "E"

L. Removal of Line-up Clamp: See Note "F"

M. Cleaning: See Note "G"

N. Preheat, Stress Relief: See Note "H"

O. Shielding Gas and Flow Rate: Not Applicable

P. Shielding Flux: See Page 26

Q. Speed of Travel: 4 To 12 Inches Per Minute

R. Sketches and Tabulations: (See Pages 4, 5, & 6)

Tested: 4-12-83 (Date) By: Bradford F. Powell

Approved: 5/13/83 (Date) Operating: Hmatla

Approved: 8/29/83 (Date) Engineering: By R. W. Dieckman

Certified by: D. L. Thompson

Title: Engineer

Date: 8/8/83

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APPROVED	APPROVED	
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Notes to Page 1:

A - Material: Pipe API Specification, and all pipe furnished under API 5L, API 5LX and ASTM A53 having Specified Minimum Yield Strengths 42,000 psi and less.

B - Diameter and Wall Thickness: 12" O.D. 0.250" wall and all wall thicknesses from 0.100" to and including 0.500".

C - Number of Welders:

Minimum Root Bead Welders: 1
Minimum Second Bead Welders: 1

D - Time Lapse Between Passes: During manual shielded metal arc welding, the time interval between application of the root bead and second or "hot" pass shall be the minimum time required for thorough cleaning of the root bead. A delay between the second, third and succeeding passes, sufficient for cleaning welds and allowing welders and equipment to move along the line, will be permitted. All welds shall be completed without allowing the work to cool to ambient temperature between successive passes. If the weld cannot be completed without cooling to ambient temperature, the final phases of the weld shall be completed as directed by the Engineer. Any weld not completed as specified in this paragraph shall be cut out of the line. If welding is done by the MIG process, no special provisions are required for completion if the weld cools to ambient temperature between passes.

E - Type of Line-Up Clamp: Line-up clamps are to be used on all butt-welds except for certain fittings where their use would be impracticable. Line-up clamps are not required for fillet welds. External and/or internal. External line-up clamps should be used for butt welding pipe sizes to and including 12-inch. Internal type clamps should be used for pipe sizes 14" and larger.

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Notes to Page 1: (Cont'd.)

F - Removal of Line-Up Clamp: In no case shall the line-up clamp be removed before 20% of the root bead, uniformly distributed around the circumference, is completed.

G - Cleaning: All slag, protrusions of filler metal from the preceding pass, pin holes and similar defects shall be removed before depositing the next pass. For this operation a power grinder or a hand or power driven diamond point or round nose chisel shall be used.

H - Preheating and Stress Relief: Not normally required for work performed under this specification, except that under field conditions when the ambient temperature is less than 32° F., local preheating to a hand-hot condition shall be required. API 5L, and API 5LX pipe shall be preheated to a minimum temperature of 200° F., when the ambient temperature is less than 32° F. The preheat temperature shall be checked by use of temperature indicating crayons, and shall be maintained until the weld is completed. Preheating may be accomplished by any suitable method, provided that it is uniform and that the temperature does not fall below the prescribed minimum during the actual welding operations.

Preheating is required to remove moisture from the pipe prior to welding.

THE CINCINNATI GAS & ELECTRIC COMPANY
SUBSIDIARY COMPANIES

GAS OPERATIONS

501.20

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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RWD/PHM	DATE	

Procedure No. 8A-F1-A-V
Test No. 18-83

Location 2120 Dana — Date 4-25-83
Contractor N/A — Sub-Contractor N/A
Date of Weld 4-25-83 — Roll Weld N/A — Fixed Position Weld 5-G
Welder B. Powell — Mark P-8
Welding Time 20 min. — Time of Day 9:00 a.m. — Temperature 72 °F
Weather Condition Inside Building — Wind Break Used N/A
Make of Welding Machine Lincoln — Size 300
Brand of Electrode Lincoln — Voltage 19-21 — Amperage 120-150
Pipe Mfr. US Steel — Pipe Specification API 5L GRB
Wall Thickness 0.250" — Dia. O.D. 12.750" — Wt./Ft. — Joint Length N/A

Bead No.	1	2	3	4	5	6	7
Size of Electrode	5/32"	1/8"	1/8"	1/8"	1/8"		
No of Electrode	E 6010	E 6010	E 6010	E 6010	E 6010		

Tensile Specimen No.	T1	T2	T3	T4
Cross-Section Dimensions				
Cross-Section Area				
Maximum Load				
Tensile Strength				

Ave. Tensile Strength
Remarks on Tensile Test Tensile tests not required for fillet welds.

Nick-Break Specimen No.	N1	N2	N3	N4
Cross-Sectional Area of Break	0.238	0.131	0.286	0.336
No. of Gas Pockets Per Sq. In.	0	0	0	0
Gas Pockets with Greatest Dimension Exceeding 1/16 In.	0	0	0	0
Slag Inclusions Greater than 1/32 In. Depth and 1/8 In. or ½ the Wall Thick. in Length	0	0	0	0
Complete Penetration	Yes	Yes	Yes	Yes
Complete Fusion	Yes	Yes	Yes	Yes

Remarks on Nick-Break Tests No porosity or inclusions which exceed code limits

Remarks on Bend Tests Bend tests not required for fillet welds.

☒ Procedure ☐ Welder — ☒ Qualifying Test ☐ Line Test — ☒ Qualified ☐ Disqualified

Test Made At 2120 Dana Ave.
Tested By B. Powell
Certified By D. Thompson
Title Engineer
Date 4-25-83

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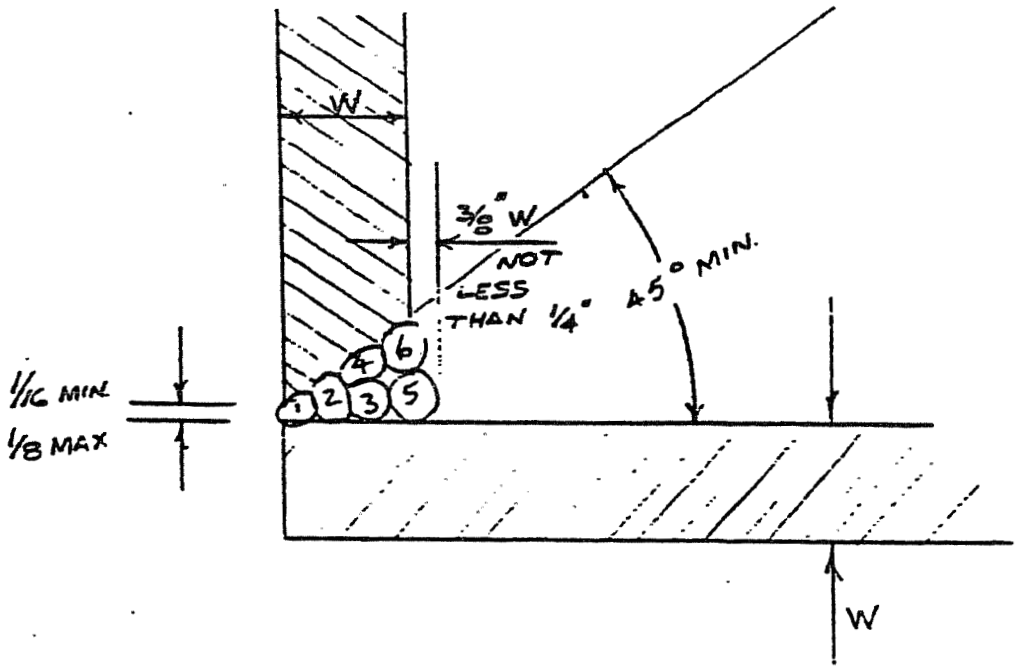

MAXIMUM ELECTRODE SIZE & NO. OF BEADS *

Pipe Wall Thickness	1/8" Electrode	5/32" Electrode	3/16" Electrode	Total No. of Beads
Less Than 0.188"	3	2		3 - 5
0.188" - 0.750"	2**	3	2	5 - 7
Greater than 0.750"	2**	5	2	7 - 9

*Smaller diameter electrodes may be used.
**5/32" Electrode optional.

