Sui Southern Gas Company Limited

Checklist for Bidders

Enquiry #: 14265 Opening Date: _____

Time: _____ M/s, _____

Please ensure before submitting the bid, that following information/ Documents have been submitted / providing along the bid. Kindly Check ( ) appropriate box.

Sr. No.	Checklist Item	Action Required	(Yes/ No)
1	Tender Document Availability on SSGC website & EPADS	Ensure the bidder participates via EPADS.	
		Download the tender document from EPADS.	
		Fill the BOQ/ Bid Form/ Schedule of Requirement correctly.	
		Submit the bid on EPADS before the deadline; otherwise, bid will be rejected.	
2	Physical Bid Bond Submission	Submit the physical bid bond to the Tender Room (SSGC HO) before the bid submission. And upload Scanned copy of Bid bond on EPADS.	
		If Bid Bond in original not submitted, the bid will be rejected.	
3	Bid Submission Deadline	Confirm all documents (electronic and bid bond in original) are submitted before the specified bid submission deadline.	
4	Signature and Stamp	Ensure all documents are signed and stamped as required and uploaded on EPADS or else bid will be rejected	
5	Additional Documents (if any)	Verify if any other documents specified in Tender document are included in the bid on EPADS	
6	Tender Fees	Rs. 0 (Free)	
7	Technical literature	Original Technical literature is enclosed, if any duly signed & stamped	
8	Any change in your current address, Phone Fax no & Email etc. intimated	Bidders are required to intimate Procurement dept. for any change in Current address, email, contact information etc. in tender documents	
9	Bid validity	Bid Validity as specified is mentioned	
10	Delivery / Completion period	Delivery / Completion period has been specified as per tender terms	
11	Corrections/Cutting/Overwriting	All corrections/cutting/overwriting are singed & stamped	
12	Sample	Sample (if necessary) is enclosed as per form attached in Tender Document	
13	Form-X	Form- X Duly Signed & Stamped	

Note:

Non-Availability of the above information/documents, or incomplete/incorrect statement on this checklist may result in rejection of the bid at / after the bid opening.

As per SRO296(1)/2023 dated 08th March 2023 "E-Pak Procurement Regulations, 2023" all bidders are advised to register in e-Pak Acquisition and Disposal System (EPADS).

Sui Southern Gas Co. Procurement Dept. H.O. Gulshan-e-Iqbal

_____

Bidders Authorized Representative

Sui Southern Gas Company Limited

Ref. No. SSGC / SC / PT / 14265
Date: April - 13, 2025

M/S. _____.

Hiring of Third Party Welding Inspection and Industrial

Supplier must be active in FBR Active Taxpayer List (ATL
Under Single Stage Two Envelope Bidding Procedure
(Under the PPRA Rules 2004)

Section - 1

Tender Enquiry No. SSGC/SC/PT/EPADS/14265
Invitation to Bid

Sui Southern Gas Company Limited (SSGC) intends to carry out the work related to *Hiring of Third Party Welding Inspection and Industrial NDT(RT/PAUT-TOFD/DPT) Services for Laying and Integration of 8" Dia. X 7 Km Pipeline from POD Sujwal to Nearest Point of Existing 8" Dia. X 28 Km Ayesha POD Surjani (as per Criteria/SOR/BOQ) (Having valid ISO Certificates) (Having valid PNRA License) (Under Single Stage Two Envelope Bidding Procedure) (On complete package basis)*

The Company invites you to submit Technical Proposal and Financial Proposal in two separate sealed envelopes **"Under Single Stage Two Envelope Bidding Procedure"** i.e. Sealed Technical offer & Sealed Financial offers shall be submitted in separate envelopes. Technical offers will be opened and evaluated first. Financial offers of only technically compliant bidders will be opened on later intimated date in presence of bidder's representative.

The priced bids shall be submitted along with FIXED Bid Bond Amounting 195, 000 (One hundred ninety-five Thousand Only) in the form of Pay order / Demand Draft in favor of Sui Southern Gas Company Limited. No bid shall be entertained without bid bond / earnest money.

The Company reserves the right to add, delete from or amend any part of these tender documents during the bidding period and bidders shall be informed accordingly.

Bids not conforming to the terms and conditions or a part thereof; stipulated in these tender documents may be rejected.

The Tender documents comprise the following:

Technical Proposal

Section – I	Invitation to Bid
Section – II	Instructions to Bidders
Section – III	Scope of Work/Special Terms and Condition/Technical Evaluation Criteria with Forms/Schedule of Pipe & Annexures
Section – IV	Special Conditions of Tender Document
Section – V	General Terms & Conditions

Sui Southern Gas Company Limited

Financial Proposal

Section – VI	Bill of Quantities/Bid Form
Section – VII	Bid Bond Format/Performance Bond /Format of Declaration/Contract Form/Form X/Annexure I/ Form of Bid Securing Declaration
Section – VIII	Blacklisting Mechanism
Section – IX/X	Blacklisting Mechanism/Affidavit of Compliance with IMS Manual /SSTW-05

Bids will be submitted online on EPADS Portal on or before **29-April-2026** at **1100** hours. The bids will be publicly opened at **1130** hours on same day online on EPADS in the presence of bidders and / or their authorized agents who may wish to attend.

Bids not conforming to the conditions stipulated in the tender documents may be rejected.

The Company reserves the right to add, delete or amend any part of the tender documents during the bidding period and bidders shall be informed of the same.

The Company reserves the right to reject any or all offers without assigning any reason.

The Company will appreciate confirmation by fax, addressed to General Manager (Procurement), Fax No. 99231583 of your intention to submit the bid.

The advertisement is also published in PPRA (www.ppra.org.net) & SSGC (www.ssgc.com.pk) websites respectively.

23/04/26

For **General Manager (Procurement)**

TECHNICAL PROPOSAL

SECTION - II

INSTRUCTIONS TO BIDDERS

SECTION – II

Instructions to Bidders

1. All rates quoted in the prescribed SOR / BOQ shall be firm, irrevocable and not subject to change or escalation on any account what so ever. No modification, alteration or deletion in the bid will be accepted after the bid opening time.
2. Sealed Bids shall be received at Company's Head Office, ST-4/B, Block - 14, Sir Shah Suleman Road, Gulshan-e-Iqbal, Karachi, up to specified time & date and will be opened publicly at specified time & date, in the presence of Bidders or their authorized representative who choose to attend. In case the bid opening date falls on a holiday or due to some unavoidable circumstances, it is not possible to open on scheduled date, it will be opened on next working day at the same time.
3. All original bid documents accompanied with the bid bond shall be submitted by the Bidder in the envelope provided with tender documents. The sealed Bids must be submitted at the address stated above in person or by courier or by any other means but it shall be the Bidder's responsibility to ensure that Bids so submitted are delivered to the above address before the specified Bid opening date and time. The Company shall not be held responsible in any way for late receipt of Bids or their confidentiality. Bids received after the Bid closing time shall not be considered, and will be returned to the Bidder unopened.
4. In Case of single stage two envelop bidding system (if mentioned in press advertisement & Tender document), sealed technical offer & sealed bid shall be submitted in separate envelops (bid bond will be enclosed with "Financial" bid unless and until specified separately in tender terms). "Technical" and "Financial" is to be mentioned on the top of the envelop. Technical offers will be opened and evaluated first. Financial offer of only technically complaint bidders will be opened at a later intimated date in presence of bidder's representative. Financial offers of technically non-complaint bidders will be returned un-opened along with their bid bond.
5. The Bid should be signed by a person having the authority for this purpose. In case of a bid submitted by a corporate entity, the same shall bear its seal and be duly signed by its secretary.
6. Bids shall be submitted strictly in accordance with the requirements of the Tender Documents and as per specifications.
7. Bid shall remain valid for acceptance for a period of (120) days from the date of public opening of the bids.
8. The Company shall not reimburse any expenses incurred in preparation of Bids.
9. The Bid and all subsequent correspondence shall be in the English language.
10. Payment for the Contracted Work / Services will be made in Pakistani Rupees only. The rates quoted by the Bidder shall therefore, be in Pakistani Rupees.
11. In case of any queries / clarification with regard to this Tender, the same may be forwarded to Procurement Department upto 5 days before the bid opening date, thereafter the request will not be considered.
12. The Company reserves the right to reject any or all Bids without assigning any reason and cancel the bidding process. Company also reserves the right to accept the whole or a part of Bid and does not bind itself to accept the lowest or any particular Bid.
13. In case of any conflict between the Special Terms & Conditions and elsewhere in the tender documents the Special Term & Conditions, will supersede & prevail.
14. Each and every page of the bid documents being submitted by the bidders shall be singed and stamped failing which the bid may be liable for rejection.
15. All documentary evidence required for evaluation of bid should be submitted along with the bid in absence of any documentary evidence no marks will be awarded in accordance to the evaluation criteria.
16. In order to maintain cordial business relation and as per ethical business approach, please provide the justification in case of your non participation on our Fax # 99231583 & Email. mmte@ssgc.com.pk.
17. Conditional Bid will not be accepted and liable to be rejected.
18. The quoted unit price and corresponding total amount shall be inclusive of all duties and Taxes and excluding provincial Sales Tax as per provincial laws.
19. Sealed bids shall be mailed/submitted/dropped in tender box placed at Tender Room, CRD Building, SSGC Head Office. Bids are to be delivered on or before closing time after which bid will not be entertained. If any bid is sent through courier, the same shall be delivered at least half an hour before scheduled opening.
20. Price given in the Bid Form/BOQ is firm which shall take into account all relevant factors including discount, if any. Discount / escalation given separately at the time of bid opening will not be considered.
21. The bidders are required to fill form SSTW-05 (if deemed required) and submit with the bid.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

3 Application Forms

3.1 Application Form:

1) Sealed application(s) (FORM-1:LETTER OF APPLICATION) shall be submitted along with forms duly filled/completed as per requirement and sent by registered post/courier or delivered in person at the address mentioned in the subject form.

2) All the information shall be filled-in/submitted strictly as per "Forms" enclosed. If necessary, additional photocopies of the "Forms" may be attached. Every page of each form should be clearly marked on the top right corner as follows:

   - Page 1 of Form 1
   - Page 2 of Form 1.....; etc.

3) Some forms will require attachments (documentary evidence, etc.). Such attachments should be clearly marked as follows:-

   - Attachment 1 of Form 1
   - Attachment 2 of Form 1.....; etc.

In case the attachments where required, are not enclosed with the applications, no credit/points will be given for that particular item.

4) Each sheet shall be duly stamped & signed by the applicant(s) or a person or persons duly authorized to sign on behalf of the applicant(s).

5) All documents submitted by the applicants shall be treated as confidential and will not be returned.

6) SSGC will only inform the successful/qualified applicants of the result of their application. SSGC reserves the right to reject or accept any application and to annul the NDT firm qualification process and reject all applications, without thereby incurring any liability to the affected applicants or any obligation to inform the applicants of the grounds for the action of SSGC.

7) Documents received after the due date will not be considered and will be returned. The name and mailing address of the applicants shall also be mentioned on the envelopes so that the application can be returned unopened.

8) Firm will be qualified for the Welding Inspection & NDT (RT / PAUT / DPT) only. The qualification Questionnaire contains forms as follows:

Form-I: Letter to Application
Form-II: General Information
Form-III: Details of Similar Works of Last Five Years (Ongoing / Completed)
Form-IV: Details of Permanent Key Staff with the Firm for Handling the Project
Form-V: Details of Project equipment for NDT (RT / PAUT-TOFD / DPT)
Form-VI: Financial Data

All the information shall be submitted strictly in accordance with the above formats/forms. Company brochures, etc. could be forwarded as supplementary but will not be entertained in lieu of the prescribed formats.

4 Work Scope

4.1 PURPOSE

SSGC embarks for execution and maintenance of transmission pipeline projects. The laying of 8" dia x 7 KM pipeline from POD Sujawal to nearest point of existing point of Ayesha spurline is required to receive 70MMSCFD volume of gas for incorporation in the transmission network

4.2 BACKGROUND

Sui Southern Gas Pipelines Limited (SSGCL) is an ever expanding Gas Transmission and Distribution Company which transmits and distributes gas to its industrial, Commercial and Domestic Consumers through its pipeline network of different diameters. Since gas is highly inflammable and the pipeline network involves extensive welding therefore integrity of weld joints and that of the allied fittings/regulating stations is of utmost importance.

In order to ensure the integrity of gas network, SSGC requires the services of NDT inspection firms with good repute and past experience for NDT inspection of welding being carried out by the company.

This TOR outlines the objectives and methodology involved in Non-Destructive Testing (NDT) / Inspection of welding on 8" project mainline, Tie-ins / Crossings and above ground piping fabrication works etc.

4.3 OBJECTIVES

The objectives of this NDT inspection are: -

I. To ensure / confirm the integrity of weld joints of high pressure transmission pipeline / above ground setup being constructed by Company's qualified crew or by company's authorized welding contractors through visual inspection, Radiography Testing (RT), Ultrasonic Testing (UT-Advanced) & Dye-Penetrant Testing (DPT) method and issue certificate in the respect.

II. To identify weld defects through visual examination, radiographic testing (RT), Ultrasonic Testing (UT-Advanced) & Dye-penetration testing (DPT) method and arrange their rectification.

III. To train and qualify welders as per API-1104. For welding on company's network.

IV. Qualification / Certification of Welding Procedure.

V. Welder Qualification.

VI. Welding Procedure Qualification with Mechanical Test as per API-1104.

4.4 SCOPE OF WORK

The scope of this document is limited to gas pipeline construction. Specifically, content is focused on those items that are relevant to the role of a Pipeline Construction Engineer / Inspector as it relates to best practices within the industry.

This specification applies to the provision of welding inspection and related services by the Contractor Company / NDT Company including all the required staff, equipment and transport. The welding operations are to be performed by the COMPANY's construction group, whereas the responsibilities of the Contractor Company / NDT Company shall be to undertake all the required destructive and non-destructive testing

of welding joints by means of RT/ PAUT-TOFD, visual and physical examination together with the certification of the COMPANY's construction group's welders in accordance with API Standard 1104, latest edition.

The Contractor Company / NDT Company duties in connection with welding will include, but not be necessarily limited to ensuring that the COMPANY's construction group adheres to and achieves the standards of, or better than, the requirements of this specification. The Contractor Company / NDT Company shall inform the COMPANY before starting the work and must allocate the QA/QC Engineer / Senior welding Inspector for designated job. All necessary documentation shall be reviewed by COMPANY's representative prior approval.

All NDT inspection shall be confirmed to the quantum of work as per API 1104 and ASME B 31.8. NDT inspection would be performed adopting the following criteria as per requirement.

I. 100 percent RT / PAUT-TOFD of mainline initial 100 joints or as decided by the COMPANY's Representative.

II. 100 percent RT / PAUT-TOFD of all valve assemblies, flange assemblies, hot tap joints, drain valve assemblies, insulating flange assemblies, anchor flanges, all stress relieved joints and complete above ground installations.

III. 100 percent RT / PAUT-TOFD of all cut-outs tie-ins and repairs.

IV. 100 percent RT / PAUT-TOFD will be carried out, of the following:
Railways, highways and bunds' crossings
Tie-in pup welds and field bends.
River, lake, irrigation channels and stream crossing, (nalas) either overhead or submerged type.

V. 40% RT / PAUT-TOFD of mainline laying in class III location.

VI. 15% RT / PAUT-TOFD of mainline laying in class II location.

VII. 10% RT / PAUT-TOFD of mainline laying in class 1 location.

The COMPANY reserves the right to substitute any NDT method among (RT/ PAUT-TOFD /DPT) for inspection and maintaining integrity subject pipeline project.

4.4.1 WELDING INSPECTION & TESTS

Before being allowed to Work and before any production welding is performed, each welder employed shall undergo a qualification test by the WELDING INSPECTOR in accordance with the requirements of API 1104-Section 6 and ASME B 31.8, clause (823). The welder appearing for such a test shall be required to make a position weld on a test piece of a job size pipe nipple. Failure of this test piece as described in API 1104 shall mean disqualification of the welder. Qualified welders may be re-tested only at the discretion of the COMPANY. Each weld test report shall be recorded on the relevant format.

4.4.2 WELDING PROCEDURE QUALIFICATION

Prior to the commencement of welder performance qualification & production welding, detailed specification of welding procedure for various grades, sizes and thickness of pipes and steel structures to be welded shall be prepared by Third Party in coordination with COMPANY's construction group which shall be approved by the COMPANY's representative in accordance with the requirements of Section-5 of the API Standard 1104 and ASME B 31.8, clause (823).

4.4.3 WELDING PROCEDURE QUALIFICATIION TEST

Welding procedure shall be established against preliminary welding procedure specification (PWPS) and qualified under supervision of the welding inspector to demonstrate that welds having suitable mechanical properties (such as strength, ductility, hardness and soundness) can be made by this procedure. Welding procedures which have been established, approved and qualified shall not be changed without the COMPANY's representative approval. Requalification of WPS shall be made when any of the essential variable changes as defined in Section-5, Clause 5.4 of API Standard 1104.

4.4.4 PRE-HEAT & POST-HEAT DETAILS

Preheat and PWHT practices/procedures as listed on the qualified welding procedure specification shall be followed when materials or whether conditions make either or both treatments necessary. If applicable by construction code, preheat and PWHT shall be as follows,

I. For preheat, the methods, minimum temperature at the start of the weld, and minimum ambient temperature below which preheat is required shall be specified;

II. For PWHT, the methods, minimum and maximum temperature, time at temperature, and temperature control methods for PWHT shall be specified.

4.4.5 RECORD OF QUALIFIED WPS / PQR

The details of each qualified procedure shall be recorded on the relevant format (sample form marked as Annexure-II). This record shall show complete results of the procedure qualification test. These records shall be maintained as long as the procedure is in use.

4.4.6 MATERIAL

The materials to which the procedure applies shall be identified. API 5L pipe, as well as materials that conform to other product specifications, may be grouped (see API-1104, clause 5.4.2.2), provided that the qualification test is made on the material with the highest specified minimum yield strength (SMYS) in the group and finally approved by company.

4.4.7 QUALIFICATION OF WELDERS

The purpose of the welder qualification test is to determine the ability of welders to make sound butt or fillet welds using qualified procedures applicable to project. Before any production welding is performed, welders shall be qualified according to the applicable requirements of API-1104, clause 6.2 through 6.8.

A welder, who has successfully completed the qualification test, shall be qualified within the limits of the essential variables described in API 1104, Section 6, clause 6.2& 6.3 or both the ASME B 31.8 clause 823 & 823.2.3. If any of the essential variables are changed, the welder using the new procedure shall be re-qualified. As per ASME B 31.8, clause 823.3 all welder requalification tests shall be required if there is some specific reason to question welder's ability or if the welder is not engaged in a given process of welding for 6 months or more.

4.4.8 MATERIAL INSPECTION BEFORE START OF PRODUCTION

All pipe/ fitting ends along with pipes shall be inspected by the company authorized welding inspector, prior to welding for correctness of bevel and root face, and for any damage as per API-1104, section-07. The welding inspector shall ensure that any repairs necessary are carried out well in advance of stringer bead welding.