Electrode Diameter	Amperage	Arc Volts
1/8"	90 - 125	19-21
5/32"	120 - 150	19-21
3/16"	139 - 175	19-21

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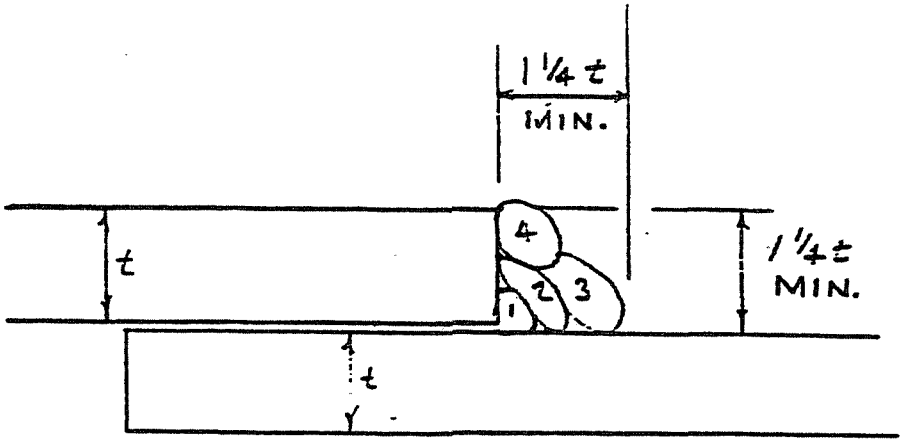

MAXIMUM ELECTRODE SIZE & NO. OF BEADS *

Wall Thickness t	1/8" Electrode	5/32" Electrode	3/16" Electrode	Total No. of Beads
Less than 0.188	3	2		3-5
0.188" - 0.750"	2**	3	2	5-7
Greater than 0.750"	2**	5	2	7-9

*Smaller diameter electrodes may be used.
**5/32" Electrode optional.

Electrode Diameter	Amperage	Arc Volt
1/8"	90-125	19-21
5/32"	120-150	19-21
3/16"	135-175	19-21

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1.0 Qualification of Welding Procedure:

The test weld made under this specification shall qualify the welding procedure for welding on pipelines:

Material Group	Diameter Group	Thickness Group
42,000 psi and less)	Fillet Weld	(0.100" to and including 0.500")

1.01 Test Coupon:

The test coupon shall be:
12" O.D. API 5L, Gr. B, 0.250" Wall.

1.02 Welding Procedure Records:

Records of the pipe joint welding procedure shall be recorded in detail on the forms herein provided (Pages 4,5 &6) and shall be adhered to during subsequent construction, except where a change is specifically authorized by the Pipeline Engineer.

1.03 Welding Procedure Essential Variables:

This welding procedure shall be re-established as a new procedure specification and shall be completely re-qualified when any of the changes listed below are made in the procedure. Changes other than those given below may be made in the procedure without the necessity for re-qualification, provided the specification is revised to show these changes:

(a) Change in welding process.

(b) Change in pipe metal. (From ASTM or API 5L and 5LX Grade 42 groups to API 5LX groups in excess of Grade X42 and vice versa.)

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(c) Change in joint design. (For butt-welds from V-groove to U-groove, etc. Changes in the dimensions of the welding groove, however, are not considered essential variables.)

(d) Change in position (for butt welds only). (A change from vertical to horizontal or vice versa.)

(e) Change in pipe size and wall thickness. (For groove welds, a change from one diameter group - wall thickness group combination to another and for fillet welds, a change from one wall thickness group to another group.)

(f) Change in filler metal. (From one classification group to another. See Page 26.

(g) Change in filler metal size.

(h) Decrease in number of root bead welders.

(i) Change in time lapse between root and second bead.

(j) Change in direction. (Vertical-down to Vertical-up or vice versa.)

(k) Change in shielding gas. (From one gas to another, from one mixture of gases to a different mixture of the same gases.)

(l) Change in flow rate. (Decrease or increase in flow rate.)

(m) Change in shielding flux. (Change in type or size of flux particles.)

(n) Major change in speed of travel.

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2.0 Qualification Test:

Two pipe nipples shall be joined as a fabricated tee by following all of the details of the procedure specification.

2.01 Compliance with Procedure Specification:

The welding process, pipe material, filler metal and welding procedure shall comply with the procedure specification.

2.02 Test Pipe Material:

The pipe material shall consist of pipe nipples of the same diameter group, wall thickness group, and specifications as the pipe used in the line.

2.03 Welding Technique and Speed:

The weld shall be made using the same welding technique, and with approximately the same arc-welding speed to be used in actual line work.

2.04 Test Specimen - Number and Type:

The type and number of test specimens shall be as follows:

	Number of Specimens					
Pipe Size, Outside Diameter - Inches	Tensile	Nick Break	Root Bend	Face Bend	Side Bend	Total
12" O.D. API 5L Gr. B, 0.250" Wall	0	4	0	0	0	4

2.05 Test Specimen - Removal and Preparation:

Test speciments shall be removed as shown on Page 22 and shall be prepared for test as shown on Page 23.

2.06 Test Requirements:

The full section specimen shall be tested in accordance with Section 2.081 and it shall meet the requirements of Section 2.084.

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2.07 Tensile Strength:

The specimens (Page 21) shall be approximately 9" long and 1" wide. They may be machine-cut or oxygen-cut and no other preparation is needed unless the sides are notched or are not parallel. If necessary, the specimens shall be machined so that the sides are smooth and parallel.

Tensile test specimens shall be broken under tensile load with equipment capable of measuring the load at which failure occurs. The tensile strength shall be computed by dividing the maximum load at failure by the least cross-sectional area of the specimen as measured before load is applied.

The tensile strength of the weld including the fusion zone of each specimen shall be equal to or greater than the specified minimum tensile strength of the pipe material, but need not be equal or greater than the actual tensile strength of the pipe material. If the specimen breaks outside the weld and fusion zone; i.e., in parent pipe material, and meets the specification minimum tensile strength requirements then the weld shall be accepted as meeting the requirements.

If the specimen breaks in the weld or fusion zone and the observed strength is equal to or greater than the specified minimum tensile strength of the pipe material and meets the requirements for soundness as set forth in the Nick-Break Test (Par. 2.084), then the weld shall be accepted as meeting the requirements.

If the specimen breaks below the specified minimum tensile strength of the pipe material, then the weld shall be set aside and a new test weld made.

2.08 Nick Break Test:

The specimens (Page 23) shall be approximately 9" long and 1" wide and they may be machine-cut or oxygen-cut. They shall be notched with a hacksaw on each side at the center of the weld and each notch shall be approximately 1/8" deep.

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2.081 Nick-break specimens prepared in this manner from welds made with certain automatic and semi-automatic processes may fail through the pipe instead of the weld. When previous testing experience indicates failures through the pipe are to be expected, the external reinforcement may be notched to a depth not to exceed 1/16" measured from the original weld surface.

2.082 The nick-break specimens intended for qualifying a procedure using a semi-automatic or automatic welding process may be macro etched prior to their being nicked. Ammonium persulfate should be used as the etchant.

2.083 The specimens shall be broken by pulling in a tensile machine by supporting the ends and striking the center, or by supporting one end and striking the other end with a hammer. The exposed area of the fracture shall be at least 3/4" wide.

2.084 The exposed surfaces of each specimen shall show complete penetration and fusion and: (a) there shall be no more than six gas pockets per sq. in. of surface area with the greatest dimension not to exceed 1/16", (b) slag inclusions shall not be more than 1/32" in depth nor 1/8" or one-half the nominal wall thickness in length, whichever is shorter, and there shall be at least 1/2" of sound weld metal between adjacent inclusions. The dimensions should be measured as shown on Page 25.

2.09 Root and Face Bend Test:

The specimens (Page 22) shall be at least 8" long by 1" wide and the long edges shall be rounded. They may be machine-cut or oxygen-cut. The cover and root bead reinforcement shall be removed flush with the surface of the specimen. These surfaces shall be smooth and any scratches which exist shall be light and transverse to the weld.

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2.091 The specimens shall be bent in a guided bend test jig similar to that shown in Appendix H. Each specimen shall be placed on the die with the weld at mid span. Face bend specimens shall be placed with the face of the weld directed toward the gap and root bend specimens shall be placed with the root of the weld directed toward the gap. The plunger shall be forced into the gap until the curvature of the specimen is approximately U-shaped.

2.092 The bend test shall be considered acceptable if no crack or other defect exceeding 1/8" or 1/2 the nominal wall thickness, whichever is smaller, in any direction is present in the weld or between the weld and the fusion zone after bending. Cracks which originate along the edges of the specimen during testing and which are less than 1/4" measured in any direction shall not be considered unless obvious defects are observed. Each specimen subjected to the bend test shall meet these requirements.

2.10 Side Bend Test:

The specimens shall be at least 8" long by 1/2" wide and the long edges shall be rounded. They shall be machine-cut or they may be oxygen-cut to approximately a 3/4" width and then machined or ground to the 1/2" width. The sides shall be smooth and parallel. The cover and root bead reinforcements shall be removed flush with the surfaces of the specimen.

2.101 The specimens shall be bent in a guided bend test jig similar to that shown in Appendix H. Each specimen shall be placed on the die with the weld at mid span and with the face of the weld at 90 degrees to the gap. The plunger shall be forced into the gap until the curvature of the specimen is approximately U-shaped.

2.102 Each specimen shall meet the Face and Root Bend Test Requirements, Section 2.09.

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3.0 Production Welding:

This specification shall apply to field welding of new steel pipe or used steel pipe that has been visually examined with care and found to be in good condition, free from split seams or other defects that would cause leakage and provided that weldability has been established either by proof that the pipe has been manufactured in accordance with one of the pipe material specifications listed on Page 27 or by qualification under the provisions of OPSO, Appendix "B", Section II "Steel Pipe of Unknown or Unlisted Specification".

3.01 Welding Machines:

Welding machines shall be operated within the amperage and voltage ranges recommended for each size and type of electrode (Page 18).
Gas welding equipment shall be operated with the flame characteristics and tip sizes given in the qualified welding procedure.

3.011 Welding machines and their accessories shall be of size and type suitable for the work and shall be maintained in such condition as to make acceptable welds possible and to assure continuity of operation and safety of personnel.

3.02 Other Equipment:

Hoisting equipment, cutting and beveling equipment, line-up clamps, and hand tools shall be maintained in such condition as to make acceptable welds possible, and to assure continuity of operation and safety of personnel.

3.03 Repair and Replacement:

Any equipment which does not meet these requirements shall be repaired or replaced.

3.04 Welding:

The welding of piping in accordance with this specification shall be performed by qualified welders using qualified procedures. The surfaces to be welded shall be smooth, uniform, free of fins, laminations, tears, scale, slag, grease, paint and other deleterious material which might adversely affect the welding. The joint design and spacing between abutting ends shall be in accordance with the welding

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3.041 All position welds shall be made with the parts to be joined secured against movement and with adequate clearance around the joint to allow the welder or welders space in which to work.

3.042 The number of beads shall be such that the completed weld shall have a substantially uniform cross section around the entire circumference of the pipe. At no point shall the crown surface be below the outside surface of the pipe, nor should it be raised above the parent metal by more than 1/16".

3.043 Two beads shall not be started at the same location. The face of the completed weld should be approximately 1/8" greater than the width of the original groove. The completed weld shall be thoroughly brushed and cleaned.

3.05 Alignment:

The alignment of the abutting ends shall be such as to minimize the offset between surfaces. For pipe of the same nominal wall thickness, the offset shall not exceed 1/16". Any greater offset, provided it is caused by dimensional variations, shall be equally distributed around the circumference of the pipe. Hammering of the pipe to obtain proper lineup should be held to a minimum.

3.06 Clamps:

Line-up clamps shall be used in accordance with the requirements of the procedure specification. When it is permissible to remove the line-up clamp before completion of the root bead, the completed part of this bead shall be in approximately equal segments and these shall be approximately equally spaced around the circumference of the joint.

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However, when an internal line-up clamp is used and conditions make it difficult to prevent movement of the pipe, or if the weld will be unduly stressed, the root bead shall be completed before releasing clamp tension. Root bead segments used in connection with external clamps shall be uniformly spaced around the circumference of the pipe and shall have an accumulative length of not less than 20 per cent of the pipe circumference before the clamp may be removed.

3.07 Bevels:

Pipe ends shall be provided with mill bevels conforming to the joint design used in the welding procedure specification.

3.071 Pipe ends should be field beveled by machine tool or machine oxygen cutting. Manual oxygen cutting may also be used if so authorized by the Engineer. The beveled ends shall be reasonably smooth and uniform, and dimensions shall be in accordance with the qualified welding procedure.

3.08 Weather Conditions:

Welding shall not be done when the quality of the completed weld would be impaired by the prevailing weather conditions, including but not limited to airborne moisture, blowing sands, or high winds. Windshields may be used when practical. The Engineer shall decide if weather conditions are suitable for welding.

3.09 Clearance:

When the pipe is welded above ground, the working clearance around the pipe at the weld should not be less than 16". When the pipe is welded in the trench, the bell hole shall be of sufficient size to provide the welder or welders ready access to the joint.

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
APPROVED	APPROVED	
RWD/PHM	DATE	

3.10 Cleaning:

Scale and slag shall be removed from each bead and groove. Cleaning may be done with either hand or power tools.

3.11 Inspection:

The quality of production welds will be determined by either destructive or non-destructive methods. Inspection may be made both during the welding operation or after the weld has been completed. Any weld not meeting the requirements of this specification shall be rejected.

3.12 Defects:

Defects, except cracks, in the root and filler beads may be repaired with prior authorization by the Engineer. Defects, except cracks in the cover pass, may be repaired without authorization. Cracks shall not be repaired. All repairs shall meet the Standards of Acceptability - Non-destructive Testing, Par. 6.0 API Standard 1104, Edition, currently accepted by OPSO.

3.121 Before repairs are made, injurious defects shall be entirely removed to clean metal. All slag and scale shall be removed to clean metal. All slag and scale shall be removed by wire brushing. Preheating of such an area is required.

3.122 Such repaired areas shall be re-radiographed, or inspected by the same means previously used. No further repairs shall be allowed in these areas.

3.123 The Engineer may re-inspect all of a weld containing a repair in the same manner as any production weld.

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
APPROVED	APPROVED	
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APPENDIX TO WELDING PROCEDURE

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
APPROVED	APPROVED	
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Table 1

Electrode Type and Size for Manual Shielded Metal Arc Process

	Pipe Wall Thickness (Inches)	Passes	Pass No.	Rod Size
I.	5/32 (.156) to 7/32 (.219) inclusive	3	1	1/8
			2	5/32
			3	5/32
II.	1/4 (.250)	3	1	5/32
			2	5/32
			3	3/16
III.	9/32 (.281) & 5/16 (.312)	4	1	5/32
			2	5/32
			3	3/16
			4	3/16
IV.	11/32 (.344) & 3/8 (.375)	5	1	5/32
			2	5/32
			3	3/16
			4	3/16
			5	3/16

Note 1: All electrodes are to be A.W.S. approved E 6010 or E 7010.

Note 2: Minimum number of passes. Additional passes may be applied.

Note 3: Smaller diameter electrodes may be used.

Table 2

Electrode Current and Voltage Ranges

Electrode Size	E 6010 Current (Amps) Min.	E 6010 Current (Amps) Max.	E 7010 Current (Amps) Min.	E 7010 Current (Amps) Max.	Volts Min.	Volts Max.
3/32"	50	75	50	75	19	21
1/8"	75	100	75	100	19	21
5/32"	90	150	90	150	19	21
3/16"	130	200	130	200	19	21

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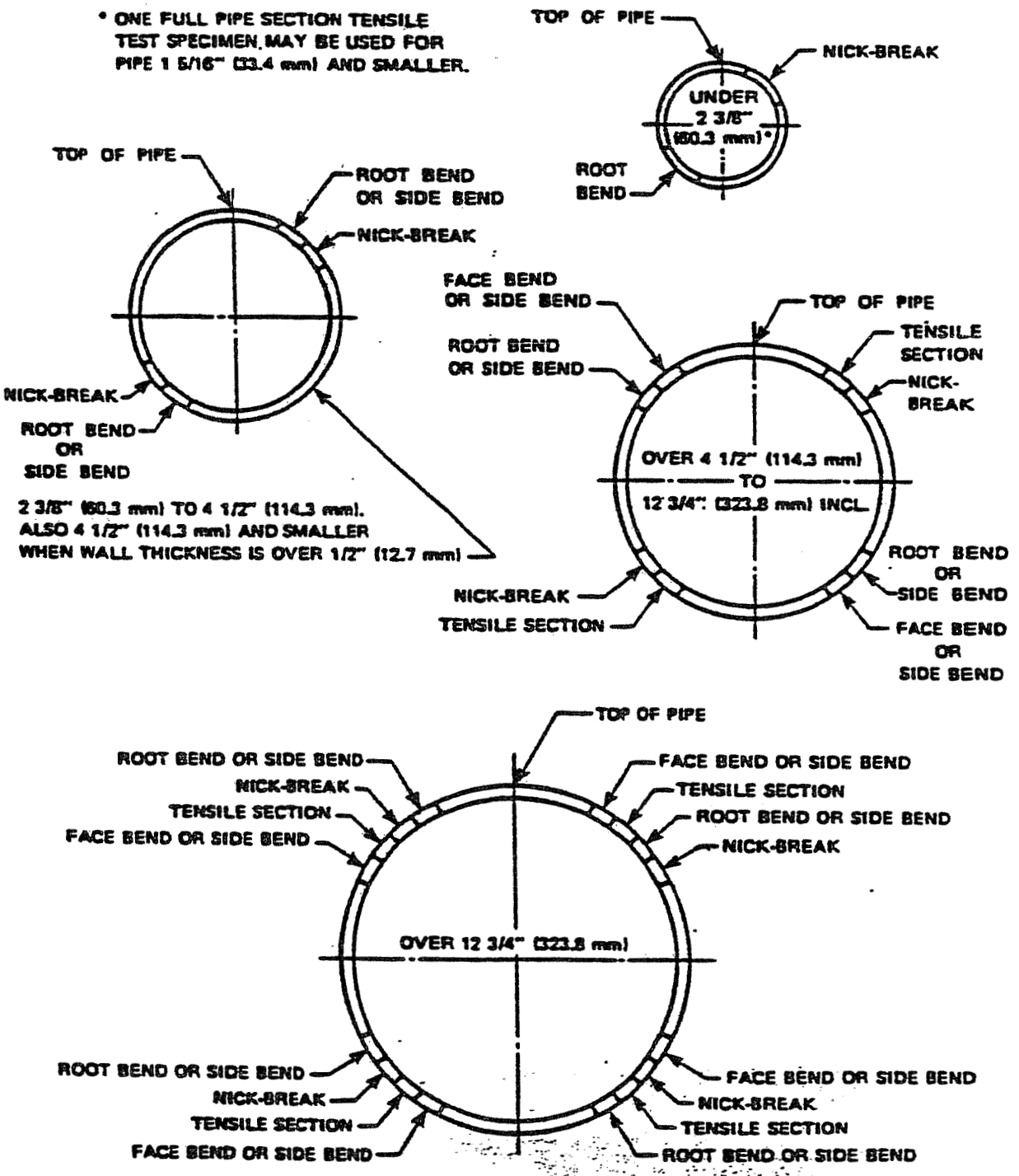