The joint design and spacing between abutting ends shall be in accordance with the welding procedure specifications to be used. Preparatory to alignment of pipe, the pipe ends will be thoroughly checked internally of mill scale, sand, dirt or other deleterious material, which might adversely affect the welding.

The alignment of the abutting ends shall be such as to minimize the offset between surfaces. The surfaces to be welded shall be smooth, uniform, and free of laminations, tears, slag, grease, paint and other foreign matter to avoid defects in the completed welds.

4.5 METHODS OF INSPECTION

4.5.1 VISUAL INSPECTION OF WELDS

The welding inspector shall visually inspect stringer bead, hot pass bead; filler pass bead and cap pass bead for soundness and quality, in accordance with the specifications and shall satisfy himself as to the standard of each pass before allowing subsequent passes to be deposited. For soundness and quality the weld must be free of cracks, inadequate penetration, un-repaired melt/through (burn through) and other defects and it must present a neat workmanship like appearance, as specified in clause 6.4 of API 1104 for welder qualification test and for inspection & testing of production welds section 8, 9.7 of API-1104 & section 826 of ASME B31.8.

Undercutting adjacent to the final bead on the outside of the pipe shall not exceed 1/32 inch in depth or 12½ percent of the pipe wall thickness, whichever is smaller, and there shall be not more than 2 inches of undercutting in any continuous 12 inch length of weld. Details are given in API-1104, clause-9.7.2, table-4. For visual examination, optics mirrors and magnifiers shall be used where practicable.

4.5.2 QUALIFICATION OF INSPECTION PERSONNEL

All welding inspection activities shall be carried out by experienced and qualified personnel. Minimum professional qualification for welding inspection personnel is CSWIP-3.1 / AWS-CWI valid certificate. Documentation of these qualifications shall be retained by the company and shall include but is not limited to the following as per API-1104, clause 8.3.

I. Education.
II. Relevant Experience.
III. Professional certification.

4.5.3 CERTIFICATION NDT PERSONNEL

To perform the NDT activities and ensure the integrity of welding joints, NDT personnel who are performing specific NDT technique shall have minimum level I, II certification in relevant NDT method as per API-1104, clause 8.4 and ASME-Sec-V, Article-1, Mandatory Appendix-II. For advance ultrasonic testing the additional requirements of ASME-Sec-V, Table-II-121-2 will be followed. A record of certified NDT personnel with minimum requirements shall be maintained by the company till completion of project.

Table II-121-2
Additional Training and Experience Requirements for PAUT, TOFD, and FMC Ultrasonic Techniques

Examination Method	NDE Level	Technique	Training Hours	Experience: Minimum Hours in Technique	Experience: Total NDE Hours
Ultrasonic	II	PAUT	80	320	UT Level I and Level II training and experience required as a prerequisite [Note (1)], [Note (2)]
Ultrasonic	II	TOFD	40	320	
Ultrasonic	II	FMC	80	320	

NOTES:
(1) Level II personnel holding a current Ultrasonic method certification are eligible for certification in the PAUT, TOFD, and FMC techniques.
(2) In addition to the training specified in Table II-121-2, supplemental specific hardware and software training shall be required for automated or semiautomated technique applications. The employer's written practice shall fully describe the nature and extent of the additional training required for each specific acquisition or analysis software and instrument/system used. The employer's written practice shall also describe the means by which the examiner's qualification will be determined for automated and semiautomated techniques.

4.5.4 WELDING EQUIPMENT & MATERIAL

All equipment required to be provided by the Contractor Company / NDT Company shall be located at or near the work site or as directed by the COMPANY. All equipment and material furnished by the Contractor Company / NDT Company shall have to be third party calibrated and approved by the COMPANY's Representative.

Any equipment or material found unsatisfactory by the COMPANY or its representative shall be immediately repaired or removed and replaced, as deemed necessary by the COMPANY, at the expense of the Contractor Company / NDT Company.

4.5.5 FLAW DETECTION / DYE-PENETRATION TEST

Where flaws in any weld are suspected or the welded joint becomes more complex and RT / PAUT-TOFD is not applicable, they shall be checked by the inspector by applying a suitable dye-penetrant to the exposed surfaces of the completed weld, with a non-water soluble system.

An approved procedure shall be followed by the inspector. There shall be no Sulphur or Sulphur compounds contained in the liquid employed. Indications found in the welds shall be removed by repairing as instructed by SSGC representative. All repairs will confirm requirements of Section 9.5 of API-1104.

4.5.6 RADIOGRAPHIC EXAMINATION OF WELDS

Radiography would be employed as the primary method of non-destructive testing, by the production and evaluation of radiographs, through the use of Gamma Rays. Porosity or Gas pockets occurring in the weld metal, slag inclusions, sub-surface defects, incomplete fusion, incomplete penetration, burn through and cracks in the weld bead can be positively determined by radiographic examination and their acceptance shall be as per API-1104, section 9. All radiographic procedures shall conform to API 1104-Section 11 and ASME B 31.8. However ASME-Sec-V, Article-2 & 22 shall be utilized where applicable.

4.5.7 PROCEDURAL REQUIREMENTS

Procedural requirements of NDT technique applicable to scope of work shall be followed with minimum requirement of API-1104, Sec-11 for producing radiographic images on film or other media through the use of gamma rays. A detailed procedure for the production of images shall be established and recorded. Radiographic film produced by the use of this procedure shall have the density (API-1104, Clause 11.1.10), clarity and

contrast required by this standard. Images produced by other systems shall have the requisite sensitivity to define clearly the essential wire diameter of the proper image quality indicator (IQI). The following criteria shall be used to evaluate images:

a. An acceptable image quality that is free from fog and from processing irregularities that could mask the image of actual imperfections,
b. The prescribed IQI and the essential wire diameter,
c. A satisfactory identification system,
d. An acceptable technique and setup,
e. Compatibility with acceptance standards.

All requirements that refer to the quality of the resulting images shall apply equally to gamma rays. The use of radiographic testing and the frequency of its use shall be at the option of the company. The company and the NDT Company should agree on the radiographic procedure or procedures to be used prior to the performance of production radiography. The company shall require the contractor to demonstrate that the proposed procedures produce acceptable images and shall require the contractor to use such procedures for production radiography.
The details of each radiographic procedure shall be recorded. A copy of the record shall be furnished to the company for its records. The record may be in the form of writing, a sketch, or both. As a minimum, each procedure shall include the applicable details listed in API-1104, Clause 11.1.2.2 and 11.1.2.3.

4.5.8 FILM RADIOGRAPHY

As a minimum, the procedure for film radiography shall include the following details as per API-1104, Clause-11.1.2.2.

a. **Radiation source:** The type of radiation source, the size of the effective source.
b. **Intensifying screens:** The type and placement of the screens and, if lead is used, their thickness.
c. **Film:** The film brand or type or both and the number of film in the holder or cassette. For multiple-film techniques, the way in which the film is to be viewed shall be specified.
d. **Exposure geometry**: Whether single-wall exposure for single-wall viewing (SWE/SWV), double-wall exposure for single-wall viewing (DWE/SWV), or double-wall exposure for double-wall viewing (DWE/DWV); the distance from the source or focal spot to the film; the relative positions of the film, weld, source, IQIs, and interval or reference markers; and the number of exposures required for radiography of a complete weld.
e. **Exposure conditions**: whether milli-ampere or curie minutes, voltage or the input voltage and amperage, and the exposure time.
f. **Processing**: Whether automatic or manual; the time and temperature for development and the time for stop bath or rinsing, fixing, and washing; and drying details.
g. **Materials:** The type and thickness range of material for which the procedure is suitable.
h. **IQIs:** The type of material, identifying ASTM or ISO set, and essential wire diameter.
i. **Heat shields:** Material, thickness, and the distance from the film side of the heat shield to the pipe surface.

4.5.9 RADIOGRAPHIC EXPOSURE USING FILMS

When a radiographic source is centered in the pipe for exposing a butt weld, one exposure is adequate for the radiographic testing of the complete weld (SWE/SWV). When the radiographic source is outside but not more than 1/2 in. (13 mm) from the weld surface, at least three exposures separated by 120° shall be made for the radiographic testing of a complete weld (DWE/SWV).

When the radiographic source is outside and more than 1/2 in. (13 mm) from the weld surface, at least four exposures separated by 90° shall be made for the radiographic testing of a complete weld (DWE/SWV).

When the OD of the piping containing the weld is 3.500 in. (88.9 mm) or less, a DWE/DWV procedure may be used. When this procedure is used and the radiation beam is offset so that the source-side and film-side portions of the weld do not overlap in the areas of the radiograph being evaluated, at least two exposures separated by 90° shall be made for the radiographic testing of a complete weld.

When the source-side and film-side portions of the weld are superimposed, at least three exposures separated by 60° shall be made for the radiographic testing of a complete weld.

When smaller diameter, thicker wall pipe is radiographed, additional exposures should be made to minimize the distortion of imperfection images at the ends of the radiographs.

The minimum distance between the source or focal spot and the source side of the object being radiographed shall be determined by the following formula (using constant units of measurement): $D = St/k$

Where,
D is the minimum distance, in inches (mm), between the source or focal spot and the source side of the object being radiographed;
S is the size, in inches (mm), of the effective source or focal spot;
t is the thickness of the weld, in inches (mm), including reinforcement, plus the distance between the film side of the weld and the film;
k is the geometric un-sharpness factor.

When *t* is determined for SWE/SWV and DWE/SWV procedures, the thickness of the single wall and its weld reinforcement shall be used. When *t* is determined for DWE/DWV procedures, the OD of the weld (i.e. the OD of the pipe plus twice the average height of the weld crown) shall be used; *k* is defined as 0.02 in. (0.5 mm) for material with a thickness of less than or equal to 2.000 in. (50.8 mm).

4.5.10 TYPE & SELECTION OF IQI

IQIs shall conform to the requirements of either ASTM E747 or ISO 19232-1 wire IQI. The company shall define which type of IQI (ASTM or ISO) is to be used. The IQI shall be made of a material that is radiographically similar to the material being welded.

The IQI shall consist of either a series of six (6) wires for ASTM E747 wire type or a series of seven (7) wires for ISO 19232-1 wire type IQI, arranged in order of increasing diameter. The essential wire diameter to be used, based on the thickness of the weld is shown in Table 8 for ASTM E747 wire type IQI and Table 9 for ISO 19232-1 wire type IQI. At the option of the company, smaller wire diameter IQI than those specified above may be used, provided the required radiographic sensitivity is obtained. The radiographic images of the IQI identifying style number and ASTM set letter or ISO designation shall appear clearly. The image of the essential wire diameter shall appear clearly across the entire area of interest.

Table 8—Weld Thickness vs Diameter of ASTM E747 Wire Type IQI

Weld Thickness		Essential Wire Diameter		ASTM Set Letter
in.	mm	in.	mm	
0 to 0.250	0 to 6.4	0.008	0.20	A
>0.250 to 0.375	>6.4 to 9.5	0.010	0.25	A or B
>0.375 to 0.500	>9.5 to 12.7	0.013	0.33	B
>0.500 to 0.750	>12.7 to 19.1	0.016	0.41	B
>0.750 to 1.000	>19.1 to 25.4	0.020	0.51	B
>1.000 to 2.000	>25.4 to 50.8	0.025	0.64	B

Table 9—Weld Thickness vs Diameter of ISO Wire Type IQI

Weld Thickness		Essential Wire Diameter		Wire Identity
in.	mm	in.	mm	
0 to 0.250	0 to 6.4	0.008	0.20	13
>0.250 to 0.375	>6.4 to 9.5	0.010	0.25	12
>0.375 to 0.500	>9.5 to 12.7	0.013	0.33	11
>0.500 to 0.750	>12.7 to 19.1	0.016	0.41	10
>0.750 to 1.000	>19.1 to 25.4	0.020	0.51	9
>1.000 to 2.000	>25.4 to 50.8	0.025	0.64	8

4.5.11 PLACEMENT OF IQI

The IQIs shall be placed as follows.
When a complete weld is radiographed in a single exposure using a source inside the piping, at least four IQIs placed across the weld and spaced approximately equally around the circumference shall be used. For the DWE/ DWV procedure, one IQI shall be placed on the source side of the pipe and across the weld so that the essential wire image is superimposed onto the weld images. For the DWE/SWV or SWE/SWV procedures requiring multiple exposures or multiple films for complete inspection of the weld, and where the length of film to be interpreted is greater than 5 in. (130 mm), two IQIs placed across the weld and located on the film side shall be used. One shall be within 1 in. (25 mm) of the end of the film length to be interpreted and the other shall be at the center of the film. When the film length to be interpreted is 5 in. (130 mm) or less, one IQI shall be placed on the film side, across the weld and located at the center of the length to be interpreted. When a repaired weld is radiographed, an additional IQI shall be placed across each repaired area.

When it is not practical to place an IQI on the weld due to weld configuration or size, the IQI may be placed on a separate block. Separate blocks shall be made of the same or radiographically similar material and may be used to facilitate IQI positioning. The thickness of the separate block material should be the same as the thickness of the weld.
Heat shields—IQI may be placed on a heat shield rather than in contact with the pipe, provided that the acceptability of such IQI placement is demonstrated during procedure qualification.

4.5.12 PRODUCTION RADIOGRAPHY

Production radiography shall be performed as per API-1104, Clause-11.1.7. Only Level II or III radiographers shall interpret the radiographic images of production welds. Radiographers shall report to the company all defects observed in the images unless the company requires that all imperfections observed be reported. The radiographer shall indicate whether the weld meets the requirements of API-1104, Section 9. The company shall determine the final disposition of the weld.

4.5.13 IDENTIFICATION OF IMAGES

Each radiograph must be identified uniquely so that there is a permanent correlation between the part radiographed and the film. Images shall be clearly identified by the use of lead numbers, lead letters, markers, or other identification so that the proper weld and any imperfections in it can be quickly and accurately located. The company may specify the identification procedure to be used. Whenever more than one image is used to inspect a weld, identification markers shall appear on each image and adjacent images shall overlap. The last reference marker on each end of the image shall appear on the appropriate adjacent images in a way that establishes that no part of the weld has been omitted.

a. Project Name
b. Client Name
c. Contractor Name
d. Pipe Diameter
e. Pipe Wall Thickness
f. Weld Number
g. Welder ID
h. Section Number
i. Date

In addition to above, repaired welds shall be identified with the original identification number plus 'R1' to designate a radiograph of repair area like FW101-R1, where FW101 shows field joint identification as per weld map and R1 shows repair and may include -1, -2, etc., for the number of repair. Location marker should be used thus permitting the area of interest to be located accurately on the part.

4.5.14 RADIOGRAPHIC FILMS

The NDT Company shall arrange and provide all requirements of industrial radiographic films and shall develop them after radiographic exposure. All exposed and processed films shall be submitted by the Contractor Company / NDT Company together with the detailed inspection, interpretation on the Format (Annexure-IV) or mutually approved format, when the related invoices are submitted, to the COMPANY for the record. The films affected by film artifacts will not be considered valuable and client cannot bear the cost of film.

Unless otherwise specially approved by The COMPANY's Representative, film used to record radiographic examination, shall be of fine grain and high contrast, Class-II etc. except that in the following cases a Class-I film or equivalent, as specified earlier, shall be used In the area of viewing, film shall be free from mechanical, chemical or other blemishes such as:

a. Fogging
b. Processing defects such as streaks watermarks or chemical stains.
c. Scratches, finger marks, crimps, dirtiness, static marks, smudges or tears.
d. Loss of detail due to poor screen to film contact

e. False indications due to defective screens or internal faults

Refer table below for film characteristics.

Film Type	Characteristics	Film Brand
ASTM Class II	Fine Grain	Kodak, Agfa, or Fuji brand with the required specification
ASTM Class I	Extra Fine Grain	Kodak, Agfa, or Fuji brand with the required specification

4.5.15 FILM DENSITY

As per API-1104, Clause-11.1.10.1, the transmitted H&D density in the area of interest of transparent-based film shall not be less than 1.8 or greater than 4.0. The reflected H&D density for opaque based film shall not be less than 0.5 nor greater than 1.5. Transmitted H&D densities through small localized areas may exceed these limits; however, minimum densities shall not be less than 1.5 and maximum densities shall not exceed 4.2; reflected H&D density shall not be less than 0.25 and shall not exceed 1.8.

4.5.16 LEAD SCREENS

Lead foil screens are commonly used in direct contact with the films. Lead foil screens of appropriate thickness should be used whenever they improve radiographic quality or penetrameter sensitivity or both. For radiography using radioactive sources, the minimum thickness of the front & back lead screen should be 0.005 inch (0.13 mm) for irridum-192and 0.010 inch (0.25 mm) for cobalt-60 as per clause 13, article 22, SE-94 of ASME Section –V.

4.5.17 FILM PROCESSING

The radiograph may be processed using either automatic or manual methods, and shall be done in accordance with manufacturers recommendations. Film processing shall be as per clause 24-25, article 22, SE-94 of ASME section-V. Films shall be processed, handled and stored so that the images are interpretable for at least three years after they are produced.

4.5.18 FILM VIEWING EQUIPMENT

The viewing equipment (illuminator) shall be of the variable high intensity type and shall be capable of viewing film densities within the range specified in API-1104, Clause-11.1.10.1. It shall be equipped to prevent light, coming from around the outer edge of the radiograph or through low density portions of the radiograph, from interfering with interpretations.

4.5.19 PRODUCTION RADIOGRAPHY

I. Only procedures which have been qualified and recorded, meeting the requirements of API 1104 and ASME B 31.8 shall be used.

II. Prior to the start of production radiography, The Contractor Company / NDT Company shall qualify his proposed radiographic procedures by demonstrating that they will produce radiographs meeting the requirements of API 1104.

III. The qualification radiographs shall be made on welds with materials, pipe sizes and wall thickness similar to those included in the scope of Work under this

Contract. Both source side and film side penetrameter, each identified as to location, shall be used on the qualification exposures. The image of both source side and film side penetrameter must show the required sensitivity i.e., the image of the penetrameter outline and the essential wire shall be clearly describable. If the proposed procedure will not produce acceptable radiographs, it shall be modified to the satisfaction of the COMPANY's Representative.

IV. Each radiographic unit (Level-II Radiographer) shall make two acceptable qualification radiographs and these, together with two copies of each acceptable procedure, shall be supplied to the COMPANY's Representative and/or the COMPANY. One of the qualifying radiographs and one copy of the procedure will be kept on the job by COMPANY's Representative to be used as standard against which he can check the quality of production radiographs and the procedure used during the job. The other copy will be retained by the COMPANY for its permanent records.

V. The quality of production radiographs shall be substantially the same as the quality of qualification radiographs.

VI. Radiographs representing repaired areas of weld shall extend a minimum of 3 inch beyond each end of repaired area.

VII. The Contractor Company / NDT Company shall submit only radiographs which meet all requirements of the API 1104 and ASME B 31.8 and this specification. Radiographs shall be free of processing irregularities and film artifacts that would interfere with the interpretation of the radiography. If retakes are necessary to obtain such quality, they shall be made entirely at the Contractor Company / NDT Company expense.