NOTE: AT THE COMPANY'S OPTION, THE LOCATIONS MAY BE ROTATED PROVIDED THEY ARE EQUALLY SPACED AROUND THE PIPE EXCEPT SPECIMENS SHALL NOT INCLUDE THE LONGITUDINAL WELD.

FIGURE 1

LOCATION OF TEST SPECIMENS - BUTT WELD
PROCEDURE QUALIFICATION TEST WELD

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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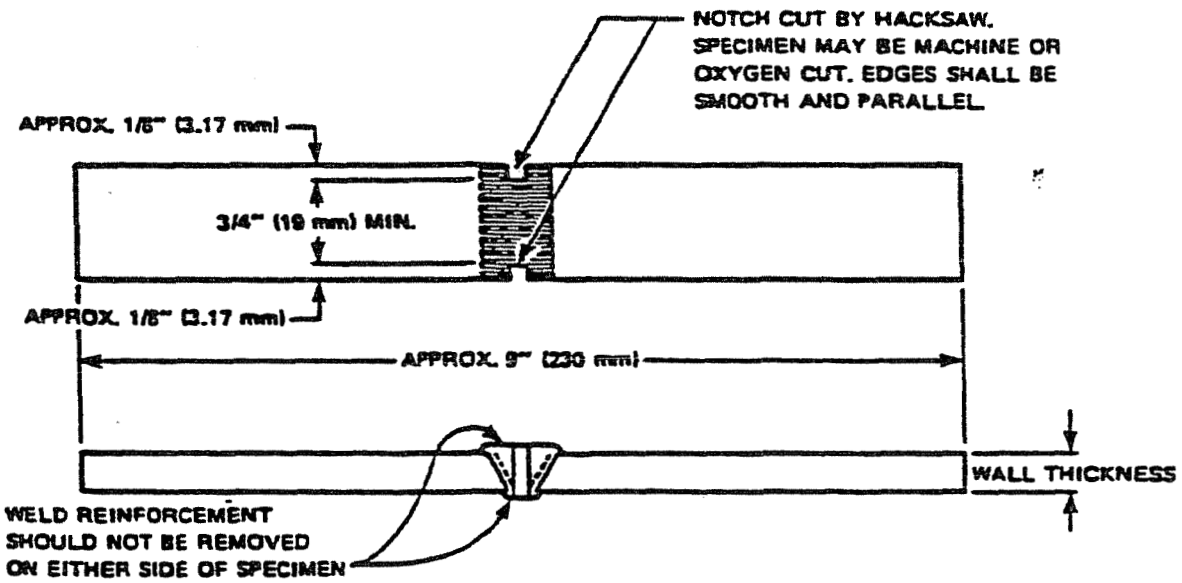

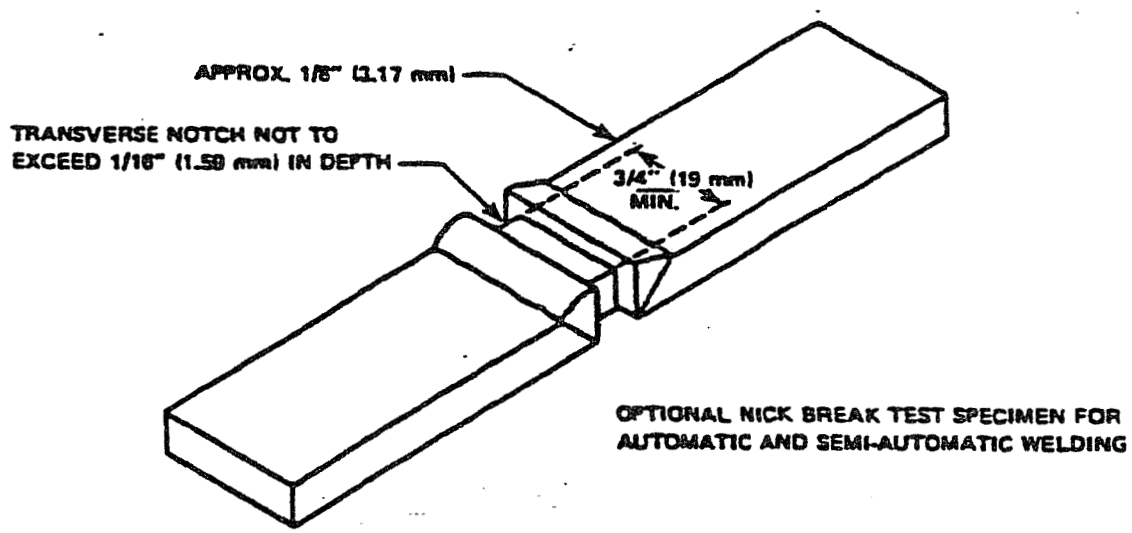

FIGURE 3

NICK BREAK TEST SPECIMEN

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
APPROVED	APPROVED	
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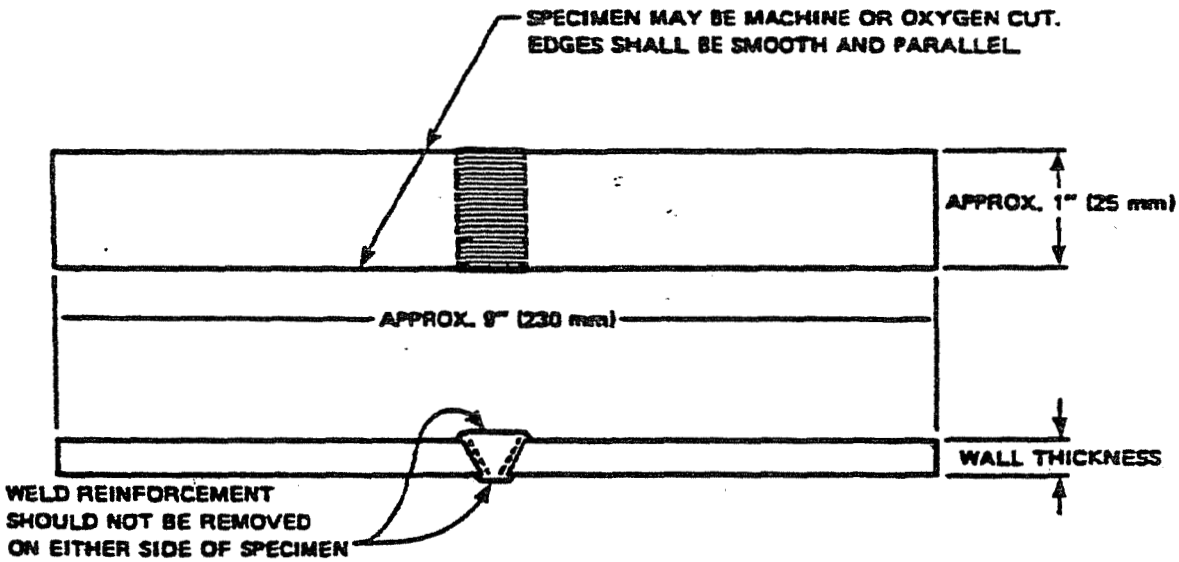