VIII. All radiographs produced shall be interpreted by the Contractor Company / NDT Company Level-II Radiographers as soon as possible after processing has been completed with the aid of high intensifying viewers. The Contractor Company / NDT Company may elect to review film after drying with the approval of COMPANY's Representative. All defects that are unacceptable under applicable codes or this specification shall be recorded and the Contractor Company / NDT Company shall promptly advise COMPANY's Representative. The final disposition of all unacceptable welds will be decided by the COMPANY's Representative who will so advise the Contractor Company / NDT Company of the required disposition and radiographer will promptly mark each weld requiring repair or removal after confirming to COMPANY's Representative.

IX. COMPANY's Representative may review all radiographs submitted by the Contractor Company / NDT Company to assure that the requirements of this specification are being followed.

X. All radiographs shall be interpreted in accordance with API 1104, Standards of Acceptability for Non-destructive testing and ASME B 31.8.

XI. All pipe defects shall be noted and brought to the attention of the COMPANY's representative.

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4.5.20 RADIOGRAPHIC RECORDS

I. All radiographs produced become property of the COMPANY.

II. All repair films shall be set down with the original film, if compartment in boxes will not accommodate the original and repair film, an additional compartment shall be left empty to provide space for repairs.

III. A written record of welds inspected shall be furnished to the COMPANY's Representative daily. This record shall include but not limited to:

The number of each weld inspected, whether or not the weld meets the specified acceptance standards.

The nature and approximate location of unacceptable defects observed.

IV. All packages containing radiographs shall be identified by at least as per clause 30, article 22, SE-94, ASME section-V.

Date

Radiographic unit

Job allocation

Location & Field weld number

Copy of the daily radiographic record

Repair details

V. Each day's production of radiographs for production welding shall be packaged separately in weather-proof boxes. Each such package shall be furnished to the COMPANY's Representative, not later than the following day.

4.5.21 EQUIPMENT SPECIFICATIONS

I. The radiographic unit shall be capable of performing radiography against the written procedure and ensure all safety practices applicable by national jurisdiction. When required and contained the necessary equipment for identifying, marking, executing, processing, viewing and storing the radiograph in the field as required, and air conditioners for darkrooms shall be included in darkroom specifications.

Manual processing that includes preparation, development, stop-bath, fixing, washing and drying of radiographs shall be followed as per clause 25, article 22, SE-94, ASME Section-V.

II. Internal crawlers shall be capable of locating the weld with accuracy of ± ½".

III. Viewing equipment and conditions shall be suitable for film densities of up to 3.5 in parent metal.

IV. Physical dimensions of isotopes shall be followed as per SE-1114, article 22, ASME Sec-V and measurement of focal spot shall confirm requirements of SE-1165, article 22, ASME-Sec-V.

4.5.22 ULTRASONIC EXAMINATION OF WELDS

Ultrasonic would be employed in lieu of RT as an alternative method of non-destructive testing for volumetric inspection of welds. Advance Ultrasonic techniques using PAUT / TOFD + Pulse Echo or both shall be used to indicate flaws such as porosity, pin holes, inclusions (slag / tungsten), incomplete penetration, incomplete fusion, burn through,

cracks, under cuts, excess root penetration, lack of side-wall fusion, misalignment. Excessive / inadequate reinforcement, root concavity overlap etc. and their accurate measurement in through thickness of weld. The ultrasonic testing procedure shall conform to API-1104-Section 11.4 or ASME-Sec-V, Article-4 & 23. The mandatory requirements of specific techniques are as follows,

- For Time of flight diffraction (TOFD) technique additional requirements of ASME-Section-V, Mandatory Appendix-III shall be followed.
- For PAUT (manual raster scanning using linear Arrays for E-Scan / S-Scan) additional requirements of Mandatory Appendix-IV shall be followed.

However during inspection of production welds the standard practice ASME-Sec-V, Article-23, SE-2700 for contact ultrasonic testing of welds shall be used for PAUT, whereas the standard written practice SE-2491 shall be used to evaluate performance characteristics of PAUT to standardize for amplitude and height linearity.
Similarly standard written practice ASTM, E-2373 shall be exercised for TOFD technique. The use of Advance ultrasonic testing and the scope of its use shall be at the option of the company.

4.5.23 PROCEDURAL REQUIREMENTS

A detail procedure for use of individual techniques shall be established and recorded to meet requirements as a minimum according to API-1104-Section 11.4.2 and ASME-Section-V, Article-4. The company and Contractor Company / NDT Company should agree on the ultrasonic testing procedure before its use on production testing.

The procedure shall contain all essential variables requirement given in API-1104-Section 11.4.2.2 or ASME-Section-V, Article-4, Table-T-421, Table III-421, Table IV-421. The mutually agreed procedure with applicable technique shall be approved by NDT Level-III in the ultrasonic method.

ULTRASONIC EXAMINATION REQUIREMENT AS PER ASME-SEC-V, ARTICLE-4

Table T-421
Requirements of an Ultrasonic Examination Procedure

Requirement	Essential Variable	Nonessential Variable
Weld configurations to be examined, including thickness dimensions and base material product form (pipe, plate, etc.)	X	...
The surfaces from which the examination shall be performed	X	...
Technique(s) (straight beam, angle beam, contact, and/or immersion)	X	...
Angle(s) and mode(s) of wave propagation in the material	X	...
Search unit type(s), frequency(ies), and element size(s)/shape(s)	X	...
Special search units, wedges, shoes, or saddles, when used	X	...
Ultrasonic instrument(s)	X	...
Calibration [calibration block(s) and technique(s)]	X	...
Directions and extent of scanning	X	...
Scanning (manual vs. automatic)	X	...
Method for discriminating geometric from flaw indications	X	...
Method for sizing indications	X	...
Computer enhanced data acquisition, when used	X	...
Scan overlap (decrease only)	X	...
Personnel performance requirements, when required	X	...
Personnel qualification requirements	...	X
Surface condition (examination surface, calibration block)	...	X
Couplant: brand name or type	...	X
Post-examination cleaning technique	...	X
Automatic alarm and/or recording equipment, when applicable	...	X
Records, including minimum calibration data to be recorded (e.g., instrument settings)	...	X

TOFD ULTRASONIC EXAMINATION AS PER ASME-SEC-V, MANDATORY APPENDIX-III

Table III-421
Requirements of a TOFD Examination Procedure

Requirement (as Applicable)	Essential Variable	Nonessential Variable
Instrument manufacturer and model	X	...
Instrument software	X	...
Directions and extent of scanning	X	...
Method for sizing flaw length	X	...
Method for sizing flaw height	X	...
Data sampling spacing (increase only)	X	...

PAUT ULTRASONIC EXAMINATION AS PER ASME-SEC-V, MANDATORY APPENDIX-IV

Table IV-421
Manual Linear Phased Array Raster Scanning Examination Procedure Requirements

Requirements (as Applicable)	Essential	Nonessential
Weld configurations examined, including joint design, thickness, and base material product form(s)	X	–
Surfaces from which the examination is performed	X	–
Surface condition (examination surface, calibration block)	X	–
Weld axis reference system and marking	–	X
Personnel qualification requirements	X	–
Personnel performance demonstration (if required)	X	–
Primary reference reflector and level	X	–
Calibration block(s) and technique(s)	X	–
Standardization method and reflectors (wedge delay, sensitivity, TCG)	X	–
Computerized data acquisition	–	X
Wedge cut/natural refracted angle	X	–
Wedge contouring and/or stabilizing features	X	–
Wedge height	X	–
Wedge type (solid wedge, water column, etc.)	X	–
Wedge material	X	–
Couplant: brand name or type	–	X
Instrument manufacturer and model, including all related operating modules	X	–
Instrument software and revision [Note (1)]	X	–
Special phased array probes, curved/shaped wedges, shoes, or saddles, when used	X	–
Search unit type (linear, dual linear, dual matrix, tandem, etc.)	X	–
Search unit detail (frequency, element size, number pitch, gap dimensions, element shape)	X	–
Technique(s) (straight beam, angle beam, contact, and/or immersion)	X	–
Angle(s) and mode(s) of wave propagation in the material	X	–
Directions and extent of scanning	X	–
Scan increment (decrease in overlap amount)	X	–
Use of scan gain over primary reference level	X	–
Virtual aperture size (i.e., number of elements, effective height, and element width)	X	–
Focus length and plane (identify plane projection, depth, or sound path, etc.)	X	–
For E-scan:		
Range of element numbers used (i.e., 1–128, 10–50, etc.)	X	–
Element incremental change (i.e., 1, 2, etc.)	X	–
Rastering angle	X	–
Aperture start and stop numbers	X	–
For S-scan:		
Aperture element numbers (first and last)	X	–
Decrease in angular range used (i.e., 40 deg to 30 deg, 50 deg to 70 deg, etc.)	X	–
Maximum angle incremental change (i.e., ½ deg, 1 deg, etc.)	X	–
For compound E-scan and S-scan, all E-scan and S-scan variables apply	X	–
Digitizing frequency	X	–
Net digitizing frequency (considers points quantity and other data compression)	X	–
Instrument dynamic range setting	X	–
Pulser voltage	X	–
Pulse type and width	X	–
Filters and smoothing	X	–
Pulse repetition frequency	X	–
Maximum range setting	X	–
Automatic alarm and/or recording equipment, when applicable	–	X
Method for discriminating geometric from flaw indications	X	–
Flaw characterization methodology	X	–
Method for measuring flaw length	X	–
Records, including minimum calibration data (e.g., instrument settings)	–	X
Post-exam cleaning	–	X

NOTE:
(1) Use of software revisions must be evaluated by the Level III for their impact on the functions as used. A limited extension of qualification may be determined to prove software functions. For example, addition of a software feature more capable than that qualified may be qualified by evaluation of existing data. If a revision is implemented, personnel must receive training in use of the revised software.

4.5.24 DEMONSTRATION OF THE TESTING PROCEDURE

When procedure qualification is specified prior to final written approval, the company shall require Contractor Company / NDT Company to demonstrate the application of the procedure and ultrasonic system. A procedure demonstration report shall be generated and the results documented prior to use on production weld.

4.5.25 GENERAL CALIBRATION REQUIREMENTS

Ultrasonic System Calibrations shall include the complete ultrasonic system and shall be performed prior to use of the system in the thickness range under examination as per ASME-Sec-V, Article-4, T-462.

4.5.26 CALIBRATION SURFACE

Calibrations shall be performed from the surface (clad or unclad; convex or concave) corresponding to the surface of the component from which the examination will be performed.

4.5.27 COUPLANT

The same couplant to be used during the examination shall be used for calibration.

4.5.28 CONTACT WEDGES

The same contact wedges to be used during the examination shall be used for calibration.

4.5.29 INSTRUMENT CONTROL

Any control which affects instrument linearity (e.g., filters, reject, or clipping) shall be in the same position for calibration, calibration checks, instrument linearity checks, and examination.

4.5.30 TEMPERATURE

For contact examination, the temperature differential between the calibration block and examination surfaces shall be within 25°F (14°C). For immersion examination, the couplant temperature for calibration shall be within 25°F (14°C) of the couplant temperature for examination.

4.5.31 DISTANCE-AMPLITUDE CORRECTION (DAC)

No point on the DAC curve shall be less than 20% of full screen height (FSH). When any portion of the DAC curve will fall below 20% FSH, a split DAC shall be used. The first calibration reflector on the second DAC shall start at 80% ± 5% FSH. When reflector signal-to-noise ratio precludes effective indication evaluation and characterization, a split DAC should not be used. (Article 4, Non-mandatory Appendix Q provides an example.)

4.5.32 SYSTEM CHANGES

When any part of the examination system is changed, a calibration check shall be made on the basic calibration block to verify that distance range points and sensitivity setting(s) satisfy the requirements of ASME-Sec-V, Article-4, T-467.3.

4.5.33 CALIBRATION CHECKS

A calibration check on at least one of the reflectors in the basic calibration block or a check using a simulator shall be performed at the completion of each examination or series of similar examinations, and when examination personnel (except for automated equipment) are changed. The distance range and sensitivity values recorded shall satisfy the requirements of ASME-Sec-V, Article-4, T-467.3.

4.5.34 SIMULATOR CHECKS

Any simulator checks that are used shall be correlated with the original calibration on the basic calibration block during the original calibration. The simulator checks may

use different types of calibration reflectors or blocks (such as IIW) and/or electronic simulation. However, the simulation used shall be identifiable on the calibration sheet(s). The simulator check shall be made on the entire examination system. The entire system does not have to be checked in one operation; however, for its check, the search unit shall be connected to the ultrasonic instrument and checked against a calibration reflector. Accuracy of the simulator checks shall be confirmed, using the basic calibration block, at the conclusion of each period of extended use, or every three months, whichever is less.

4.5.35 SENSITIVITY SETTINGS

If any sensitivity setting has changed by more than 20% or 2 dB of its amplitude, correct the sensitivity calibration and note the correction in the examination record. If the sensitivity setting has decreased, all data sheets since the last valid calibration check shall be marked void and the area covered by the voided data shall be reexamined. If the sensitivity setting has increased, all recorded indications since the last valid calibration or calibration check shall be reexamined and their values shall be changed on the data sheets or re-recorded.

4.5.36 INSTRUMENT LINEARITY CHECKS

The requirements of ASME-Sec-V, Article-4,T-461.1 and T-461.2 shall be met if applicable at intervals not to exceed three months for analog type instruments and one year for digital type instruments, or prior to first use thereafter.

4.5.37 SCREEN HEIGHT LINEARITY

The ultrasonic instrument's screen height linearity shall be evaluated in accordance with ASME-Sec-V, Article-4, Mandatory Appendix I.

4.5.38 AMPLITUDE CONTROL LINEARITY

The ultrasonic instrument's amplitude control linearity shall be evaluated in accordance with ASME-Sec-V, Article-4, Mandatory Appendix II.

4.5.39 SCANNING TECHNIQUES

Examination may be performed by one of the following techniques

a. manual scanning using no scanner equipment
b. non-automated scanning using non-automated scanner(s)
c. semi-automated scanning using semi-automated scanner(s)
d. automated scanning using automated scanner(s)

4.5.40 ADVANCE ULTRASONIC EQUIPMENT

4.5.41 PHASED ARRAY ULTRASONIC SYSTEM

The phased array ultrasonic system as per **ASME Sec-V, SE-2700 & Mandatory Appendix-IV** shall be a pulse echo type and equipped with standardized dB gain or attenuation control stepped in increments of 1 dB minimum, containing multiple independent pulser / receiver's channels. The system shall be capable of generating and displaying both B-Scan and S-Scan images, which can be stored and recalled for subsequent review.

The phased array system shall have a means of data storage for archiving scan data. An external storage device, flash card or USB memory stick can be used for data storage.

The instrument shall be capable of pulsing and receiving at nominal frequencies of 1 MHz to 10 MHz. For special applications frequencies up to 20 MHz can be used.

The instrument shall be capable of digitization of A-Scans at a minimum of five times the nominal frequency of the probe used. The Amplitude shall be digitized at a resolution of at least 8-bit.

The equipment shall be capable of equalizing the amplitude response from a target at a fixed sound path for each angle used in the technique (angle corrected gain ACG thereby providing compensation for wedge attenuation variation and echo transmittance).

4.5.42 PHASED ARRAY PROBES

The application requirements will dictate the design of the phased array probe used. Phased array probes may be used with a removable or integral wedge, delay-line, or in an immersion or localized bubbler system mode. Phased array probes used for weld examination may be of 1D, 1.5D or 2D design. Only 1D arrays or dual arrays configured with side-by-side transmitter-receiver arrays (as in Transmit-Receive Longitudinal wave probes) shall be used with manual scanning techniques. For 2D arrays, which use electronic oscillation, calibration should be performed at all skewed angles.

The number of elements in the phased array probe and the element dimensions and pitch shall be selected based on the application requirements and the manufacturer's recommended limitations. The probe selected shall not have more elements than the number of elements addressable by the pulser-receivers available in the phased array instrument being used.

When refracting wedges are used to assist beam steering, the natural incident angle of the wedge shall be selected such that the angular sweep range of the examination technique used does not exceed the manufacturer's recommended limits for the probe and mode (compression or transverse) used. Refracting wedges used on curved surfaces shall require contouring to match the surface curvature if the curvature causes a gap between the wedge and examination surface exceeding 0.5 mm (0.020 in.) at any point.

4.5.43 STANDARDIZATION

The instrument display shall be adjusted using the A-scans for each focal law used to provide an accurate indication of sound travel in the test material. Range standardization shall include correction for wedge travel time so that the zero-depth position in the test piece is accurately indicated for each focal law.

Time base linearity and accuracy shall be verified in accordance with the guidelines in Practice SE-2491, or Practice SE-317, or both. Volume-corrected B-scan or S-scan displays shall indicate the true depth to known targets to within 5 % of the physical depth or 3 mm, whichever is less. Range standardization shall be established using the radius surfaces in reference blocks such as the IIW Block and these blocks shall be made of the same material or acoustically similar material as the test piece.

4.5.44 SENSITIVITY

Reference standards for sensitivity-amplitude standardization should be designed so that sensitivity does not vary with beam angle when angle beam testing is used. Sensitivity amplitude reference standards that accomplish this are side drilled holes parallel to the major surfaces of the plate and perpendicular to the sound path, flat-bottomed holes drilled at the testing angle, and equal-radius reflectors. Surface notches may be used under some circumstances but are not generally recommended.
Standardization shall include the complete ultrasonic phased array system and shall be performed prior to use of the system in the thickness range under examination.

Standardization on reference block(s) shall be performed from the surface (clad or unclad; convex or concave) corresponding to the surface of the component from which the examination will be performed. The same couplant to be used during the examination shall be used for standardization. The same contact wedges or immersion/bubbler systems used during the examination shall be used for standardization. The same focal law(s) used in standardization shall be used for examination.
Any control which affects instrument amplitude response (for example, pulse-duration, filters, averaging, etc.) shall be in the same position for standardization and examination. Any control which affects instrument linearity (for example, clipping, reject, suppression) shall not be used. A baseline assessment of element activity shall be made in accordance with Practice SE-2491.

4.5.45 COUPLING CONDITIONS

The weld shall be examined in the as-welded condition, provided the surface condition does not interfere with valid interpretation of indications. Clean the scanning surfaces on the base material of weld spatter, scale, dirt, rust, and any extreme roughness on each side of the weld for a distance equal to several times the thickness of the production material, this distance to be governed by the size of the search unit and refracted angle of the sound beam. Where scanning is to be performed along the top or across this weld, the weld reinforcement may be ground to provide a flat scanning surface. It is important to produce a surface that is as flat as possible. Generally, the surfaces do not require polishing; light sanding with a disk or belt sander will usually provide a satisfactory surface for examination.
The area of the base material through which the sound will travel in the angle-beam examination should be completely scanned with a straight-beam search unit to detect reflectors that might affect the interpretation of angle-beam results by obstructing the sound beam. Consideration must be given to these reflectors during interpretation of weld examination results, but their detection is not necessarily a basis for rejection of the base material.

4.5.46 COUPLANT

A couplant, usually a liquid or semi-liquid, is required between the face of the search unit and the surface to permit transmission of the acoustic energy from the search unit to the material under examination. The couplant should wet the surfaces of the search unit and the test piece, and eliminate any air space between the two. Typical couplants include water, oil, grease, glycerin, and cellulose gum. The couplant used should not be injurious to the material to be examined, should form a thin film, and, with the exception of water, should be used sparingly. When glycerin is used, a small amount of wetting agent is often added, to improve the coupling properties. When water is used, it should be clean and de-aerated if possible. Inhibitors or wetting agents, or both, may be used. For contact examination, the temperature differential between the reference block and examination surface shall be within 15°C (25°F).

4.5.47 DISTANCE-AMPLITUDE CORRECTION

Reference standards for sensitivity-amplitude standardization should be constructed of materials with similar surface finish, nominal thickness. Alternative methods of distance-amplitude of correction of sensitivity may be used provided the results are as reliable as those obtained by the acceptable method. In addition, the alternative method and its equipment shall meet all the performance requirements of this standard.

4.5.48 REFERENCE REFLECTORS

Correction for straight beam examination may be determined by means of a side drilled hole reflector at 1/4 and 3/4 of the thickness. For thickness less than 50 mm (2 in.), the 1/4-thickness reflector may not be resolved. If this is the case, drill another hole at 1/2 thickness and use the 1/2 and 3/4-thickness reflectors for correction.

Correction for angle beam examination may be determined by means of side-drilled hole reflectors at 1/4 and 3/4 of the thickness. The 1/2-thickness depth to a side-drilled hole may be added to the standardization or used alone at thicknesses less than 25 mm (1 in.). For certain combinations of thin wall and small diameter pipe side drilled holes may not be practical and surface notches may be used with agreement between contracting parties.

4.5.49 TIME-CORRECTED GAIN

Assessment of phased array examinations uses color-coded B-scans or S-scans as the initial evaluation method. Therefore, it is necessary that the display used provide a uniform color code related to amplitude at all sound path distances. This method can be used only if the instrument is provided with electronic distance amplitude compensation circuitry (TCG). Use is made of all reflectors in the standardization range.

The test equipment, probe(s), focal law(s), couplant, etc., to be used in the ultrasonic examination shall be used for this attenuation adjustment.

With the instrument display in time or sound path (not true depth) locate the focal law that provides the maximum response from the reference targets. Set the signal from the reference reflector that gives the highest response, to a screen height of between 40 % to 80 % full screen height (FSH). This target may be considered the primary reference reflector. Using the same focal law, maximize each of the other reference reflectors at other distances over the range to be used for examination, adjusting the electronic distance amplitude correction controls to equalize the screen height from these reference reflectors to the primary reflector. Apply the correction to all focal laws used for the examination.
Periodic checks of the sensitivity shall be made at a frequency agreed upon by the contracting parties. If the equipment has changed by more than the agreed upon tolerances, it shall be re-standardized. If the source of sensitivity change is a result of change in the number of active elements compared to the baseline assessment it may require probe replacement.

4.5.50 EXAMINATION PROCEDURE

Phased array examination procedures are nominally identical to conventional ultrasonic procedures in coverage, angles etc. Phased array scanning procedures for welds shall be established using scan plans that indicate the required stand-off positions for the probe to ensure volume coverage required and appropriate beam angles. Volume coverage required may include the full volume of weld plus a specified region either side (such as the heat affected zone). Welds shall be inspected from both sides, where possible. In addition, if cross-cracking (transverse cracking) is suspected, a supplementary technique shall be used that directs the beam parallel or essentially parallel to the weld centerline.

Typically scanning is carried out from the surfaces where the plate has been machined with the weld bevel. Alternative scanning techniques shall be used for different weld profiles. Sample illustrations are given in SE-2700, Figs. 2-7. Volume coverage afforded by multiple stand-off positions of probes are illustrated for encoded linear scans. This can be replaced with raster scanning where the stand-offs are continuously varied to the limits required using manual movement of the probes. Scanning may be by manual probe motion or automated or semi-automated motion.
For manual scanning the primary scan pattern is a raster motion with the beam directed essentially perpendicular to the weld axis. The distance forward and backward that the probe is moved is determined by the scan plan to ensure full volume coverage. The lateral movement on each raster step shall not exceed half the element dimension in the lateral direction. Scanning speed (speed at which the probe is manually moved forward and backward) will be limited by the system update capabilities. Generally using more focal laws requires more processing time so update rates of the B-scan or S-scan displays are slower as more focal laws are used.

For automated or semi-automated scanning the probe will be used with a positional encoder for each axis in which probe motion is required (for most applications a single encoder is used). The encoder shall be calibrated to provide positional information from a reference start position and shall be accurate to within 1 % of total scan length or 10 mm (0.4 in.), whichever is less. Guide mechanisms such as probe holding frames or magnetic strips are used to ensure that the probe moves at a fixed distance from the weld centerline. Data, in the form of A-scans from each focal law used, shall be collected at increments of not greater than 2 mm (with at least three increments for the length of the smallest required detectable defect, that is, a defect length of 3 mm would require increments of not greater than 1 mm) along the scan axis. Note that this interval should be reduced when length sizing of flaws is critical with respect to the acceptance criteria. If laterally focused beams are used, this can be considered for data collection increments as above.

For encoded scanning only, multiple probes and multiple focal law groups (for example, two S-scans from the same probe but having difference start elements) may be used simultaneously if the system has the capability. Probe placement will be defined by the details of the scan plan with confirmation of coverage confirmed using notches that may be incorporated into the reference block.

4.5.51 INDICATION EVALUATION

The method of evaluation used, will to some extent, depend on whether manual or encoded scanning was used.
For manual scanning using phased arrays examination personnel shall use a real-time S-scan or B-scan display during scanning to monitor for coupling quality and signals exceeding the evaluation threshold. Evaluation of indications detected using manual phased array methods shall require the operator to assess all indications exceeding the evaluation threshold when the indication is detected during the scanning process. Phased array systems may include options for entering some items into a report format and incorporating S-scan or B-scan images as part of the report.

Encoded scanning methods rely on assessment of data displays produced from stored A-scans. Encoded systems may be equipped with real-time displays to display one or more views of data being collected during the scan. Evaluation of indications detected by encoded phased array scanning shall be made using the digitized waveforms underlying the S-scans or B-scans collected during the data acquisition process. Encoded scanning data displays for indication evaluation may use a variety of projections other than just the S-scans or B-scans available to manual scanning (for example, top-side-end views).
Welds scanned using encoded techniques may be scanned in sections provided that there is an overlap of data collected and the overlap between scans is identified in the encoded position with respect to the weld reference start position (for example, a 2-m long weld may be scanned in two parts; one from 0 to 1000 mm and the second from 950 to 2000 mm). The evaluation threshold should be indicated on the S-scan or B-scan display as a well-defined color such that indications of note are easily distinguished from the background level. S-scan or B-scan images presented with angular correction (also referred to as volume corrected) contain signal amplitude and indication depth information projected for the refracted angle of the ultrasonic beam. Indication locations shall be determined relative to the inspection surface and a coordinate system that uses well defined reference for the relative to the weld.

4.5.52 INDICATION SIZE DETERMINATION

Indication length is generally determined by determining the distance between the points along the weld length where the amplitude drops to half the maximum at the extremities of the reflector, or when the amplitude drops to half the minimum evaluation amplitude. Estimates of indication height can be made using the 6-dB drop as determined from the S-scan or B-scan refers to (SE-2700, Fig-8). This method is suitable for large planar flaws with extents greater than the beam. For flaws with dimensions smaller than the beam a correction for beam divergence may be used to improve sizing estimates. For adversely oriented indications or indications with irregular surfaces, amplitude sizing techniques may not accurately indicate size or severity of the indications. Evaluation of all relevant indications will be made against the acceptance criteria given in API-1104.

4.5.53 REPORTING

The contracting parties should determine the pertinent items to be reported. This may include the following information:

a. Weld details including thickness dimensions, material, weld process and bevel shape. Descriptive sketches are usually recommended.
b. Scan surfaces and surface conditions.
c. Phased array ultrasonic instrument details.

d. Phased array probe details including, Number of elements, Frequency, Element pitch dimensions, Focus (identify plane, depth or sound path as applicable and if applicable), Wedge (velocity, incident angle, dimensions, reference dimensions to first element).
e. Virtual aperture use, that is, number of elements and element width,
f. Element numbers used for focal laws,
g. Angular range of S-scan,
h. Documentation on recommended wedge angular range from manufacturer,
i. Documented calibration, TCG and angle gain compensation,
j. Encoder(s),
k. Scanning mechanisms used,
l. Couplant,
m. Method of sensitivity standardization and details of correlating indications with flaws, Scan plan (indicating probe position on test piece, probe movement, angles used and volume coverage),
n. Mode of transmission (compression, shear, pulse-echo, tandem, through transmission),
o. Scanning results (flaw details such as length, position, height, amplitude, acceptability with respect to agreed specifications),
p. Operator name,
q. Date of examination.

4.5.54 TOFD ULTRASONIC SYSTEM

The TOFD ultrasonic system as per **ASTM, E-2373 & ASME-Sec-V & Mandatory Appendix-III** shall provide a means of transmitting, receiving, storing, displaying and analyzing ultrasonic signals. As well, it shall provide a fixed spacing between the transmitting and receiving probes and ensure that probe motion is encoded and its position maintained within prescribed tolerances with respect to a reference position such as weld centerline.
The instrument shall provide a linear A-Scan presentation for both setting up scan parameters and for signal analysis. Instrument linearity shall be such that the accuracy of indicated amplitude or time. The ultrasonic pulser may provide excitation voltage by tone burst, unipolar, or bipolar square wave. Pulse width shall be tunable to allow optimization of pulse amplitude and duration. The bandwidth of ultrasonic receiver shall be at least equal to that of nominal probe frequency and such that the -6dB bandwidth of the probe does not fall outside of the -6dB bandwidth of the receiver. Receiver gain control shall be available to adjust signal amplitude in increments of 1 dB or less.
Pre-amplifiers may be included in the system. Analog to digital conversion of waveforms shall have sampling rates at least four times that of nominal frequency of the probe. When digital signal processing is to be carried out on the raw data, this shall be increased to eight times the nominal frequency of the probe.

The data display shall allow for the viewing of the unrectified A-scan so as to position the start and length of a gate that determines the extent of the A-scan time-base that is recorded. Equipment shall permit storage of all gated A-scans to a magnetic or optical storage medium. Equipment shall provide a sectional view of the weld with a minimum of 64 gray scale levels. (Storage of just sectional images without the underlying A-scan RF waveforms is not acceptable.) Computer software for TOFD displays shall include algorithms to linearize cursors or the waveform time-base to permit depth and vertical extent estimations. In addition to storage of waveform data including amplitude and time-base details, the equipment shall also store positional information indicating the relative position of the waveform with respect to the adjacent waveform(s), i.e., encoded position.

Ultrasonic probes shall conform to the following minimum requirements:

- Two probes shall be used in a pitch-catch arrangement (TOFD pair).
- Each probe in the TOFD pair shall have the same nominal frequency.
- The TOFD pair shall have the same element dimensions.
- The pulse duration of the probe shall not exceed 2cycles as measured to the 20dB level below the peak response.
- Probes may be focused or unfocused. Unfocused probes are recommended for detection and focused probes are recommended for improved resolution for sizing.
- Probes may be single element or phased array.
- The nominal frequency shall be from 2 MHz to 15 MHz unless variables, such as production material grain structure, require the use of other frequencies to assure adequate penetration or better resolution.

TABLE 1 For Steel Thickness Ranges up to 75 mm [3 in.]

Nominal Wall Thickness mm [in.]	Nominal Frequency (MHz)	Element Size mm [in.]	Recommended Angles
<12 [0.375]	10 to 15	2 to 6 [0.08 to 0.25]	60 to 70°
12 to <35 [0.375 to 1.4]	5 to 10	2 to 6 [0.25 to 0.5]	50 to 70°
35 to <75 [1.4 to 3]	2 to 5	6 to 12 [0.25 to 0.5]	45 to 65°

TABLE 2 For Steel Thickness Ranges 75 mm [3 in.] to 300 mm [12 in.]

Wall Thickness Zone mm [in.]	Nominal Frequency (MHz)	Element Size mm [in.]	Nominal Angle
<35 [0 to 1.4]	5 to 10	2 to 6 [0.08 to 0.25]	50 to 70°
35 to <100 [1.4 to 4]	2 to 7.5	6 to 12 [0.25 to 0.5]	45 to 65°
100 to <300 [4 to 12]	2 to 7.5	6 to 12 [0.25 to 0.5]	45 to 65°

For accessing sensitivity, the general calibration requirement Calibrations shall include the complete ultrasonic system and shall be performed prior to use of the system in the thickness range under examination. For general calibration requirement ASME-Sec-V, Article-4, T-462 shall be followed.

The calibration blocks have specified reflectors (side-drilled holes, flat bottom holes, notches etc.) shall be used to confirm adequate sensitivity setting. For block curvature as per ASME-Sec-V, Mandatory Appendix-III, Clause-434.1.7 and calibration blocks as per ASME-Sec-V, Mandatory Appendix-III, Clause-434.2 shall also apply.

- **Materials with Diameters Greater Than 20 in. (500 mm)**

For examinations in materials where the examination surface diameter is greater than 20 in. (500 mm), a block of essentially the same curvature, or alternatively, a flat basic calibration block, may be used.

- **Materials with Diameters 20 in. (500 mm) and Less**

For examinations in materials where the examination surface diameter is equal to or less than 20 in. (500 mm), a curved block shall be used. Except where otherwise stated in this Article, a single curved basic calibration block may be used for examinations in the range of curvature from 0.9 to 1.5 times the basic calibration block diameter. For example, an 8 in. (200 mm) diameter block may be used to calibrate for examinations on surfaces in the range of curvature from 7.2 in. to 12 in. (180 mm to 300 mm) in diameter. The curvature range from 0.94 in. to 20 in. (24 mm to 500 mm) in diameter

requires six curved blocks as referred in Article-4, Figure T-434.1.7.2 for any thickness range.

4.5.55 BASIC CALIBRATION BLOCK

The basic calibration block configuration and reflectors shall comply specification given in ASME-Sec-V, Mandatory Appendix-III, Clause-434.2.1, Figure III-434.2.1(a) or Figure III-434.2.1(b). A minimum of two holes per zone.

4.5.56 BLOCK THICKNESS

The block thickness shall be at ±10% of the nominal thickness of the piece to be examined for thicknesses up to 4 in. (100 mm) or ± 0.4 in. (10 mm) for thicknesses over 4 in. (100 mm). Alternatively, a thicker block may be utilized provided the reference reflector size is based on the thickness to be examined and an adequate number of holes exist to comply with ASME-Sec-V, Article-4, T-434.2.1 requirements.

4.5.57 CALIBRATION

As per ASME-Sec-V, Mandatory Appendix-III, III-463.2 set the TOFD probes on the surface to be utilized for calibration and set the gain control so that the lateral wave amplitude is from 40% to 90% of the full screen height (FSH) and the noise (grass) level is less than 5% to 10% FSH. This is the reference sensitivity setting. For multiple zone examinations when the lateral wave is not displayed, or barely discernible, set the gain control based solely on the noise (grass) level.

For confirmation of sensitivity, Scan the calibration block's SDHs with them centered between the probes, at the reference sensitivity level set in III-463.2.
The SDH responses from the required zone shall be a minimum of 6 dB above the grain noise and shall be apparent in the resulting digitized grayscale display.

For multiple zone examinations a weld is broken up into multiple zones, repeat as per ASME-Sec-V, Mandatory Appendix-III, III-463.2 and III-463.3 for each TOFD probe pair. In addition, the nearest SDH in the adjoining zone(s) shall be detected.

For width of coverage confirmation two additional scans per ASME-Sec-V, Mandatory Appendix-III, III-463.3 shall be made with the probes offset to either side of the applicable zone's weld edge ±1/2 in. (13 mm). If all the required holes are not detected, two additional offset scans are required with the probes offset by the distance(s) identified as per ASME-Sec-V, Mandatory Appendix-III, and figure III-463.5 for an example.

For encoder confirmation a calibration check shall be performed at intervals not to exceed one month or prior to first use thereafter, made by moving the encoder along a minimum distance of 20 in. (500 mm) and the displayed distance being ±1% of the actual distance moved.

4.5.58 GENERAL EXAMINATION REQUIREMENTS

The volume to be scanned shall be examined with the TOFD probe pair centered on and transverse to the weld axis and then moving the probe pair parallel to and along the weld axis. If offset scans are required due to the width of the weld, repeat the initial scan with the probes offset to one side of the weld axis and again with the offset to the opposite side of the first offset scan. The minimum overlap between adjacent scans shall be 1 in. (25 mm). When a weld is broken down into multiple zones, repeat same for each weld zone.

4.5.59 RECORDING DATA (Gated Region)

The unrectified (RF waveform) A-scan signal shall be recorded. The A-scan gated region shall be set to start just prior to the lateral wave and, as a minimum, not end until all of the first back-wall signal with allowance for thickness and mismatch variations, is recorded. Useful data can be obtained from mode-converted signals; therefore, the

interval from the first back-wall to the mode-converted back-wall signal shall also be included in the data collected when required.

4.5.60 REFLECTORS TRANSVERSE TO THE WELD SEAM

An angle beam examination shall be performed in accordance with ASME-Sec-V, Article-4, T-472.1.3 for reflectors transverse to the weld axis unless the referencing Code Section specifies a TOFD examination. In these cases, position each TOFD probe pair essentially parallel to the weld axis and move the probe pair along and down the weld axis. If the weld reinforcement is not ground smooth, position the probes on the adjacent plate material as parallel to the weld axis as possible.

4.5.61 SUPPLEMENTAL I.D. AND O.D. NEAR SURFACE EXAMINATION

Due to the presence of the lateral wave and back-wall indication signals, flaws occurring in these zones may not be detected. Therefore, the I.D. and O.D. near surfaces within the area of interest shall be examined as per ASME-Sec-V, Article 4. This examination may be performed manually or mechanized; if mechanized, the data may be recorded in conjunction with the TOFD examination.

4.5.62 DATA SAMPLING SPACING

A maximum sample spacing of 0.040 in. (1 mm) shall be used between A-scans collected for thicknesses under 2 in. (50 mm) and a sample spacing of up to 0.080 in. (2 mm) may be used for thicknesses greater than 2 in. (50 mm).

4.5.63 FLAW SIZING AND INTERPRETATION

When height of flaw sizing is required, after the system is calibrated as per ASME-Sec-V, Article 4, Mandatory Appendix-III-463, a free run on the calibration shall be performed and the depth of the back-wall reflection calculated by the system shall be within 0.04 in. (1 mm) of the actual thickness. For multiple zone examinations where the back wall is not displayed or barely discernible, a side-drilled hole or other known depth reference reflector in the calibration block may be used. See ASME-Sec-V, non-mandatory Appendices L and N of the Article-4 for additional information on flaw sizing and interpretation. Final interpretation shall only be made after all display parameter adjustments (i.e., contrast, brightness, lateral and back wall removal and SAFT processing, etc.) have been completed.