FIGURE 2

TENSILE TEST SPECIMEN

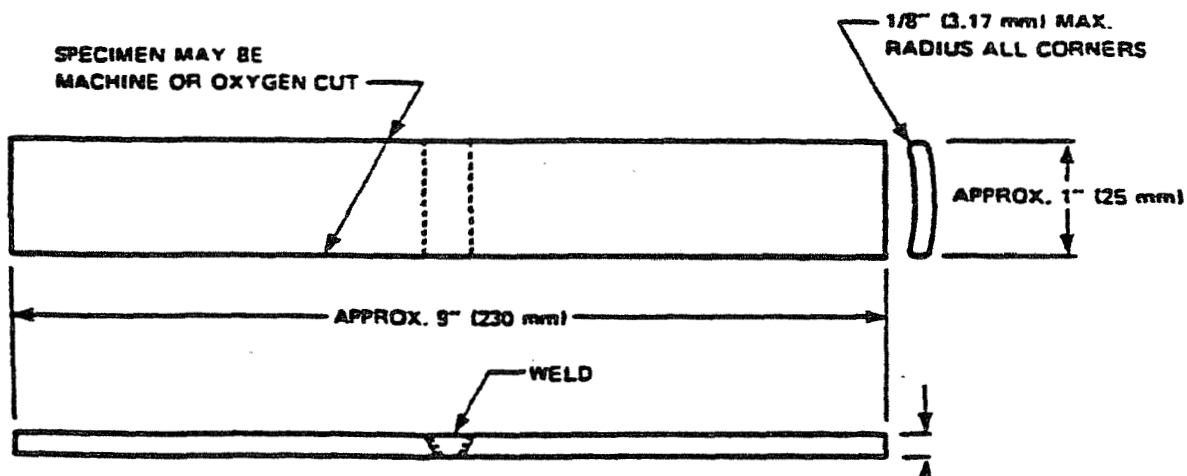

FIGURE 4

ROOT BEND AND FACE BEND TEST SPECIMEN WALL THICKNESSES OF 0.5 IN. (12.7 mm) AND LESS

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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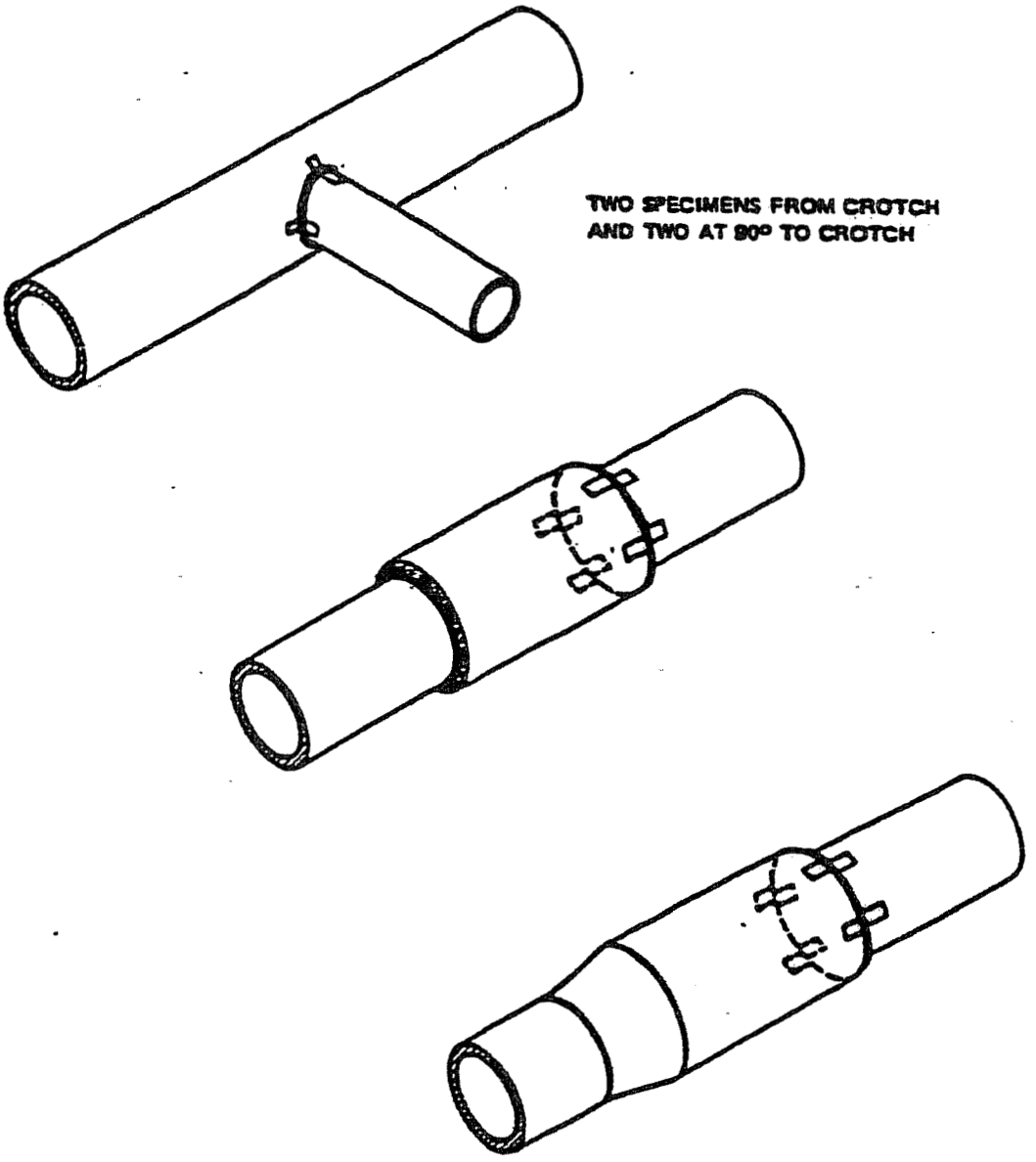

FOR JOINTS UNDER 2 3/8" (60.3 mm) CUT NICK-BREAK SPECIMENS FROM THE SAME GENERAL LOCATION BUT REMOVE TWO SPECIMENS FROM EACH OF TWO TEST WELDS.

FIGURE 7

LOCATION OF NICK-BREAK TEST SPECIMENS - FILLET WELD PROCEDURE AND WELDER QUALIFICATION TEST WELDS

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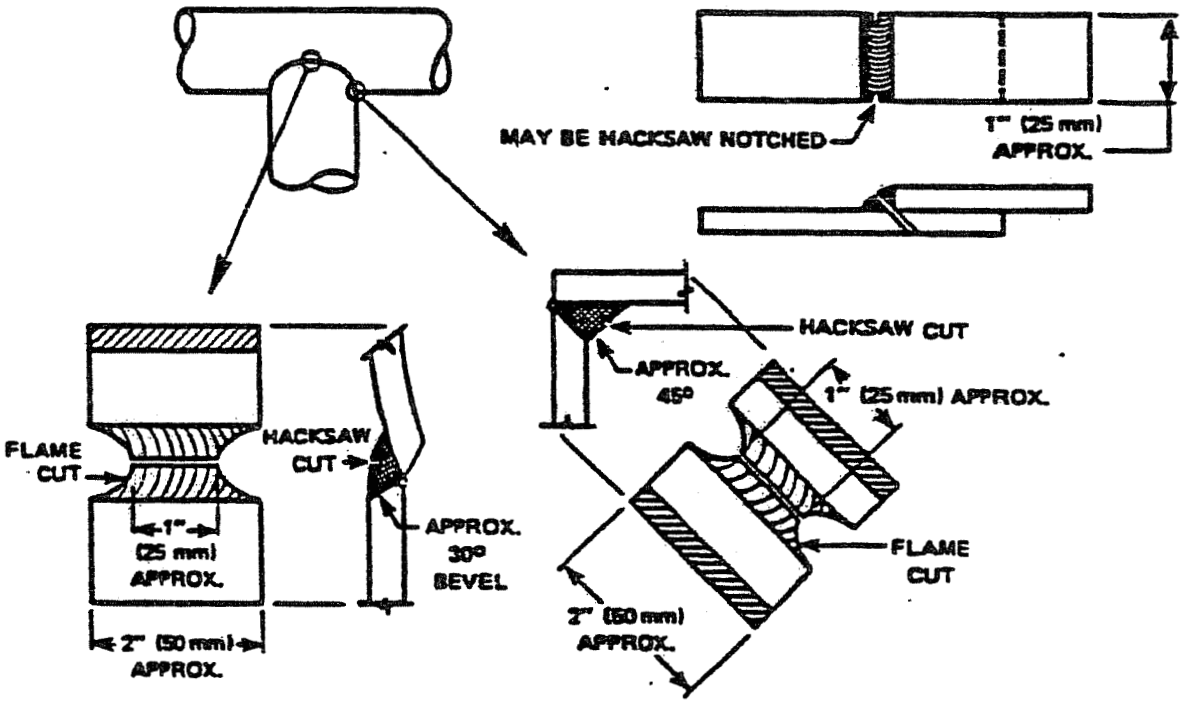

FIGURE 8

LOCATION OF NICK-BREAK TEST SPECIMENS - FILLET WELDS PROCEDURE AND WELDER QUALIFICATION TEST WELDS INCLUDING SIZE TO SIZE BRANCH CONNECTION WELDER QUALIFICATION TEST

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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RADIUS OF PLUNGER A = 1 3/4 INCHES (44.45 mm)

RADIUS OF DIE B = 2 5/16 INCHES (58.74 mm)

WIDTH OF DIE C = 2 INCHES (50.8 mm)

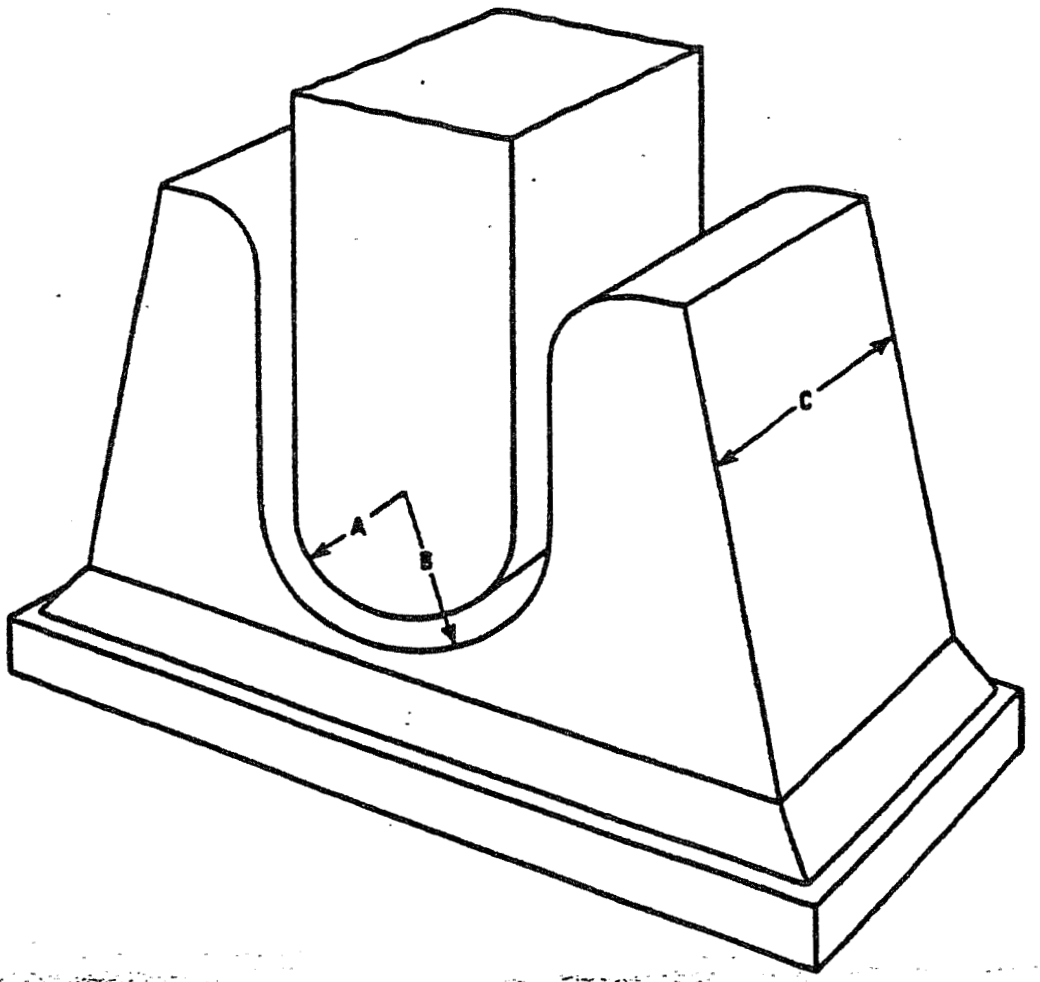

FIGURE 5

JIG FOR GUIDED BEND TESTS
(NOT TO SCALE)

THE CINCINNATI GAS & ELECTRIC COMPANY
AND SUBSIDIARY COMPANIES

ISSUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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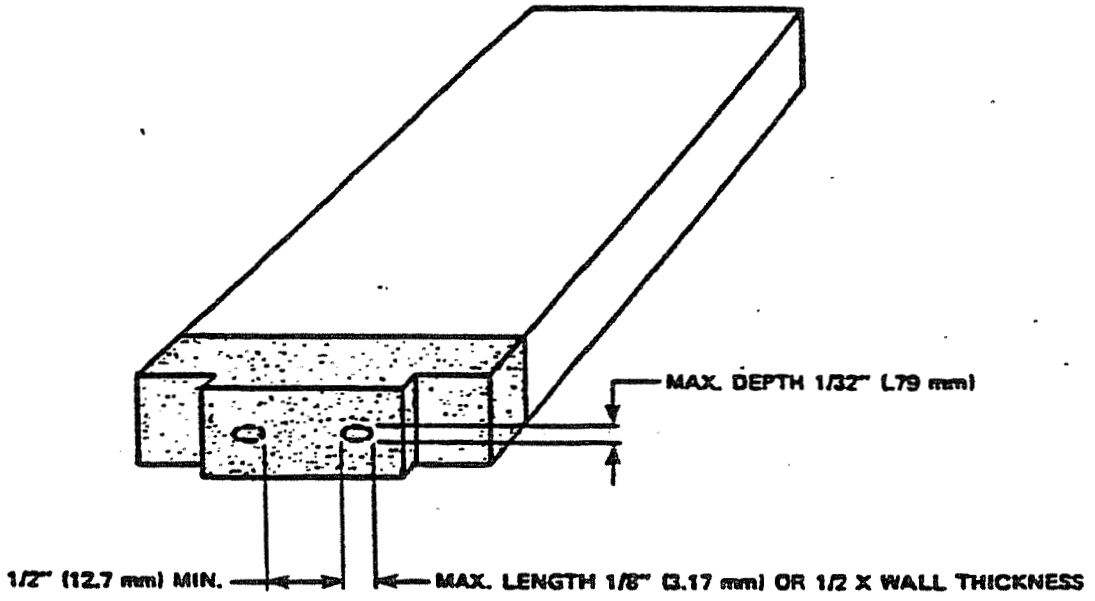

DIMENSIONING OF DISCONTINUITIES IN WELD SPECIMENS

SUED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
APPROVED	APPROVED	
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Filler Metal Classification Groups

Group	ASTM Spec.*	AWS Spec.*	Shielding Gas	Electrode	Remarks
I	A233-64 A316-64	A5.1-64 A5.5-64		EXX10 EXX11	
II	A233-64 A316-64	A5.1-64 A5.5-64		EXX15 EXX16 EXX18	
IV	A559-65	A5.18-65	Argon and Oxygen	E60S-1 E60S-2 E60S-3	
V	A559-65	A5.18-65	Carbon Dioxide	E60S-2 E60S-3 E70S-4 E70S-5 E70S-6	
VI	A559-65	A5.18-65	Not Specified	E70S-G	Welding power not specified.
VII	A559-65	A5.18-65	Carbon Dioxide	E70T-1 E70T-2 E70T-5	
VIII	A559-65	A5.18-65	No Shielding	E70T-3 E70T-4 E70T-5	
IX	A559-65	A5.18-65	Not Specified	E70T-G	Welding power not specified.
X	A559-65	A5.18-65	Argon or Argon and Oxygen	E70U-1	
XI	A251-66	A5.2-66		RG45 RG60 RG65	

Note: Covering and filler metal types not listed above may be used but shall require separate welder qualification.