4.5.64 EXAMINATION RECORD

For each examination, the required information as per ASME-Sec-V, Article-4, T-492 and III-492 shall be recorded as,

a. ultrasonic instrument identification (including manufacturer's serial number);
b. Search unit(s) identification (including manufacturer's serial number, frequency, and size);
c. Beam angle(s) used;
d. Couplant used, brand name or type;
e. Search unit cable(s) used, type and length;
f. Special equipment when used (search units, wedges, shoes, automatic scanning equipment, recording equipment, etc.);
g. Computerized program identification and revision when used;
h. Calibration block identification;
i. Simulation block(s) and electronic simulator(s) identification when used;
j. Instrument reference level gain and, if used, damping and reject setting(s);
k. Calibration data [including reference reflector(s), indication amplitude(s), and distance reading(s)];
l. Data correlating simulation block(s) and electronic simulator(s), when used, with initial calibration;
m. Identification and location of weld or volume scanned;

n. Surface(s) from which examination was conducted, including surface condition;
o. Map or record of reject-able indications detected or areas cleared;
p. Areas of restricted access or inaccessible welds. Items (a) through (l) may be included or attached in a separate calibration record provided the calibration record is included in the examination record.
q. Probe center spacing (PCS)
r. Data sampling spacing
s. Flaw height, if specified
t. The final display processing levels

4.5.65 REPORTS

A report of the examination shall be made. The report shall include those records indicated in ASME-Sec-V, Article-4 & Mandatory Appendix-III, T-491, T-492, and III-492 as mentioned above. The report shall be filed and maintained in accordance with tender requirement.

4.5.66 TYPE OF WELDING

All welding shall be carried out by the manual shielded electric arc process in such a manner so as to produce a weld stronger than the pipe itself.

4.5.67 MARKING OF WELDS

The COMPANY's construction group and NDT Company shall provide marking of welds so that the Work of each welder can be identified and welding inspector shall verify his identification number. Each welder shall mark the pipe adjacent to the weld with the figure assigned to him. In the event that any welder leaves the job his figure shall not be used by any other welder. Steel stamps will not be used.

4.5.68 WELDING DURING INCLEMENT WEATHER

Welding shall not be done when the quality of the completed weld may be impaired by prevailing weather conditions, including but not limited to air borne moisture, blowing sands, and dust or high winds. The Contractor Company / NDT Company and the COMPANY's Representative shall jointly decide if weather conditions are suitable for welding. Adequate protection to the welding Work shall be provided.

4.5.69 PROGRESS REQUIREMENTS

The Contractor Company / NDT Company shall perform all work under this specification in an orderly and expeditious manner while maintaining quality at all times. Reasonable time will be provided for the performance of this work, but at no time shall unnecessary delays due to equipment, supply or personnel problems be allowed. Radiographers shall co-ordinate their activities with other construction operations as required by COMPANY's Representative.

4.5.70 CONSTRUCTION GROUP's RIGHT

During the course of the Work the authorized representative of the COMPANY shall have the right to examine any radiograph and review its interpretation with the radiographer and, if he so elects, to make his own interpretation of the radiograph. The radiographer shall, at all times, respect this right, but shall not in any way change his interpretation.

4.5.71 CO-ORDINATION OF WORK

The Contractor Company / NDT Company shall be solely responsible for coordinating his inspection Work with construction activities. The welding inspector will notify the

COMPANY's construction group of the disposition of welds within 12 hours after inspection, consistent with maintaining the quality of the inspection function and assurance of the finished weld quality.

4.5.72 WELDING INSPECTION & NDT EQUIPMENT

The Contractor Company / NDT Company shall supply all equipment necessary to carry out welding procedure and welder qualification tests, also all equipment and materials, such as Ultrasonic equipment with all accessories, radiographic dark rooms, and accessories, equipment for non-destructive testing of welds, films, chemicals and isotopes required for the Work. Isotope shall be of minimum 30 curie strength so as to produce films of required quality without causing any delay in NDT of welding. Supply of RT equipment with accessories shall be in approved safe container and holding devices. Isotopes falling below the level of 30 curie will be removed from site and immediately replaced with isotope of more than 30 curie strength. No payment will be due to the Contractor Company / NDT Company for isotopes of less than 30 curie maintained at site. All materials shall be properly stored and kept in a good condition to the satisfaction of the COMPANY's Representative. All equipment and materials furnished by the Contractor Company / NDT Company shall have to be approved by the COMPANY's Representative and the rate per joint shall also include all costs associated with source renewal, Licenses, permits, etc. The tender shall include a complete schedule of the materials and equipment, The Contractor Company / NDT Company proposes to supply and shall show monthly unit rates as set out in the Schedule of Rates.

4.5.73 REPORTS & RECORDS

The Contractor Company / NDT Company shall submit to the COMPANY daily statements of all welds completed, together with records of numbers and results of radiographs taken, and details of all cut-outs and repairs carried out, each weld report being entered in Performa of weld test report attached hereto as Annexure-IV. The statements of repairs to pipe ends shall include the pipe serial numbers, the nature of the repair, length wasted, and any other information required to relate the damaged end with its condition when handed over to the custody of the construction Contractor. The Contractor Company / NDT Company shall also submit daily, weekly & monthly progress reports on a mutually agreed format and a final report at the completion of pipeline construction.

4.5.74 AUDIT / INSPECTION

Audit / inspection of work carried out by prospective Contractor Company / NDT Company against subject tender may took place during or after the execution of subject project by the Company nominated Third Party QA/QC Engineer / Inspector, COMPANY HSE&QA and P&D department representatives.

4.5.75 HEALTH & SAFETY COMPLIANCE

All PNRA Regulations and Guidelines for Health and safety, during exposure of radioactive isotopes along with COMPANY HSE manual (IMS attached) must be adopted in its complete spirit.

In case of non-compliance of PNRA regulations / Guidelines / COMPANY HSE manual (IMS attached), strict action would be taken by the COMPANY as per PNRA guidelines/ regulations.

4.5.76 NUMBER, QUALIFICATION & DUTIES OF PERSONNEL

4.5.76.1 NUMBER

The availability of following minimum number of personnel, equipment and vehicle shall be maintained by the Contractor Company / NDT Company at the site for subject project:

S.No.	Description	Qualification Required	Number
1.	**a)** Isotopes with minimum 30 curie.	Valid NOC, Decay chart & PNRA License.	04
	b) PAUT /TOFD Machines	Details of each Equipment / model / configuration.	
	c) Isotopes with minimum 30 Curie & PAUT/TOFD Machines	RT – Valid NOC, Decay chart & PNRA License. PAUT/TOFD – Detail of Equipment / model / configuration.	
2.	Project Manager (Minimum Experience: 07 Years in similar field)	B.E (Mechanical, Metallurgy, Materials, Mechatronics, Electronic, Industrial) & ASNT NDT Level II / III (RT/UT).	01
3.	Senior Welding Inspector (Minimum Experience: 07 Years in similar field)	BE/DAE (Mechanical, Metallurgy, Materials, Mechatronics, Industrial) & CSWIP 3.1 /3.2 or AWS-CWI, Level II (RT/UT). (Note: Cswip3.1 is mandatory for SWI, otherwise Zero credit marks will be given)	02
4.	QC Engineer (Minimum Experience: 05 Years in similar field)	(Mechanical / Pipeline) BE/DAE (Mechanical, Metallurgy, Material, Mechatronic, Electronics, Industrial) & ASNT-NDT-Level-II (RT/UT)	02
5.	Welding Inspector (Minimum Experience: 03 Years in similar field)	DAE (Mechanical, Metallurgy, Materials, Industrial) & CSWIP 3.1 / AWS-CWI. (Note: Cswip3.1 is mandatory for WI, otherwise Zero credit marks will be given)	08
6.	Radiographers (Minimum Experience: 03 Years in similar field) **.....OR.....** PAUT/TOFD Operators with Team (Minimum Experience: 05 Years in similar field) **.....OR.....** 02 Radiographers & 02 PAUT / TOFD Operator with Team	DAE (Mechanical, Metallurgy, Materials, Industrial) & Level II (RT). DAE (Mech, Metallurgy, Electronics, Industrial) & PAUT/TOFD-II. DAE (Mechanical, Metallurgy, Materials, Industrial) & Level II (RT) & DAE (Mech, Metallurgy, Electronics, Industrial) & PAUT/TOFD-II.	04
7.	Technical Assistant	Intermediate.	04
8.	Computer operator	Minimum intermediate & MS Office Proficient.	01
9.	Document Controller / Dossier Compiler	Minimum intermediate & MS Office Proficient.	02
10.	RPOs/UT site Coordinator	DAE (Mechanical, Metallurgy, Materials, Electronic, Industrial) & PNRA approved RPO / Level-II PAUT/TOFD	02
11.	Vehicles	4X4	03
12.	Office Accommodation	-	01
13.	Residential Accommodation	-	01
14.	Darkroom	-	01

The number of personnel and equipment should be increased by the Contractor Company / NDT Company depending on the workload or as per instructions of the COMPANY, the Contractor Company / NDT Company shall ensure the availability of

inspection teams and equipment's as per requirement at different working sites of construction.

4.5.76.2 QUALIFICATION

The Contractor Company / NDT Company personnel qualification and experience must be according to evaluation criteria listed in Section III of this tender documents.

I. The names, qualifications and experience of the personnel whom the Contractor Company / NDT Company propose to employ must be approved by the COMPANY in writing before mobilization. Any subsequent change in personnel must be agreed by the COMPANY in writing and shall be at the Contractor Company / NDT Company expense.

II. The Contractor Company / NDT Company shall provide supervision of the operations to the satisfaction of COMPANY's Representative.

III. The Contractor Company / NDT Company shall assign the direct responsibility of all radiographic work to certified radiographers in the field who are competent, experienced and careful in their work. At least one Level-II Radiographer shall be assigned to each radiographic unit.

IV. The Contractor Company / NDT Company shall be responsible for the quality of radiographs, shall make the official interpretation of all radiographs and shall be responsible for determining whether the weld meets the requirements of the applicable codes and specifications.

V. The assigned radiographers shall be responsible for the protection against radiation, exposure and monitoring of all personnel at or near the radiation areas. This protection and monitoring shall comply with applicable federal, provincial and local regulations.

VI. The Contractor Company / NDT Company shall supply evidence of each radiographer's certification and PAUT/TOFD operator's certification according to the requirements of ASNT-SNT-TC-1A, including the vision Examination, before inspection begins.

VII. Prior to the commencement of Work, each radiographer may be required to qualify the COMPANY"s radiographic qualification test.

VIII. COMPANY's Representative shall have the right to remove any employee of the Contractor Company / NDT Company when evidence proves such individual is not performing the work assigned to him in accordance with the specification. The Contractor Company / NDT Company shall replace any of his staff deputed on the job declared by the COMPANY to be persona non grata (Person not appreciated).

4.5.76.3 DUTIES OF PERSONNEL

I. Senior welding Inspector

Senior Welding Inspector shall be a fully qualified BE / DAE (Mechanical, Metallurgy, Materials, Mechatronics & Industrial) & CSWIP 3.1/3.2 or AWS-CWI, Level II (RT/UT) and experienced Inspector who has worked as a Senior Welding Inspector on high pressure gas transmission pipelines, refineries, petrochemical plants or gas handling facilities. He shall be responsible for all the activities of the Contractor Company / NDT Company personnel.

Senior welding Inspector shall also be responsible for weld procedure qualification tests, welder's qualification tests and issuance of certificates, allocation of inspection personnel, maintenance of supplies of equipment and consumables, ensuring adequate supervision, submission of reports and keeping adequate records of the Work.

The senior welding Inspector shall be responsible for the administration of the entire welding inspection contract and shall be as mobile as the construction program demands. He shall spend most of his time at the construction sites and shall not keep away from the sites without the specific permission from the COMPANY.

II. QA/QC Engineer (Mechanical /Pipeline)

QA/QC Engineer should be qualified BE / DAE (Mechanical, Metallurgy, Material, Mechatronic, Electronics and Industrial) & ASNT-NDT-Level-II. Responsibilities are manage the date-to-day working, utilization, implementation and technical consultants engaged on client assignments. Familiarity with quality, health and safety standards. Track and analyze project's performance and report about any possible or current blockers, risks, overflows, deficits. In-depth understanding of construction / welding / NDT procedures, material and project management principles. Based on provided scope and requirements translate them into tasks, schedule and assign tasks.

III. Welding Inspector

Welding Inspector should be qualified Min. DAE (Mechanical, Metallurgy, Materials and Industrial) & CSWIP 3.1 / AWS-CWI and experienced Inspector, who has worked as Welding Inspector on previous high pressure pipe Work. His duties shall include examination of pipe ends with particular reference to ovality, eccentricity, level, damages, and repair of defects; well ahead of welding operations.

He shall work closely with the welders and examine the preparation and deposition of root, stringer and hot pass beads as specified. He shall maintain all related records.

IV. Radiographer

Radiographer should be qualified DAE (Mechanical, Metallurgy, Materials and Industrial) & Level II (RT). Radiographer shall liaise closely with the welders and welding inspectors and shall radiograph, process and interpret the films of the specified butts on straight run Work and all butts on various locations.

He shall be responsible for the erection and maintenance of safety warning notices and barriers.

The Radiographer shall be responsible for the protection of personnel monitoring the Work near the radiation sources. This protection and monitoring shall comply with applicable state and local regulations.

V. PAUT / TOFD Operator with Team

PAUT / TOFD Operator should be qualified DAE (Mechanical, Metallurgy, Electronics and Industrial) & PAUT/TOFD Level- II from PCN, TWI or ASNT. PAUT/TOFD Operator shall liaise closely with the welders and welding inspectors and shall (PAUT/ TOFD) ultrasonic testing and interpret the ultrasonic results of the specified weld joints. He has a well knowledge team to help out him for the said job.

VI. Technical Assistant

Technical Assistant should be qualified Intermediate. Technical Assistant shall be able to produce line radiographs, process films and assist the INSPECTOR/Radiographer in his work. He shall Work under the directions of the Welding INSPECTOR.

VII. Computer Operator

Computer operator should be qualified intermediate and well proficient of MS office. Computer operator shall be able to prepare and finalize the NDT Reports, weld summary, NDT summary, weld map etc.

VIII. Document Controller

Document controller should be qualified intermediate and well proficient of MS office. Document controller shall be able to prepare and finalize daily Welding and NDT reports, preparation & compilation of project dossier as Per dossier index.

IX. RPO / UT Site Coordinator

RPO should be qualified DAE (Mechanical, Metallurgy, Electronics, Material, Industrial) along with PNRA approved RPO certificate and able to monitor the industrial radiography operations at project site by following safety procedure & protocol, transportation of RT source and trouble shooting in case of source damage. However UT site coordinator should be qualified DAE (Mechanical, Metallurgy, Electronics, Material and Industrial) & PAUT/TOFD Level- II from PCN, TWI or ASNT. He shall be able to coordinate UT teams at project site for execution of NDT work, daily equipment calibration, maintenance of PAUT/TOFD equipment, collection of PAUT/TOFD results and review to client.

4.6 PARTIES

The parties involved will be

1) Sui-Southern Gas Company Limited (The Company)
2) The NDT Inspection Firm

4.7 METHOD & PROCESS

The NDT inspection firm shall provide all the supervision and inspection services, personnel, transport and equipment required by company to test by visual, RT, PAUT/TOFD or DPT means selected by company the welding carried out by the company including certification of welding procedure and that of company's welders. The NDT inspection of the welding carried out by the company shall be done in accordance with the latest API-1104and ASME B31.3 standards.

The work shall be done in accordance with the company's program which advised to the NDT inspection firm from time to time which shall conduct its operation in such a

manner to provide adequate supervision and inspection of the welding operations of the company at all times.

4.8 REPORTING

The NDT firm shall submit to the company a daily site report (DSR)/ daily progress report (DPR) before commencement of work the next day of all welds completed, together with records of numbers and results of RT, PAUT/TOFD or DPT taken, details of cut-outs, repairs carried out to pipe ends and their interpretations reports. The statements of repairs to pipe ends shall include the pipe serial number, the nature of repair and any other information required, related to the damaged ends. The NDT inspection firm shall also submit monthly progress reports and a summary report at the completion of construction / project.

5 Special terms and conditions

5.1 STANDARDS

The Contractor Company / NDT Company shall provide all supervision and inspection services, personnel, transport and equipment for as set out in the Schedule of Rates to inspect and test by visual/radiograph of all welding activities of the pipeline and related SMS works carried out by the COMPANY's construction group and the certification of the construction group. The Work to be done by the COMPANY for which welding inspection supervision services visually/radiographic are required is detailed in Sub-clause 5.2 hereunder and shall be carried out to the required standards, equivalent or better than the following codes and/or specifications (latest editions).

5.2 SCOPE OF WORK

The detail scope of work as defined in section-IV & expected inspection of completion works for mainline, valve assemblies & tie-ins will be twelve (12) months period from the issuance of Letter to Proceed.

Contractor Company / NDT Company shall deploy at least 03 teams at project site with all resource and all required equipment's in order to complete the entire project within stipulated time (The work to be carried out with in winter / summer season mostly).

The inspection Work required to be carried out by The Contractor Company / NDT Company includes the following:

5.2.1 WELDING INSPECTION

Inspection of the pipeline and related installation welding Work shall include but not limited to:

5.2.1.1 The Contractor Company / NDT Company shall establish and submit standard procedures prior to start of work, in accordance with API Standard 1104, for;

1) The Welders qualification test.
2) Testing of weld quality
3) ITP (Inspection Test Plan) must be established to Quality Control activities.
4) Plan for ensuring safety during weld joint radiographic testing activity.

5.2.1.2 The Contactor Company / NDT Company shall check all pipe/fitting ends prior to welding for any damage and for correctness of bevel and root face.

5.2.1.3 The Contractor Company / NDT Company have to visually inspect the stringer bead, hot pass, filling and capping passes for soundness and quality of the weld during welding and after the weld has been completed, for all the Production welds, Crossings welds, Tie-ins welds, Valve Assemblies welds, SMS welds and Repair/ Cut out welds.

5.2.1.4 Visual examination record need to maintain on daily basis.

5.2.1.5 The Contractor Company / NDT Company shall radiograph welds to assess the quality of welds in conformity with API standard 1104 and ASME B 31.8 as per the quantities shown in schedule of Rates.

5.2.1.6 The Contractor Company / NDT Company shall check all marked welds are stress-relieved, wherever indicated on the drawings.

5.2.1.7 All welders must require valid welder qualification identification card to their identification.

5.2.1.8 Welders listed in a register of qualified welder's list which needs to include the process and limits of qualification.

5.2.1.9 The Contractor Company / NDT Company shall need to conduct a daily WPS parameters (Voltage, Ampere) check with calibrated Volt-Amp meter.

5.2.1.10 The Contractor Company / NDT Company shall check fitness of welding machines and calibrated gauges duly installed calibration sticker.

5.2.1.11 The Contractor Company / NDT Company shall ensure proper sand bags and proper wind protections required at pipeline.

5.2.1.12 The Contractor Company / NDT Company shall ensure consumables stored elevated from the floor in clean, dry & well organized manner.

5.2.2 VERIFICATION OF CONSTRUCTION GROUP'S REPORTS

The Contractor Company / NDT Company shall also verify all Work covered under Clause 4.5.73 as above, carried out by the construction group which will be recorded in daily, weekly & monthly Verification Reports.

5.3 PAYMENT

For the complete performance of the Work to the satisfaction of the COMPANY's Representative, the COMPANY shall pay to the Contractor Company / NDT Company on the following basis:

5.3.1 IDLE CHARGES

No idle charges are payable in any case of temporary construction work stoppage for any reason thereof by the construction team.

5.3.2 WORK STOPPAGE / SUSPENSION

The SSGC's construction department (P&C) may at any time and without cause suspend the Work on any/full pipeline portion thereof for any period. Contractor Company / NDT Company shall resume and co-ordinate for the inspection Work with P&C SSGC's construction department for resumption of WORK at site as required & coordinated with SSGC's construction department. The Contractor Company / NDT Company shall not be entitled to any mobilization/demobilization charges or payments during this period.

5.3.3 WELDER QUALIFICATION TEST

The Contractor Company / NDT Company shall specify in the Schedule of Rates units Welder Qualification Test at Site, including cost of all tests, production of inspection reports and issuance of certification cards to welders.

5.3.4 PROCEDURE QUALIFICATION TEST

The Contractor Company / NDT Company shall specify in the Schedule of Rates unit for Procedure Qualification Test at Site, including costs of NDT tests, production of test reports etc. Destructive testing will be carried out by Company.

5.3.5 PER WELD JONT RATE

The Contractor Company / NDT Company shall specify in the Schedule of Rates, unit rate per joint in accordance with scope of work including films, chemicals, etc., all applicable expenses for visual inspection/ RT / PAUT/TOFD inspection supervision required all the time during the welding and after the weld has been completed, for all the Production welds, Welder Qualification Test welds, procedure Qualification Test welds and Dye Penetration Tests.

5.3.6 DYE-PENETRATION TEST

The Contractor Company / NDT Company shall specify/include in the Schedule of Rates, unit rate of dye-penetration test including cost of dye-penetration consumable etc.

5.3.7 SUBSTITUTION/ ALTERNATE OF NDT METHOD:

The COMPANY reserves the right to substitute or supplement Radiography testing by Ultrasonic Testing (PAUT/TOFD) method and vice versa according to site requirements or to meet project timeline. In this case an advanced non- destructive method with latest model machine and certified personnel's, must be arranges by the Contractor Company / NDT Company accordingly.

5.3.8 UNIT RATES

All unit rates shall include all applicable expenses on account of:

5.3.8.1 Salaries/Wages

5.3.8.2 Over work on Sunday and gazette holidays.

5.3.8.3 Office Overheads

5.3.8.4 Gratuity, bonus, provident fund, insurance, dearness allowance, kit allowance etc.

5.3.8.5 Field Accommodation Including Office and Residential

5.3.8.6 Medical Expenses.

5.3.8.7 Messing and Food

5.3.8.8 Vehicles (with driver & POL) and residential.

5.3.8.9 Operation and maintenance

5.3.8.10 Isotopes

5.3.8.11 Personnel and Equipment Transportation to and from site.

5.3.8.12 Darkroom

5.3.8.13 Cost of films. All films shall be of good quality and of the type approved by the COMPANY. Standard size films of Kodak, Agfa, or Fuji shall be used.

5.3.8.14 The minimum number of personnel and equipment to be always available at site is defined in Section-IV, Clause 4.5.76.

5.3.8.15 All other expenses not included in the items listed above. The Contractor Company / NDT Company shall specify in the Schedule of Rates per weld joint for the Work that shall include applicable expenses on account of personnel to be employed for the Work, expenses on account of

overtime Work on Sunday and gazette holidays by staff, office overheads, clerical recruitment, gratuity, bonus, provident fund, insurance, dearness allowance, site/field accommodation, any other allowance and all other expenses not covered by the Contractor Company / NDT Company in replacing his personnel due to any reason other than authorized by the COMPANY in writing shall be borne by the Contractor Company / NDT Company.

5.3.8.16 All equipment shall be in good working condition, and all films shall be of good quality and of types approved by the COMPANY. Standard size films of Kodak, Agfa, or Fuji will be used for the Project. In case due to unavailability of standard size it is necessary to use film cut from the larger rolls of same standard, prior approval of the COMPANY would be obtained by the Contractor Company / NDT Company.

For billing purpose, all films of sizes more than 10"x4" and up to 15"x4" shall be considered.

5.3.9 PENALTIES

5.3.9.1 The COMPANY reserves the right to penalize the Contractor Company / NDT Company if the staff strength fails below the minimum number specified in Section-IV, clause 4.5.76 or personnel requirement as per the advice of site in-charge and not contributing to the project activities as per schedule. Deductions will be calculated as per the following formula, for each item defined below (1) to (10):

Percentage x No. of Week x Monthly Running Bills (Gross)

A part of a week shall be considered a whole week for the purpose of this Clause.

S.No.	Description	Percentage Deduction Per Week from Running Bill
1.	Senior welding Inspector	2.00
2.	Welding Inspector	2.00
3.	QA/QC Engineer	1.00
4.	Radiographer/ PAUT Operator	2.00
5.	Technical Assistant	1.00
6.	Office Accommodation	1.00
7.	Residential Accommodation	2.00
8.	Vehicles	2.00
9.	Darkroom	1.00
10.	Isotopes/PAUT Equipment	2.00

5.3.9.2 An Isotope below level of **30** curie (refer Clause 4.5.72, Section-IV) will be accounted as an Isotope not available at site, and payment shall be deducted accordingly.

5.3.9.3 Monthly attendance reports for the above personnel accommodation, darkroom, vehicles and Isotopes shall be submitted, duly verified by the COMPANY's representative with each bill submitted for respective segments.

5.3.9.4 All damages - to be recovered (terms of cost) in respect of delay/material/manpower & equipment from contractor in case of leakage found in joints that are inspected by RT / UT method.

5.3.9.5 RADIOGRAPHY

5.3.9.6 FILMS REPORTS SUBMISSION AND PENALTY

In the event of any delay in immediate submission of radiography films interpretation reports of field welds, and yard welds the penalty shall be imposed by deducting payment at the rate as calculated by the following formula:

15% x No. of Days x Monthly Running Bills (Gross)

A part of Day shall be considered a whole Day for the purpose of this Clause. No. of Delay shall mean days by which submission of radiography reports is delayed by the Inspector.

The Contractor Company / NDT Company shall maintain accurate and detailed record of progress of weld radiography films Interpretation Reports on daily basis verified by COMPANY's site representative Inspector showing total welds carried out during the day and total radiography films Interpretation Reports submitted, for submission with the monthly bill.

5.3.10 PROGRESS PAYMENTS

On the last day of each calendar month after the commencement of the Work the COMPANY shall, in consultation with the Contractor Company / NDT Company, make a proper computation of the Work carried out during the month under review. The bill for Work done in any calendar month shall be submitted to COMPANY not later than the end of the next succeeding calendar month as that can be verified. Failure on the part of the Contractor Company / NDT Company to submit bill for WORK performed within the time specified above shall constitute a waiver on the part of the Inspector of its right to payment thereof and on submission of reports and other documents in respect of progress of the WORK for welding inspection.

The COMPANY reserves the right to examine radiographic films submitted by Contractor Company / NDT Company or may assign any third party for quality assurance purpose and Contractor Company / NDT Company has to provide necessary arrangement for it. In case of dissatisfaction on any joint, COMPANY may reject that joint.

The COMPANY shall authorize a progress payment of the Contractor Company / NDT Company of the amount approved after PBG deducting. The amount so authorized shall be paid within **sixty (60) days** of receipt of the progress bill by the COMPANY.

5.3.11 COMPLETION PERIOD & PERFORMANCE BANK GUARANTEE

Work Completion time period: **Eight (08) months** from the issuance of Letter to Proceed.

The Performance Bank Guarantee (10%) of total bid amount shall be released after **(12) Twelve months** of issuance of satisfactory job completion certificate.

5.3.12 MOBILIZATION ADVANCE

No mobilization advance will be provided by the COMPANY to the Contractor Company / NDT Company.

5.4 MATERIAL, LABOR, TOOLS &EQUIPMENT TO BE PROVIDED BY THE CONTRACTOR COMPANY / NDT COMPANY

The Contractor Company / NDT Company shall furnish all material, labor, tools and equipment including transport necessary to complete the Work in accordance with the specification. All material and equipment furnished by the Contractor Company / NDT

Company shall be of a grade and type suitable for the environmental and climatic conditions under which the equipment will operate.

The Contractor Company/NDT Company shall obtain all necessary approval/NOC/Permits from the concerned authorities for the import of Isotopes etc. Decay charts of the isotopes proposed to be used for the job, and Import Permission will be provided to the COMPANY by the Contractor Company / NDT Company before starting the inspection Work. Dye-penetrants, if required, will be provided by the Contractor Company / NDT Company.

5.5 ADDITIONAL NDT SOURCE / EQUIPMENT REQUIRMENT

The Contractor Company / NDT Company shall perform NDT as per scope of work. However If at any stage Contractor Company / NDT Company lags in execution of job, the client at its discretion may advice Contactor Company to arrange extra source (RT / PAUT/TOFD) for meeting the set target of NDT scope timely.

5.6 PERFORMANCE OF WORK NOT COVERED / SPECIFIED IN THE CONTRACT DOCUMENTS

The Contractor Company / NDT Company shall not carry out any Work which is not covered/ specified in the contract documents. If the Contractor Company / NDT Company find it necessary to make any changes, prior approval from the COMPANY (P&D Head Office) shall be obtained to carry out that Work including its financial impact.

5.7 INVOICE SHALL BE BASED ON AS UNDER:

5.7.1 The invoice shall be submitted separately on joint basis for mainline with Daily welding reports and RT/ PAUT/TOFD reports which will be verified against weld map.

5.7.2 The invoice for valve assemblies shall be submitted separately.

5.7.3 The invoice for crossings/tie-in/cutouts shall be submitted separately.

5.7.4 The invoices for rework/repairs shall be submitted separately.

Note: If any urgency/ emergency of work take place other than scope of subject tender then contractor of subject job is bound to carry out the radiography / ultrasonic testing of required job on client request and their invoice will be process / adjusted as per rates specified in Section-VI (Schedules of rates) accordingly.

3.2 EVALUATION OF APPLICATION FOR QUALIFICATION

1) The firm desiring to be qualified must have suitable equipment for NDT and qualified, experienced manpower to handle such type of welding inspection and industrial NDT (RT / PAUT-TOFD / DPT) project of high pressure pipeline.

2) Application with qualification questionnaire including experience, financial capacity and technical capability of each applicant will be compared with a predetermined set of minimum values. In order to qualified, the firm / applicant must obtain at least the minimum value for each category during the process of evaluation.

The decision of SSGC to accept or reject any application firm for technical qualification will be final.

3.2 EVALUATION CRITERIA FOR FIRM SELECTION

A. Mandatory Requirement:

Bidder has to submit all following mandatory required documents with the bid in order to evaluate technically. In case of non-compliance of bidder to fulfill any mandatory requirement, bid would not be further evaluated technically.

S.No.	Description
1	Valid copy of PNRA License required for offering the industrial radiography using radioactive sources only, except PAUT / TOFD (UT) arrangement.
2	a) **03 Nos.** Isotope with minimum **30 curie** /Delta 880 Projector or equivalent along with Import NOC with Decay chart for Isotopes/880 Projectors. **OR** b) **03 Nos.** Ultrasonic testing machine (PAUT / TOFD + Pulse Echo) advance techniques to examine welding flaws along with their documents and calibration block of international standard i.e. IIW / AWS / ASTM to calibrate equipment as per requirement. Bidder must provide the detail of PAUT / TOFD equipment detail / model / configuration. **OR** c) **01 Nos.** Isotope with minimum **30 curie** /Delta 880 Projector or equivalent along with Import NOC with Decay chart for Isotopes/880 Projectors and **02 Nos.** Ultrasonic testing machine (PAUT / TOFD + Pulse Echo) advance techniques to examine welding flaws along with their documents and calibration block of international standard i.e. IIW / AWS / ASTM to calibrate equipment as per requirement. Bidder must provide the detail of PAUT / TOFD equipment detail / model / configuration.
Contractor may arrange either Own Equipment or Joint venture/ Sublet through any experienced NDT firm having latest NDT (PAUT / TOFD /RT) equipment for the job or any NDT firm may JV with any FIRM having oil & gas sector experience. JV document must be submitted with bid & also mentioning the leading partner & responsibilities for each.	
3	Relevant (similar type) experience of Third Party Welding Inspection services on 8" to 16" dia of process piping / power piping / transmission pipeline construction projects in past Five (05) years as per ASME Sec. IX and API 1104 along with project completion certificate issued by client.
4	Valid ISO certificates. Quality Control Certificate; ISO 9001:2015. Environment Management Certificate; ISO 14001:2015 Occupational Health and Safety Certificate, ISO 18001/ISO45001.
5	The firm must submit income tax return for the last FY 2024-2025 and copy of NTN registration certificate.
6	GST / SST Registration should be enclosed (where as applicable according to province sale tax).
7	Declaration by firm of non-involvement in litigation/arbitration/black listed by any Government Organization, state-owned corporation, Autonomous Body and/or International Financial Institute (Certificate to this effect on Rs.100/= non-judicial stamp paper).

Note: It is Company's (SSGC) discretion that which NDT Method (RT/ PAUT / TOFD) to be utilized during project execution as per special term & condition of Sec-V, Clause-5.3.7 & 5.5 of this Tender.

SSGC

B. Technical Requirement:

S.No	CRITERIA	QUANTITY	MARKS ASSIGNED	MAX MARKS
1	**Past Performance (Firm Experience)** Relevant (similar type) experience of Third Party Inspection of **8" – 16" Dia** and above of process piping / pipeline construction projects in past Five (05) years as per ASME Sec. IX and API 1104 and attached **Form-III.**			
A	16" dia and above. Projects in hand or completed	3	3	9
B	8" dia and above Projects in hand or completed	3	3	9
C	Valid Pakistan Engineering Council (PEC) Registration	1	2	2
2	**Man Power** Provide supported academic Documents, experience certificates and company card copy for all Employees required below. **All professional certificates must be submitted as per offered NDT method.**			
A	Project Manager Experience: Minimum 07 years. Qualification: BE (Mechanical, Metallurgy, Materials, Mechatronics, Electronics, Industrial). Certification: ASNT NDT Level II/III (RT/UT).	1	3	3
B	Senior Welding Inspector Experience: Minimum 07years. Qualification: BE/DAE (Mechanical, Metallurgy, Materials, Mechatronics, Industrial). Certification: CSWIP 3.1/3.2 or AWS-CWI, NDT Level II (RT/UT) (Note: Cswip3.1 is mandatory for SWI, otherwise Zero credit marks will be given)	2	4	8
C	QC Engineer (Mechanical / Pipeline) Experience: 05 Years in Projects. Qualification: BE/DAE (Mechanical, Metallurgy, Material, Mechatronics, Electronics, Industrial). Certification: ASNT-NDT-Level-II (RT/UT).	2	4	8
D	Welding Inspector Experience: Minimum 03years. Qualification: DAE (Mechanical, Metallurgy, Materials, Industrial). Certification: CSWIP 3.1 / AWS-CWI. (Note: Cswip3.1 is mandatory for WI, otherwise Zero credit marks will be given)	6	3	18
E	**Radiographer** Experience: Minimum 03years. Qualification: DAE (Mech, Metallurgy, Materials, Industrial). Certification: NDT Level II (RT). **....OR....** **PAUT / TOFD Operator with team** Experience: Minimum 05 Years Qualification: DAE (Mech, Metallurgy, Electronics, Industrial). Certification: PAUT/TOFD- II. **....OR....** **Radiographer & PAUT / TOFD Operator with team** • Experience: Minimum 03years for RT. Qualification: DAE (Mech, Metallurgy, Materials, Industrial). Certification: NDT Level II (RT). • Experience: Minimum 05 Years. Qualification: DAE (Mech, Metallurgy, Electronics, Industrial). Certification: PAUT/TOFD- II.	3 03 UT TEAMS 01 RADIOGRAPHER + 02 UT TEAM	2 2 2	6
F	Technical Assistant Qualification: Intermediate	4	1	4
G	Computer Operator Qualification: Intermediate & MS Office Proficient	1	1	1
H	Document Controller/ Dossier Compiler. Qualification: Intermediate & MS Office Proficient	2	1	2
I	**RPOs / UT SITE COODINATOR** Experience: Minimum 03years Qualification: DAE (Mech, Metallurgy, Electronics, Material, Industrial). Certification: PNRA approved RPO / PAUT/TOFD- II	2	1	2

4	**No. of Equipment/ Instruments other than Isotopes** Company owned Equipment with purchase invoices and calibration certificates must also be submitted for below required equipment.

S.NO	EQUIPMENT DESCRIPTION	RT	UT	RT / UT	QUANTITY	MARKS ASSIGNED	MAX MARKS
A	Magnifying glass	√	√	√	8	0.25	2
B	Welding gauge (multi-purpose)	√	√	√	8	0.25	2
C	Handheld flashlights	√	√	√	8	0.25	2
D	Digital Thickness meter	√	√	√	2	0.5	1
E	Micrometer	√	√	√	2	0.5	1
F	Vernier caliper	√	√	√	2	0.5	1
G	Circometer tape	√	√	√	4	0.5	2
H	Digital thermometer	√	√	√	2	0.5	1
I	Dosimeter / USB data Transfer	√	√	√	4	0.5	2
J	Radiation survey meter / UT Crawler	√	√	√	2	1	2
K	Film viewer / Laptop for review of UT reports	√	√	√	2	1	2
L	Densitometer / Standard Calibration Blocks of UT	√	√	√	2	1	2
	TOTAL						**100**

Note:

- Bidder has to obtain 70% overall marks, in order to qualify firm technically.
- Updated formats will be provided after job awarded / during the kick-off meeting.
- The quantity in equipment table specify maximum for single method and each in case of more than one method and marks to be assigned based on description accordingly.

FORM-I

APPLICATION FORM
LETTER OF APPLICATION

Hiring Services of Third-Party Firm for Welding Inspection and NDT (RT / PAUT-TOFD / DPT)

Registered Business Name: _____
Registered Business Address: _____
Telephone: _____
Fax: _____
E-mail: _____
Sir,

1) We hereby apply to Sui Southern Gas Company limited as a Contractor Company / NDT Company for carrying out the different dia inches from ½" to 24" dia pipeline / above ground piping system welding inspection and industrial RT / PAUT-TOFD / DPT of Laying And Integration Of 8" Dia X 7km Pipeline From Pod Sujawal To Nearest Point Of Existing 8" Dia X 28 Km Ayesha Pod Spurline.

2) We authorize SSGC or its authorized representative to conduct any investigation to verify the statements, documents and information submitted and to clarify the financial and technical aspects of this application from any person, bank, department, agency or firm.

3) The names and positions of contact persons who may be contacted for further information, if required, are as follows:

   a. _____

   b. _____

   c. _____

   We declare that;

   The statements made on company letter head duly signed and stamped by authorized person confirming that the information provided in the application is complete, true & correct in every aspect.

   The firm has never been blacklisted by any Government department, Semi Government Authority or Private Company or Corporation and not involved in litigation/arbitration with any client. (Certificate to this effect on Rs. 100 non-judicial stamp paper to be provided).