ED 8/8/83	REVISION NO.	STANDARD WELDING PROCEDURE SA-F1-A-V FOR FILLET WELDS ON STEEL PIPE FOR SOCKET-WELD COUPLINGS, SLIP-ON FLANGES, AND FULL ENCIRCLEMENT WELDING SLEEVES
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Specification	Grade	Type (1)	SMYS (psi)
API 5L	A25	BW, ERW, S	25,000
API 5L	A	ERW, FW, S	30,000
API 5L	B	ERW, FW, S	35,000
API 5LS (2)	A	ERW, DSA	30,000
API 5LS	B	ERW, DSA	35,000
API 5LS	X42	ERW, DSA	42,000
API 5LS	X46	ERW, DSA	46,000
API 5LS	X52	ERW, DSA	52,000
API 5LS	X56	ERW, DSA	56,000
API 5LS	X60	ERW, DSA	60,000
API 5LS	X65	ERW, DSA	65,000
API 5LX (2)	X42	ERW, FW, S, DSA	42,000
API 5LX	X46	ERW, FW, S, DSA	46,000
API 5LX	X52	ERW, FW, S, DSA	52,000
API 5LX	X56	ERW, FW, S, DSA	56,000
API 5LX	X60	ERW, FW, S, DSA	60,000
API 5LX	X65	ERW, FW, S, DSA	65,000
• API 5LX	70T	ERW, FW, S, DSA	70,000
• API 5LU	U80	S, DSA	80,000
• API 5LU	U100	S, DSA	100,000
ASTM A53	Open Hearth, Basic Oxygen, Elect. Furnace	BW	25,000
ASTM A53	Bessemer	BW	30,000
ASTM A53	A	ERW, S	30,000
ASTM A53	B	ERW, S	35,000
ASTM A106	A	S	30,000
ASTM A106	B	S	35,000
ASTM A106	C	S	40,000
ASTM A135	A	ERW	30,000
ASTM A135	B	ERW	35,000
ASTM A139	A	EFW	30,000
ASTM A139	B	EFW	35,000
ASTM A381	Class Y-35	DSA	35,000
ASTM A381	Class Y-42	DSA	42,000
ASTM A381	Class Y-46	DSA	46,000
ASTM A381	Class Y-48	DSA	48,000
ASTM A381	Class Y-50	DSA	50,000
ASTM A381	Class Y-52	DSA	52,000
ASTM A381	Class Y-56	DSA	56,000
ASTM A381	Class Y-60	DSA	60,000
ASTM A381	Class Y-65	DSA	65,000
ASTM A134	–	EFW	(3)
ASTM A155	–	EFW	(3)
ASTM A333	1	S, ERW	30,000
ASTM A333	3	S, ERW	35,000
ASTM A333	4	S	35,000
ASTM A333	6	S, ERW	35,000
ASTM A333	7	S, ERW	35,000
ASTM A333	8	S, ERW	75,000
ASTM A333	9	S, ERW	46,000
ASTM A539	–	ERW	35,000

TES • While these new API Pipe Specifications are in print, they have not yet been formally approved by the Department of Transportation, Office of Pipeline Safety.

(1) Abbreviations: BW = Furnace butt-welded; ERW = Electric resistance welded; S = Seamless; FW = Flash welded; EFW = Electric fusion welded; DSA = Double submerged-arc welded.

(2) Intermediate grades are available in API 5LS and 5LX.

(3) See applicable plate specification for SMYS.

Table of Contents

SECTION 1

Known Permit Requirements for 2005 Construction

General Guidelines:

- Streets that have parking restrictions should be considered as restricted hours and should be bid accordingly. No additional compensation will be paid for these streets.
- 11/1/04 – CSX rail road is now requiring a 30 day advance notice of the date the crossing is planned.
- If the permitting agency requires restoration other than Cinergy's standards, a written request must be submitted to the job sponsor prior to the final restoration being preformed.
- All final restoration of longitudinal cuts should be rolled even if grind and pave is a requirement of the permit. Cinergy will require all uneven restorations to be redone.
- Permits requiring grind and pave will be done at Cinergy's expense, unless it is do to poor workmanship. In some cases the grind and pave would have been waived if the final restoration was smooth.

City of Cincinnati General Comments

Inspection

Call 352-3451 every morning between 7:30AM & 8:30 AM with Permit Number.

No phone calls on cell phone for inspection.

All traffic control, excavations, backfill, temporary and permanent restoration must be inspected.

When field inspections are made a designated or responsible person must be on job site to take instructions.

Excavation and Restoration

Excavation – Pre-saw full-depth with wet diamond blade saw, brine from saw must be washed down so as not to be tracked by autos or pedestrians into business. Remove spoils every day. nothing left over night.

Brick Streets – Streets that have a brick surface. the City is considering requiring the removal of the bricks to be done with a point bar, there will be limited saw cutting of the trench. These bricks are to be reused for final restoration.

Backfill – CLSM required in all city streets and driveways. See approved Ham-Cin List for approved mixes.

CDF with concrete base restoration – must wait a minimum of 12 hours before pouring concrete

CDF with asphalt base restoration – must wait a minimum of 12 hours before placing asphalt
Flashfill ™ - must wait 1-4 hours before pouring concrete or asphalt base

Temporary Street Restoration – 3 options

1. 10" crushed stone or slag with a 2" cap of Hot Asphalt Mix #448
2. Bring CLSM within 2" of street and cap with 2" of Hot Asphalt Mix #448
3. Bring CLSM within 3" of street and cap with 3" of Concrete

Temporary Sidewalk Restoration – 2" of compacted Hot Asphalt Mix # 448

No Cold Mix will be allowed for any temporary restoration, street or sidewalk.

Final Street Restoration –

Concrete Base - 9" Class C Concrete with 2" cap of Hot Asphalt Mix #448. Main arterial roads require concrete to be pinned with #5 Epoxy Coated Rebar. Rebar or keyways will be required at the end of each concrete base pour.

Concrete

Standard Class C Concrete – minimum setup time 5-7 days
Class MS Concrete – minimum setup time 24 hours
Class FS Concrete – minimum setup time 4 hours

Internal Vibrator
Bull Float
Hand floats
Broom finish
String all castings for grade.

Asphalt

All asphalt restoration must be parallel and perpendicular to the C.L. or curb line
Hot Asphalt Mix #448
Tack coat per ODOT 702.04
3 to 5 ton roller
Sealer per ODOT 705.04 (except in crosswalks)

Asphalt Base

Arterial Road – 2-5" lifts of Asphalt Item 304 with a 2" cap of Asphalt Item 448
Residential – 2-4" lift of Asphalt Item 304 with a 2" cap of Asphalt Item 448

All Brick surface streets must be restored in kind.

Final Sidewalk and Driveway Restoration – 5" Class C Concrete for sidewalks and 7" Class C Concrete for driveways.

Any excavation through a curb ramp will require complete replacement of the curb ramp and upgraded to meet current ADA requirements.

Maintenance of Traffic

Follow all rules for maintenance of traffic. Item 614 ODOT Traffic Safety Manual

Advance warning signs for traffic pattern.

Use of a uniformed police officer with cruiser may be required when working in or within 50' of a signalized intersection. Contact the Cincinnati Police Detail Unit at 352-2583 to coordinate.

No Parking Signs – Contact appropriate police district for policy and procedure

Some streets may have restricted working hours.

Miscellaneous

Street Plates – Plates will be required to be pinned, welded and ramped as necessary. No over night noise. Silence plates with expansion paper, tar paper or ramp plates.

Contact Urban Forestry at 861-9070 when working within 15' of a tree in the public right-of-way.

Special circumstances to be decided / directed by the City Engineer.

05-8311-2 Module 311

City of Covington

- Permit Received
- Some of these streets have brick pavers that have been resurfaced over. When excavating these streets, stockpile the bricks and the City of Covington will stop by to pick them up.
- There will be no staging of material on the street. Any staging off the street must have written permission from the property owner or the city.
- See appendix "E" of the 2006 Bid Specifications, "City of Covington Restoration Ordinance."

05-8312-0 Module 312

City of Fort Thomas

- No current issues

State of Kentucky

- Work Hours are 8 a.m. to 4:30 p.m.
- Steel main must be used under the road.
- KDOT must be contacted prior to start of work.
- Damaged traffic loops must be replaced ASAP
- Flowable fill will be required as backfill.

04-8319-8 Module 319

City of Park Hills

- No current issues

05-8331-0 Module 331

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

Cincinnati Urban Forestry

- Has requested to be invited to the pre-construction meeting.
- See Section 3 for guidelines.

05-8353-4 Module 353

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

Cincinnati Urban Forestry

- Has requested to be invited to the pre-construction meeting.
- See Section 3 for guidelines.

05-8354-2 Module 354

City of Middletown

- No current issues

05-8362-5 Module 362

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

City of Silverton

- No current issues

Cincinnati Urban Forestry

- Has requested to be invited to the pre-construction meeting.
- See Section 3 for guidelines.

02-7338-3 Plainfield Rd.

City of Deer Park

- Permit Received
- All driveway aprons will be replaced with concrete
- All ramps at corners are to be replaced with new ADA compliant ramps
- All downspouts are to be replaced
- Strongly recommend that the entire project be videotaped prior to construction

04-1019-1 Wm. H. Taft

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

Cincinnati Urban Forestry

- Has requested to be invited to the pre-construction meeting.
- See Section 3 for guidelines.

04-1005-0 E. Mitchell Ave.

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

Cincinnati Urban Forestry

- Has requested to be invited to the pre-construction meeting.
- See Section 3 for guidelines.

City of St. Bernard

- Permit Received
- No current issues

04-1069-6 Hamilton Ave.