Respectfully,
(Authorized representative of applicant)

Dated: _____

FORM-II

GENERAL INFORMATION

Company Name (Lead Partner, if association): _____

_____

1) Office address: _____

   Telephone No._____

   Fax No. _____

   E-mail: _____

2) Description of firm (Ownership / Organization)

   Attach copy of all certificates of registration: _____

3) Experience (Number of Years) : _____

   - Local / National: _____
   - International: _____

4) Name (s) and Address (s) of Associates'; If a JV; their short Description and describe of their role in the JV/ Association: _____ (With attachment)_____

5) Organization Chart showing Contractor's firm Strength: _____To be attached_____

6) Additional Information : _____

7) Years of Incorporated : _____

Note: All the information provided shall be supported with documentary evidence duly signed & stamped, otherwise no credit/points will be given.

SSGC

FORM-III

DETAILS OF SIMILAR WORKS OF LAST FIVE (05) YEARS (ONGOING/COMPLTED)

Name of Work: _____
(With Location /Country)
Scope & Details of work: _____
Project Value: _____
(Pak Rupees / Dollars)
Name of Client: _____
Address of Client: _____
Telephone No, Fax No.:_____
E-Mail and Web site of Client: _____
_____
Date of award of work: _____
Start date: _____
Completion date: _____

Note:

1. All the information provided shall be supported with documentary evidence such as Work Order and Completion Certificate with detailed scope of work in respect of projects completed and letter of Intent/signed Contract Documents for on-going projects etc. Projects without client's completion certificate may not be considered in evaluation for firm qualification.
2. Fill one form for each work / project.
3. All the information provided shall be supported with documentary evidence duly signed & stamped, otherwise no credit/points will be given.

SUI SOUTHERN GAS COMPANY SSGC

FORM-IV

DETAILS OF PERMANENT KEY STAFF WITH THE FIRM FOR HIRING SERVICES OF WELDING INSPECTION AND INDUSTRIAL NDT (RT/ PAUT-TOFD /DPT)

Name	Designation	Education/ Qualification (as per criteria)	Years of Experience	Type of Experience

Notes:

1. All the information provided shall be supported with documentary evidence duly signed & stamped, otherwise no credit/points will be given.
2. The firm listed technical personnel / Labor / Manpower as above shall be deployed during the execution of each project; if their firm successfully qualified.
3. An undertaking will be provided by bidder that all the team members with relevant experience against the above position as per mentioned in evaluation criteria will be available till the completion of project. Otherwise no credit mark will be given.
4. An affidavit on stamp paper of Rs. 100/= stating that the copies of certificates attached of key Professional / staff are genuine and will be responsible for any discrepancies arising later on.
5. Please fill one form for each expert as above. Additional experience information may be attached with form.
6. Bidder must submit an evidence for experiences of Welding Engineer/ Technician/ Contractors for utilizing of NDT (RT/ PAUT-TOFD /DPT) and Auto/Semi-Auto Mechanized Unit of PAUT-TOFD for pipeline section welding.

SSGC

FORM-V

DETAILS OF PROJECT EQUIPMENTS/ INSTRUMENTS/ GUAGES FOR NDT (RT / PAUT-TOFD / DPT)

S.No.	Description	Quantity (Nos.)	Manufacturing Date	Calibration Date	Condition
1.					
2.					
3.					
4.					
5.					
6.					

Note:

1. Details of relevant machinery equipment / tools to be deployed for carrying out the Welding Inspection and Industrial NDT (RT/ PAUT-TOFD /DPT) shall be submitted, i.e.; make / model / source of purchase along with documentary evidence.
2. The offered equipment/tools will be deployed for undertaking each project if successfully qualified.
3. Contractor/Firm should submit the valid (till end of next coming year) third party calibration certificates of all offered equipment/ instruments listed as above. Without valid calibration certificates (where applicable), no marks will be awarded.
4. All the information provided shall be supported with documentary evidence duly signed & stamped, otherwise no credit points will be given.

SSGC

FORM-VI

FINANCIAL DATA

Firm applying shall submit the following certificates/ registration /statements.

A. Bankers certificate

A confidential current Banker's reference / certificate in respect of bidder's financial soundness to be submitted directly by the banker's to SSGC in a sealed envelope.

B. Firm's Certified / Audited Annual Accounts for the last year.

SSGC

SECTION – VII.

SCHEDULE OF PIPE & ANNEXURES

SCHEDULE OF PIPE

Annexure-I

SCHEDULE OF PIPE TO BE WELDED

S.No.	Outer Diameter/ Nominal Diameter(Inches)	Wall Thickness (Inches)	Specification	Material Grade
1	24"	0.469"	API 5L (PSL-2)	X 70
2	18"	0.406"	API 5L (PSL-2)	X 60
3	8"	0.188"	API 5L (PSL-2)	X 60
4	12"	0.500"	API 5L	B
5	4"	0.337"	API 5L	B
6	2"	0.218"	API 5L	B
7	1"	0.179"	API 5L	B
8	½"	0.147"	API 5L	B

Annexure-II

WELDING PROCEDURE SPECIFICATION FORMAT

Job No:	Project Name:	Inspection Firm:
Welding Process: ☐ Manual Shielded ☐ Semi-Automatic ☐Automatic ☐ Gas Metal Arc ☐ Metal Arc/Other		
Material Description :		
Diameter : Less than ☐ Outer Diameter	Over ☐ Outer Diameter	
Wall Thickness: Less than ☐ Wall Thickness	Through Over	
Filler Metal Group:		
Shielding Gas Type: ☐Flow Rate: ☐CFH, Flux: ☐Type: ☐Size: ☐Range:		
Position: Roll ☐ Fixed ☐		
Preheat:		
Post Heat:		
Joint Design: V Bevel ☐ Other ☐		

NOTE: *Number and Sketch in the location of each Weld Bead.*

Bead No.	Electrode Size |AWS| Designation	Voltage Range	Current Ampere Range	Polarity AC/DC| STR| REV	Welding Direction DH	UH	Travel Speed Range Imp.

Time lapse: Root Bead to 2nd Bead ☐ Minimum 2nd Bead to Succeeding Bids
Line-Up Clamp: Internal: ☐ External: ☐
Line-Up Clamp Removal after minimum of 50%, 100% (Specify %) ☐of Root Bead Welding
Cleaning: Power Tools ☐ Hand Tools ☐

Weld Test Report (WQT)

Welding Procedure No. : Date:		Test/Report:		
Welder's Name:		Welder's I.D. No:		Mark:
Contractor:	Job No.:			Project Name:
Welding Process:				
Pipe Material:	Type:	Outer Diameter:	Wall:	Minimum Tensile:
Welding Machine:	Type:			Size:
Filler Metal:	Group:	Manufacturer:		Trade Name:
Joint Design:	V Bevel of		Other (Describe):	
Position: Roll	☐Fixed ☐	Horizontal (2G) ☐	Vertical (5G) ☐	
Direction : Uphill☐		Downhill ☐		
Shielding: Gas ☐		Flux ☐	Describe	Flow Rate:
Time Lapse:	Root Bead to 2nd Bead		Speed of Travel	
Preheat:		Post Heat:		
Bead No.:	1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7☐ To ☐			
Electrode Diameter: Electrodes Consumed Root Pass: Hot Pass: Filling: Capping: AWS Designation: Voltage Amperage:				

Annexure-III

TENSILE STRENGTH TEST

Test Specimen	Failure Pipe Weld	Specified Width	Specimen Thickness	Specified Area	Pounds Pull	Tensile Strengt

BEND TEST AND NICK BREAK TEST

Specimen No.	Results	Specimen No.	Results	Specimen No.	Results	Specimen No.	Result s

Procedure Qualification: Welder Qualification: Production Weld Test

Destructively Tested: ☐ Examined by Radiography: ☐

Qualified: ☐ Disqualified: ☐

Qualification Diameter: Less than OD, OD, OD, Greater than OD

Limitations for this Test Wall Thickness: Less than WT, WT, Greater than WT

We certify that the statements in this record are correct and that the test welds are prepared, welded and tested in accordance with the requirements of API 1104 latest approved edition.

Third Party Welding Inspector		**QA/QC Inspector/ SSGC Engineer**	
Signature & Stamp:		Signature & Stamp:	
Name		Name	
Designation		Designation	
Date		Date	

Annexure-IV

RADIOGRAPHIC INSPECTION REPORT

INSPECTION FIRM: _____

INSPECTION REPORT NO:		DATED :
W.O. NO. WITH DATE:		RADIOGRAPH NO :
PROJECT NO:		MANUFACTURER:
JOB DESCRIPTION:		DRAWING NO :
MATERIAL		PROCEDURE NO:
WELD NO:	FROM:	WELD GROOVE DESIGN:
WALL THICKNESS:		OUTER DIAMETER:
EXTENT OF RADIOGRAPHY:		APPLICABLE CODE:
WELDING PROCESS:		WELDING POSITION
WELDER'S NAME:		
PLACE OF INSPECTION:		WELD CLASS:

RADIOGRAPHIC TECHNIQUE

GEOMETRIC ARRANGEMENT:	
RADIATION SOURCE:	
FILM TYPE:	FILM SIZE :
KV:	EXPOSURE:
Sfd:	Ofd:
DENSITY:	IQI TYPE:
SENSITIVITY REQUIRED:	SENSITIVITY ACHIEVED:

Inspector

Senior Welding Inspector

Annexure-IV

RADIOGRAPHIC INSPECTION REPORT

Inspection Firm: _____

Inspection Report No._____ Dated_____

Radiography No._____

Interpretation / Remarks

Radiograph No./Area of Interest	Nature of Defect	Location	Evaluation

Inspection/Radiographer (Level – II)	Senior Welding Inspector (Level-III)	Head (Project Manager)
Date:	Date:	Date:

Annexure-V

DAILY WELDING INSPECTION SITE REPORT

Ref:	Date
3rd Party Inspection Firm:	

MAIN LINE:

Detail of Joints Welded:

From Chainage	To Chainage	Section #	Joints(Nos)	Length (Mtr)

		TODAY	TO DATE
2.	MAIN LINE Joints Welded (No)		
3.	Length of Pipe Welded (Mtr)		
4.	Radiography:		
	no. of joints radiographed		
	no of repairs		
	no of cutouts		
	rectified & radiographed repairs / cutouts		
5.	TIE-IN / Crossings:		
	no of joints welded		
	visual inspection		
	no of joints radiographed		
	no of repairs		
	rectified & radiographed repair		
6.	FABRICATION:		
	no of joints welded		
	DIA of joints welded		
	no. of joints radiographed		
	no of repairs		
	rectified & radiographed repair		
	visual inspection		
	Reference Drawing		
	Fittings Detail (Grade, Type etc)		
7.	OTHER DETAILS:		
	Film Used		
	Film in Stock		
	Strength of Isotope		
	No of Isotope		

REMARKS: _____

Welding Inspector / RADIOGRAPHER:

_____

QA Manager: _____

Annexure-VI

VISUAL INSPECTION OF MAINLINE, VALVE ASSEMBLIES, CROSSINGS, TIE-INS & REPAIRS

segment#:	Section #	Date
Chainage From	Chainage To	
Electrode Brand: AWS	Welding Position: DH /UH	
Pipe Diameter:	Wall Thickness:	

WELD #	Welder's Name For Each Pass							Visual Inspection	Remarks
	Root Pass	Hot Pass	1st filling	2nd filling	3rd filling	4th filling	Capping		

Welding inspector: _____

Q.A/ Q.C Manager: _____

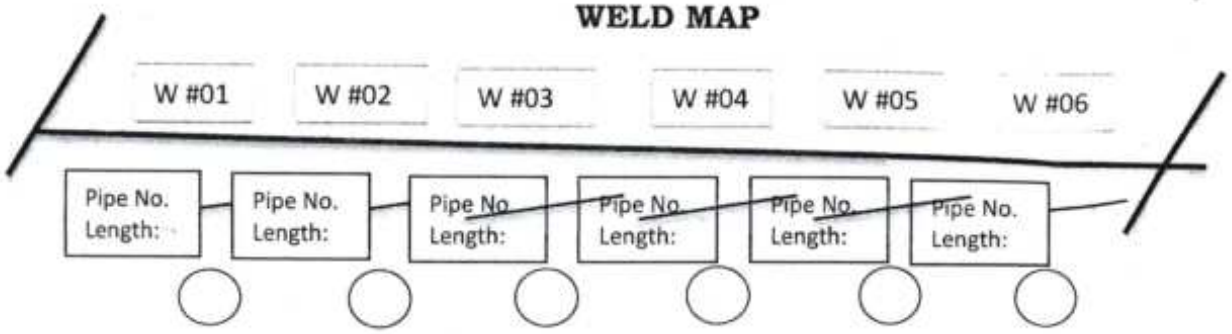
Annexure-VII

RADIOGRAPHIC REPAIR & RECTIFICATION

Ref:					**Date:**				
Segment:					**Sub- Section:**				
S #	Date	Section	Weld #	Report #	Defect (from - to)	Type of Defect	Date Rectified	Report #	Sign

Welding Inspector / Radiographer: _____

Annexure-VIII
WELD MAP



V.T					
Date					
Status					
Reasons Rejection					
R.T					
Date					
Status					
Reasons Rejection					
R.T Repairs					
Date					
Status					
Reasons Rejection					

Prepared By	**Checked & Verified**	**Summary**
QA/QC	**Third Party & Contractor**	Total Pipes:
Name:	Name:	Total Length:
Designation:	Designation:	Total VT Joints:
Date:	Date:	Total RT Joints:
Signature:	Signature:	Total Repair Joints:

Annexure-IX

DAILY WELDING JOINTS VISUAL INSPECTION MONITORING SHEET

Project:		**Date:**	
Section:	**Pipe Wall Thickness:**	R: Right side (in the direction of workflow) L: Left Side	
		Weld Direction:	Up / Down
		Weld Pass	**Specs / Size** / **Brand**
		r :Route Pass	E- ----/
		H: Hot pass	E-
Segment:	**Pipe Grade:**	F: Filling Pass #	E-
		C: Capping	E-

Weld No.	**Welder Identification**				**Results Ok / Repair**		**Test Type (NDT/ Visual)**	**Remarks**
---	rL	11	rR	21	Ok	Ok	Visual /Radiography	Inadequate penetration at location 35 mm to 55 mm
	HL	43	HR	19	Ok	Ok		
	F1 L	17	F1 R	6	Ok	Ok		
	F2 L	10	F2 R	62	Ok	Ok		
	CL	1	CR	15	Ok	Rep		

Weld No.	**Welder Identification**				**Results OK / Repair**		**Test Type (NDT/Visual)**	**Remarks**
	rL		rR					
	HL		HR					
	F1 L		F1 R					
	F2 L		F2 R					
	CL		CR					

Site Engineer

Welding Inspector

Annexure-X

Welders Performance Data

Project Name:			Project Location:		
Construction Contractor:			Report Period:		
Welder Identification No.	Monthly Joint	Accepted Joints	Repair Joints	Repair %	Remarks

Third Party Welding Inspector		**QA/QC Inspector/ SSGC Engineer**	
Signature & Stamp:		Signature & Stamp:	
Name		Name	
Designation		Designation	
Date		Date	

Annexure-XI

INVOICEWISE WELDING INSPECTION DATA

Location:	Date:
Electrode Brand:	Welding Position: DH /UH
Electrode Sizes: (mm)	
Pipe Diameter:	No of Joints:

	Activities	Quantity
A.	Valve Assembly Joints Inspection (visual/radiography)	
1.	no. of joints visually inspected	
2.	no. of joints radiographed	
3.	no of repairs joints radiographed	
B.	Types of Defects (visual inspection):	
C.	Causes of Defects (visual inspection):	
D.	Remedial action (visual inspection):	
E.	Types of Defects (radiographic inspection):	
F.	Causes of Defects (radiographic inspection):	
F.	Remedial action (radiographic inspection):	

Section - IV

Special Conditions of Tender Document

Tender Enquiry No. SSGC/SC/

Note: In case of any conflict between special conditions of Tender Document and any other terms & conditions, the Special Conditions of Tender Document will govern / prevail.

1- Contractor to submit the following within 15 days after issuance of Letter of Intent (LOI).
   a. Performance Bank Guarantee
   b. Stamp Papers
   c. Insurance Policy
   d. Any other Document as mentioned in the LOI

2- Formal contract will be made on Non-Judicial stamp paper of value @ Rs 0.35 per hundred rupees of contract value, as per prevailing rate by Government of Sindh & Balochistan. The stamp duty will be borne by the contractor and also submit the copy of challan of stamp paper. **Further as per Government of Sindh Board of Revenue notification NO.CIS/SWB/BOR/R&T-17/2022-808 dated 08-06-2022 all judicial and non-judicial stamp paper of the denomination of rupee five hundred and above shall be exclusively on e-stamp.**

3- All kinds of Government Taxes, Duties and Levies against any item of the contract, shall entirely be the responsibility of the Contractor. Income Tax will be deducted as per applicable Law under the prevailing Government Rules. Rate of Income Tax deduction in relation to submission of Income Tax certificate from the Contractor should also be stipulated.

4- Bank Guarantee (Bid Bond Guarantee/Performance Bank Guarantee) will be made on Non-Judicial stamp paper at the prevailing rate as specified by the respective Provinces. Further the bidder/contractor submitting the Bid Bond guarantee/Performance Bank guarantee being prepared by the State Bank's schedule banks should ensure that there should be no deletion/insertion/alteration/modification of any terms in the Bid Bond/PBG guarantee format as given in the tender document or else bid will be liable for rejection.

5- If the letter to proceed (LTP)by user deptt. is not issued within six months after issuance of letter of intent (LOI), both the parties are at liberty to terminate/revoke the LOI without any claim of loss or damage to the other party.

6- The completion period of the said work shall start with effect from the issuance of Letter to Proceed, which in case of work exigencies could be issued prior to signing of formal agreement.

7- In case of services and works tenders:
Bids determined to be substantially responsive will be checked by the Procuring Agency for an arithmetic error. Errors will be corrected by the Procuring Agency as follows;

   a. Where there is a discrepancy between the amounts in figures and in words, the amount in words will govern ; and

   b. Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rates as quoted will govern, unless in the opinion of the Procuring Agency there is an obviously gross misplacement of the decimal point in the unit rate, in which case the line item total as quoted will govern and the unit rate will be corrected.

8- The bidder shall fill in rates and prices for all items of the works / services described in the BOQ. Item against which no rate or price is entered by a bidder will not be paid for by the Procuring Agency when executed and shall be deemed covered by rates and prices for other items in the BOQ. **Any Bidder who change / amend the BOQ or Price Schedule (description, Quantity, UOM etc.) will render the bid as conditional bid and will be liable for rejection.**

9- **Method For Submission of Bid Bond (Under Single Stage Two Envelope Bidding Procedure):**
In case of Single Stage Two Envelope Tenders the fixed bid bond as per clause#09 of General Terms & Conditions to be placed in the Technical Proposal. However, if the bid bond is placed in the financial proposal will also be considered. Without submission of bid bond (either in Technical proposal or financial proposal) the bid will be rejected.

10- Bid bond submission (2%) of the bid amount as mentioned in the clause 9 of General Terms & Conditions, to be treated as null & void, however other contents of clause 9 will remain unchanged. The submission of fixed amount of Bid security is appearing in the Schedule of Requirement/Bid Form.