City of Cincinnati

- See General Comments from The City of Cincinnati
- Major Streets will have work restrictions between the hours 7 a.m. and 9 a.m., and from 4 p.m. to 6 p.m.
- Side streets will not have any restrictions unless posted.
- No night work will be allowed if a resident is within 500 feet of the construction area.

City of Mt. Healthy

- No current issues

City of North College Hill

- No current issues

SECTION 2

311

Cinergy Corp.
139 East Fourth Street
P.O. Box 960
Cincinnati, OH 45201

September 13, 2004

Mr. Terry Hughes
City Engineer
City of Covington
638 Madison Avenue
Covington, Kentucky 41011

CINERGY.
ULH&P

Dear Mr. Hughes:

Ref: I.D. #05-8311-2

Permission is requested by The Union Light Heat Power Co. to install gas main and services as per the attached.

Permit Drawing Package COVINGTON

Daniel J. Schuler/AL
Job Sponsor

Permission is hereby granted per this request. 9/18/04

Date

Permit No.

For any additional information, please call me at .

Copy:
D. Westenberg w/ print
Permit Book
1. D. J. Schuler
2. Folder

Attachment: 2 prints

IMPORTED INTO GROUPWISE

Cinergy Corp.
139 East Fourth Street
P.O. Box 960
Cincinnati, OH 45201-0960

July 21, 2005

Mr. Dave O'Leary
Service Director
Deer Park
~~4250 Matson Avenue~~
Cincinnati, OH 45236

City of Deer Park
7777 Blue Ash Road
Deer Park, OH 45236

CINERGY. CG&E

Dear Mr. O'Leary:

Ref: I.D. #02-7338-3

Permission is requested by The Cincinnati Gas Electric Co. to install gas main and services as per the attached.

Permit Drawing Package DEER PARK

Daniel J. Schuler/AL
Job Sponsor

Permission is hereby granted per this request.

With stipulations as noted below

Date 8-24-05
Permit No.

For any additional information, please call me at

Copy:
Dennis Westenberg w/ print
Permit Book
1. D. J. Schuler
2. Folder
Sanitation Dept. w/2 prints

Attachment: 2 prints

*RESTORATION:
-- All Driveway aprons will be replaced in concrete
-- All ramps at corners are to be replaced with new ADA compliant ramps
-- All downspouts are to be replaced
-- Grinding and resurfacing of the streets will be determined after completion of the project

I strongly recommend that the entire project be videotaped prior toconstruction.

Cinergy Corp.
139 East Fourth Street
P.O. Box 960
Cincinnati, OH 45201-0960

August 4, 2005

Mr. Joe Kempe
Service Director
City of St. Bernard
110 Washington Street
Cincinnati, OH 45217

CINERGY.
CG&E

Dear Mr. Kempe

Ref: I.D. #04-1005-0

Permission is requested by The Cincinnati Gas Electric Co. to install gas main and services as per the attached.

Permit Drawing Package ST. BERNARD

Daniel J. Schuler/AL
Job Sponsor

Permission is hereby granted per this request.

Joe Kempe - Service Director
Date 8-17-05
Permit No.

For any additional information, please call me at

Copy:
D. Westenberg w/ print
Permit Book
1. D. J. Schuler
2. Folder
Sanitation Dept. w/2 prints

Attachment: 2 prints

SECTION 3

Schuler, Daniel

From: Hunt, Robin [Robin.Hunt@cincinnati-oh.gov]
Sent: Tuesday, October 19, 2004 4:06 PM
To: Cinergy-Gas: Mark Prebble (E-mail); Miller Pipeline: Steve Ferrell (E-mail); Schuler, Daniel
Cc: McNamara, Cindy; Ernst, Susan; Dickman, Matt
Subject: Cincinnati Urban Forestry: Public Tree Work Permit Conditions for Gas Main Upgrades

Attachments: BoringPermitConditions.doc

BoringPermitConditi
ons doc (44

10.19.04

As discussed during the preconstruction meeting for Module 335, please find universal permit conditions for working in the vicinity of Cincinnati street trees.

The Cincinnati Parks - Urban Forestry has developed the attached file, in an effort to more clearly communicate general/ universal standards for installing pipeline within close proximity to City street trees. This is important given the broad scope and long duration of the proposed gas main upgrade work.

Matt Dickman (513/368.0949) will be the City-wide contact person for the gas main upgrade work.

Please contact me or Matt Dickman if you have any questions.

Robin O. Hunt
Urban Forester
Ohio Certified Arborist - OH-184
Cincinnati Parks - Natural Resource
Management Section/ Urban Forestry
3215 Reading RD
Cincinnati, OH 45229
Phone: 513/ 861.9070
Fax: 513/ 861.8669
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<<BoringPermitConditions.doc>>

Public Tree Work Permit Conditions for: *Cinergy* - Gas Department

- **DEFINITIONS:**

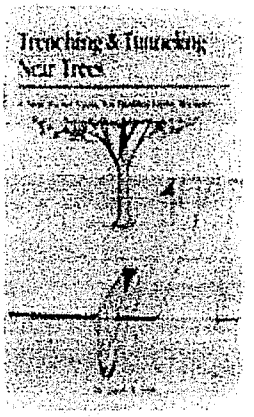
  - **NRMS** - Natural Resource Management Section of the Cincinnati Park Board – 513/ 861-9070, 3215 Reading Road, Cincinnati, Ohio, 45229

  - **dbh (diameter breast height)** - Diameter of tree trunk or stem – measurement standardized at 4½ feet above ground.

  - **Contractor** – Agent of applicant, performing actual work.

- **STANDARDS**:

  1. **Trenching Standards:** A copy of "*Trenching & Tunneling Near Trees: A Field Pocket Guide for Qualified Utility Workers*", by Dr. James R. Fazio is on file at the NRMS office and by its reference is made a part of the permit. Additional copies may be obtained by contacting the National Arbor Day Foundation (NADF) – 100 Arbor Avenue, Nebraska City, NE 68410, (402) 474-5655. Information about this standard may also be obtained from the NADF website: www.arborday.org/dmerchdetail.cfm?id=62. The contractor is advised to obtain and keep copies at the office and to use with their employees.



  2. **ANSI A-300** - The most current edition of the American National Standards Institute Standard for Tree Care Operations.

  3. **NAA** - The most current edition of the National Arborist Association Standards for Pruning of Shade Trees, Guying of Shade Trees, Fertilizing Shade and Ornamental Trees, Lightning Protection Installation Systems for Shade Trees and Pesticide Application Operations.

     NOTE: Copies of the ANSI A-300 and NAA standards are also on file at the NRMS office and by this reference are made a part of this contract.

- **NOTIFICATION**: Applicant or Contractor to contact NRMS at least one day in advance whenever excavation work is anticipated.

- **INSPECTION**: A NRMS representative shall meet on site to oversee excavation and boring work near street trees.

- **NO-TRENCH ZONE**: A No-Trench Zone shall extend from the trunk of street trees within the project work zone. This standard is based upon NADF - *Trenching & Tunneling Near Trees: A Field Pocket Guide for Qualified Utility Workers*, by Dr. James R. Fazio. This No-Trench Zone approximates and extends a radius from each tree of:

  r = 8 * D, where **D** = trunk diameter at dbh (dbh is the tree trunk diameter standardized at 4.5-feet above grade).

  Street Trees within 15-feet of proposed trenching OR boring shall be noted on the drawings with the respective No-Trench radii clearly demarcated and noting the respective dbh of the tree.

- **BORING/ TUNNELING**: techniques shall be employed within the No-Trench Zones. Work pits for tunneling shall be situated *outside* of these zones. Borings shall be made at a minimum depth of 36-inches below grade.

- **EQUIPMENT**: including outriggers shall not be placed directly on or against any portion of a tree, including its roots.

- **EQUIPMENT & MATERIAL STORAGE**: Equipment, material and soil, including construction aggregate, shall *not* be placed within 15-feet of City street trees.

- **TREE DAMAGE**: Applicant/ Contactor shall be subject to a compensatory payment to NRMS for any tree damaged and/ or removed, per CMC 743-17. NRMS staff, in accordance with the Council of Tree and Landscape Appraisers (Guide to Appraisal of Trees and Other Plants in Ohio, 6TH ed.), shall assess the tree; determine its value and its diminution in value. Applicant/ Contactor shall bear any removal or remediation costs.

- **ROOTS**: Contractor is not to cut roots greater than two inches in diameter. If larger roots are encountered, the Contractor is directed to contact NRMS and *not* proceed until NRMS has inspected conditions.

- **ROOT PRUNING**: Damaged tree roots shall be pruned to prevent and limit root decay. Contractor/ applicant shall keep a handsaw with sharp tri-cut, hollow ground saw blade, or a Sawz-All® type saw on the job site. Any crushed or torn roots on the tree side shall be cut cleanly and immediately - within 30 minutes. A sharp by-pass hand-pruner may be used on smaller roots.