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a) All the bidders are advised to furnish fixed bid security (Original Instrument) as per amount appearing in Schedule of Requirement/Bid Form, failing which their bid will be rejected.
b) The submission of fixed amount of bid security is also mandatory for all the bids valuing Rs.500,000/- or less.
c) The word lowest bidder or the lowest evaluated bid has been substituted to read as **most advantageous bid.**

11- Bid shall remain valid for acceptance for period of (120) days from the date of public opening of the bids & Bid Bond validity is for 150 days.

12- In case the local agent requires to offer bid form more than one Principal / Manufacturer, it is mandatory to purchase separate tender document for each Principal / Manufacturer, failing which the bid submitted with the original tender document will only be accepted and the bid with photocopy of tender document will be rejected.

13- ***Blacklisting Mechanism of Suppliers and Contractors and their Local Agent:***
Black listing mechanism is attached separately in the tender documents which will become an integral part of Tender Documents and now be followed / enforced in true letter & sprit and **supersede the Black listing terms as mentioned in the General Terms & Conditions.**

14- Original counter slip of token which is issued with tender document to be attached on the TOP of envelope at the time of bid submission"

15- The **Successful** Contractor(s) / Supplier(s) / Consultant(s) shall submit a copy of Professional Tax Certificate with their Invoices / Bills failing which the payment will not be released.

16- ***Contracts of Contractors***
In the event the contractor is not willing to extend the CONTRACT for further term(s) / Period(s) under the same terms & conditions and the quoted price as defined in the bid documents, the contractor is liable to intimate in writing to SSGC at-least 3 (Three) months in advance prior to completion of the existing contract term / period, failing which, action will be taken as per tender terms.

17- **Insurance**
In addition to the Clause 22 –**Insurance,** of General Term and Condition, when The **Successful** Contractor(s) / Supplier(s) will submit Insurance Policy to SSGC, the Insurance Company (policy issuer) should be registered with SECP, otherwise the insurance policy will not be considered / rejected at contractor's risk and cost. The insurance coverage period will be according to the work completion period as mentioned in the contract / tender documents.

18- ***Fixed Bid Security – Alternative Bid***
A bidder cannot submit two bids/offers with a single fixed bid security/pay order. However, the alternative bids/offers with separate fixed bid security/pay order can be accepted, failing which the bids will be liable for rejection.

19- ***Bid Bond & PBG (Performance Bank Guarantee) for Proprietary Tenders***
In case of proprietary Tenders, the Bid Bond & Performance Bank Guarantee (PBG) are not required / Applicable.

20- SSGC will not pay invoices if they are turned in after 6 months of work completion / material delivered.

21- It is mandatory for the bidders to follow all the terms and conditions given in the tender documents without any addition / deletion / amendment and submit the bid accordingly. Therefore, in this context, the bidders are requested not to give their own terms and conditions as it tantamount towards the conditional bid. Otherwise their terms and conditions will not be considered and the Purchase Order / Contract will be awarded based on only as per SSGC tender terms and conditions.

22- The bidders/contractors are required to provide their only one Bank Account number (IBAN number) on the 'FORM-X' attached duly signed & stamped as one time information, which shall be firm (not changeable) for all the future payment transactions.

23- **Payment:**
The supplier after delivery of goods and its acceptance shall submit invoice to Finance Department of the Company, containing following information i.e.

(a) Purchase order No. & date
(b) Items
(c) Quantity
(d) Price
(e) Invoice value
(f) Point of delivery
(g) Delivery challan indicating delivery date, etc.
(h) Supplier(s) are required to submit signed and stamp acknowledgement slip, Sales Tax return,

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Annex "C" & Annex "I" (whichever applicable) in which Sales Tax (of relevant Sales Tax invoice) is paid. Payment will be made within 30 days of completion of stated requirements.

24. In case the insurance policy submitted by the contractor is expired during the execution of job, it is the responsibility of the user department to coordinate with the contractor to get it renewed/updated till the period the job is completed/commissioned.

    In case the job is not completed within the given time as per tender terms and the insurance policy submitted by the contractor expires, the contractor is liable to get this insurance policy renewed / updated immediately till the period of the job is completed / commissioned as per tender terms failing which the contractor will be responsible for any loss to SSGC.
25. Bidders can quote their rates on both i.e. Schedule of Requirement/Bid Form as well as Bill of Quantity (BoQ)
26. Subsequent to the issuance of LOI, successful bidder has to submit 10% Performance Bank Guarantee of the contract value unless and until specified in the tender document.
27. Company reserve the right to award the Purchase Order /LOI to most advantageous bidder.
28. As per SRO 592(I)/2022 of PPRA Regulations, for Procurement Contracts/Purchase Orders worth of Rs. 50 million and above, bidders/contractors are required to submit the Beneficial Owner's Information for Public Procurement Contracts/Purchase Orders (Annexure-I).
29. Bidder will be blacklisted and henceforth cross debarred for participating in respective category of Public Procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration (which is an integral part of tender document), however, without indulging in corrupt and fraudulent practices, if in breach of obligation(s) under the Bid conditions:
    a) The bidder have withdrawn or modified their bid during the period of bid validity as specified in the tender terms.
    b) Having been notified of the acceptance of bid by procuring agency during the period of bid validity (i) failure to sign the contract or accept purchase order (ii) fail or refuse to furnish the performance security or to comply with any other condition as mentioned in the tender document.
30. Wherever the "Rate Only" is mentioned (either on BOQ or anywhere in tender documents) the same shall only be applicable not exceeding 15% of the original procurement for the same items as given in the BOQ for package basis. In case the requirement is on item wise basis (not package basis) then not exceeding 15% of the original Procurement for the same items (on item wise basis) as given in the BOQ.
31. **Lots:** In case when the tender is floated on LOT basis, following clauses to be applied:
    a) The bidder(s) are essentially / mandatorily required to submit fixed bid bond as mentioned in the bid form/BOQ/Invitation to Bid. Separate fixed bid bond to be submitted against each individual LOT and its validity to be 150 days at the time of opening of technical proposal.
    b) Evaluation for each LOT will be carried out separately. Each LOT will be awarded separately.
32. For open competitive bidding if the most advantageous bidder is new local manufacturer, 10% trial order will be placed and remaining 90% order will be awarded to the next most advantageous bidder at their own quoted rates.
33. Redressal of Grievances And Settlement of Disputes:
    - Any bidder feeling aggrieved by any act of the procuring agency after the submission of his bid may lodge a written complaint concerning his grievances within seven days of announcement of the technical evaluation report and five days after issuance of final evaluation report.
    - In case, the complaint is filed against the technical evaluation report, the GRC shall suspend the procurement proceedings.
    - In case, the complaint is filed after the issuance of final evaluation report, the complainant cannot raise any objection on technical evaluation of the report. Provided that the complainant may raise the objection on any part of the final evaluation report in case where single stage single envelope bidding procedure is adopted.
34. All the bidders are allowed to participate in the subject procurement without regard to nationality/origin, except bidders of some nationality/origin, prohibited in accordance with policy of the Federal Government. Following countries are ineligible to participate in the procurement process:
    - India
    - Israel

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35. In Open Competitive Bidding Procedure where the quoted price is less than Rs. 500,000/- the Bid Bond will be retained in lieu of PBG.

36. In case the Bid Bond is not required, the bidder must submit the Form of Bid-Securing Declaration attached with the Tender Document else the Bid will be liable for rejection.

37. All Tenders floated through EPADS are to be governed by S.R.O. 296(I)/2023 dated: March 8, 2023 "E-Pak-Procurement Regulations 2023". In case of any conflict between SSGC Tender Terms / Instructions to Bidders and the PPRA EPADS Rules, the S.R.O. 296(I)/2023 will prevail.

SECTION – V

General Terms & Conditions

1. **Definitions and Interpretation:**

1.1 In these tender documents (as hereinafter defined) the following words and expressions shall have the meaning hereby assigned to them except where the Tender requires otherwise.

a) **Company** means the Sui Southern Gas Company Limited; a Company registered under statutes of Pakistan and includes any successors-in-interest or assignees.

b) **Engineer** means the Engineer(s) nominated by the Company to look after and supervise the Work.

c) **Representative of the Company** means a duly authorized person appointed by the Company or as specified in the "Special Conditions of the Contract" to perform the assigned duties.

d) **Bidder** means any person or persons, firm or company bidding for the Work.

e) **Contractor** means the persons, firm or company whose Tender (as hereinafter defined) has been accepted by the Company and includes the Contractor's representatives, sub-Contractors, successors and permitted assignees (Prior to the execution of the Contract the word "Contractor" also means a Tenderer or Bidder submitting a proposal in accordance with the Tender Documents).

f) **Agent or Representative** means person(s) appointed by the Contractor to perform duties as set forth in the Contract.

g) **Laborers/Workmen** means such laborers/workmen and staff as may be employed by the Contractor for purpose of carrying out the Work.

h) **Sub Contractor** means any firm or person having a direct Contract with the Contractor. Nothing contained herein however, shall be deemed or be construed to impose upon the Company, any obligation, liability or duty to a sub-contractor or to create any contractual relation between any sub-contractor and the Company.

i) **Work** means whole of the Works / Services or part thereof to be executed in accordance with Tender / Contract documents, whether temporary or permanent and whether original, altered substituted or additional.

j) **Contract Documents** shall consist of duly executed Articles of Agreement, the Tender Documents and the Tender submitted by the successful Bidder including modifications thereto incorporated in the documents before and after the execution of the Contract.

k) **Contract Price/Value** means the sum named in Schedule of (SOR) / BOQ subject to additions thereto or deductions there from as may be made under the provisions hereinafter contained.

l) **Plant** means all machineries, equipment, materials, appliances or things of whatsoever nature required in or about the execution, completion or maintenance of the Work, but does not include such equipment, materials, appliances or things intended to form part of the permanent Work.

m) **Temporary Works** means all temporary works of every kind required in or about the execution, completion or maintenance of the Work.

n) **Drawings** means the drawings referred to in the Contract documents and any modification of such drawings.

o) **Location** means the land and other places on, under in or through which the Work is to be executed or carried out and other lands or places provided by the Company for the purpose of the Contract.

p) **Approved/Approval** means approved/approval in writing by Company's representative or as specified in "Special Conditions of Contract".

q) **Tender/Bid** means the offer tendered by the Bidder for the Work governed by the Contract.

r) When the terms Acceptable, Satisfactory, Proper, or other such general qualifying terms are used in the Contract, it shall be understood that reference is made to be sole ruling and the sole judgment of the Company.

s) The Word Equivalent or Equal where used in these documents in the general sense shall not mean Similar but shall mean "Conforming to, Like, of Kind/Quality and Function". "Proprietary Items" and "Trade Names" are used for the purposes of establishing a standard of "Kind, Quality and Function" and "Equipment" items, articles, things or materials will be approved, if held to be "Equivalent" by the Company.

t) **Approved Banker** wherever occurring in this Contract shall mean a Scheduled Commercial Bank operating in Karachi and acceptable to the Company.

u) **Specification(s)** means the standard codes of practice and other specifications issued with the Tender and any notification such as specifications approved in writing by the Company and other specifications as may from time to time be furnished or approved in writing by the Company.

v) **Month** means calendar month of the Christian era.

w) **Time Schedule** is a graphical illustration of the time span of various Work activities defining starting and completion dates.

x) **Bonds** mean Bid Bond, Performance Bond or Bank Guarantee and other instruments of security furnished by the Bidder of his surety in accordance with the Tender/Contract.

y) **Completion Date** means the date on which the Work has been completed in accordance with the Contract so that it can be utilized for intended purpose.

z) **Day** means a day of 24 hours mid night to mid night.

aa) **Completion Period** means the time allowed for the execution of the Work.

1.2 Words importing the singular only also include the plural and vice-versa where the Contract so requires.

1.3 The marginal headings or notes in these Conditions of Contract shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the Contract.

1.4 If there is any conflict between the Special Conditions and the General Conditions, the Special Conditions shall modify, supplement and supersede the General Conditions.

2. **Examination:**
Bidders shall visit/inspect/examine the Work & Location and shall fully acquaint themselves with the nature and requirements of Work/Services, access to Work/Location, availability of materials, weather, law and order and local conditions etc. before submitting their Bids. Submission of the Bid shall be prima facie evidence that the Bidders have fulfilled this requirement and shall be binding upon him.

3. **Conflict between Drawings/Specifications/SOR:**
In case of any conflict between drawings/specifications, SOW/TOR and SOR/BOQ, with regard to the quality of any item, the Contractor / Consultant shall base his quotation for the better quality. In case of any deficiency in the drawings/details, the Contractor / Consultants shall seek clarification from the Company. Submission of Bids/rates on the basis of incomplete drawings/details shall be Contractor / Consultant's sole responsibility.

4. **Additions, Deletions:**
The Company reserves the right to make addition (Upto 15 %) and delete the quantity from the Work defined in SOW/TOR/SOR/BOQ as deemed necessary before or after the execution of the Contract. All such additions and deletions shall only be authorized in writing by the Company.

5. **Schedule of Requirement:**
The quantities specified in the SOR/BOQ are estimated and are intended to serve only as a guide to the Bidders. Payments shall be made on the basis of actual Work quantum done as measured. No claims or adjustments shall be entertained/allowed on account of increase or decrease in the Scope of Work which has not been duly authorized by the Company through the issue of change orders as stipulated in the relevant provision.

6. **Rate:**
The Bidder shall quote all item rates and lump sum prices as shown in the "SOR/BOQ". Bidders shall fill in the rate / price for each item in the SOR/BOQ. In case of any discrepancy between item rate and the amount, the quoted item rate will prevail. The quantities given in the SOR/BOQ are estimated ones and are subject to variations. That is, there could be increase or decrease. Nevertheless, the item rates quoted by the Bidder shall remain fixed and no escalation whatsoever shall be permissible. The rates / prices quoted by the Bidder shall be workable. The Bidder shall be required to furnish a complete rate analysis of any item in the SOR/BOQ as considered necessary, by the Company.

7. **Escalation:**
It may be clearly understood that this tender does not contain a price variation clause and therefore, all unit prices quoted shall be firm, irrevocable fixed and valid until completion of the Contract and will not be subject to variation on any account.

8. **Validity:**
Bids shall remain valid for acceptance for a period of (120) days from the date of bid opening. If the last date falls on a holiday, the validity will be extended to the first Company working day thereafter.

9. **Bid Bond (Earnest Money):**
The Bidder is required to furnish Bid Bond strictly in accordance with the prescribed format, in the form of a Pay Order, Demand Draft or Bank Guarantee issued only by a scheduled commercial bank operating in Karachi, for an amount fixed bid bond as specified of tendered Work / Services quoted by the Bidder in favor of Sui Southern Gas Company Limited. No Bid shall be considered without a Bid Bond and no cash or cheque or a guarantee issued by an insurance company shall be accepted.

The Bid Bond shall remain valid for a period of 150 days from the date of Bid opening. Bid Bonds of the unsuccessful Bidders shall be returned as soon as practicable, The successful Bidder's Bid Bond sphall be retained by Company until execution of a Contract for the Work / Services defined in these documents and the submission of a Performance Bond prior to the execution of Contract.

In the event that the successful Bidder refuses or fails to provide (PBG) and Stamp papers for contract within fifteen (15) days of the issuance of a Letter of Intent, Company shall be at liberty to forfeit the Bid Bond.

In the event of the bid bond validity falling short of the prescribed period of 150 days as the case may be either (i) due to extension in the bid submission date or (ii) where so required by the procuring agency, than in such an event it shall be mandatory on the bidder to extend the bid bond validity up to 150 days within 30 days of the opening of technical proposal / bid, and / or where so required by the procuring agency.

In case when bidder submit alternate bids a separate bid bond for each bid is required otherwise bid will be liable for rejection. In case of Single Stage Two Envelope bidding system (bid bond will be enclosed with "Financial" bid, unless and until specified separately in Tender terms).

The bid bond may be forfeited if a bidder withdraws the bid during validity period specified by the bidder or if successful bidder fails to:

- Accept purchases order/LOI,
- Furnish performance guarantee in accordance with clause 10 of General Terms & Conditions,
- Extend Services as per requirement and completion Period.

10. Performance Bond:

The Bidder shall furnish a Performance Bond strictly (if the bid increases to Rs. 500,000/-) in accordance with the prescribed format in the form of a bank guarantee issued by a scheduled commercial bank operating in Karachi for an amount equivalent to TEN (10) percent of the Contract value. Failure to furnish the performance Bond before execution of the Contract will entitle the Company to consider the Bidder as having abandoned the Contract and the forfeit the Bid Bond. The Performance Bond shall remain valid till after three (03) month of completion of the work.

The Company's right to recover damages from the Bidder for breach of Contract shall not be limited to the value of the Performance Bond. In the event of the Bidder failing to execute a formal Contract or to submit the Performance Bond in the manner aforesaid and in the period specified, the Company shall be entitled to appropriate the earnest money submitted by the Bidder with his tender without prejudice to its right to claim any further loss or damage which may result to it by reason of the aforesaid default of the Bidder as if Contract is actually executed for the purpose of such claims.

The Bidder shall extend the validity period of the Performance Bond for such period(s) as required for the Contract performance.

The performance bond of the successful bidder will be released after successful completion of work.

11. Retention Money:

The amount to be retained from payments shall be equal to the specified percent of certified value of Work which would be released after the maintenance period.

12. Completion Period:

Subject to any requirements as to completion of any portion of the Work before the completion of the whole of Work, the Work shall be completed within the specified completion period. The Work shall not be considered as completed until the Company has certified in writing that it has been completed. Should extra, altered or additional Work of any kind, or any other cause of delay, which in the opinion of the Company could not have been foreseen by the Contractor / Consultant requires extension in completion time, then on the written request of the Contractor / Consultant, the completion period as provided in the Contract shall be extended by the Company. All such extensions shall be allowed in writing by the Company's representative.

13. Signing / Execution of Contract / Agreement:

Formal signing / execution of Contract / Agreement shall be completed within fifteen (15) days of receipt of "Letter to Proceed". The Company shall prepare the Contract in accordance with the prescribed format (Contract Form, and Articles of Agreement) for the purpose and the successful Bidder shall be communicated the date and time by the Company for the execution of Contract.

The successful Bidder shall provide the stamp paper, of value at the rate of thirty five (35) paisa per every hundred Rupees or part thereof of the amount of the Contract, or at the prevailing rate as specified by the Government of Pakistan.

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In case the agreement is executed for services i.e Janitorial, Canteen, Landscaping, Maintenance Contract etc.... will be for One year extendable for further Two terms of one year each unless specified in Special Term & conditions.

14. **Award / Evaluation Criteria:**

Company reserves the right to settle the final award of job to the technically compliant and lowest evaluated and commercially responsive bidder.

Evaluation may be carried out both on item or on group of items/single or multiple package basis depending upon the nature of requirement exclusively at the discretion of the company to ensure economic procurement.

15. **Commencement & Execution of Work:**

Notwithstanding any delay in the preparation / execution of the Contract the successful Bidder shall commence mobilization / preparations and under take the Work within (15) days after receipt of the Letter to Proceed.

The Contractor / Consultant shall prior to commencement of Work, obtain the written authority and instructions of the Company.

16. **Change in Orders:**

The Company may at any time, by a written notice to the Contractor / Consultant, make changes within the general Scope of Work of the Contract.

Upon notification by the Company of such change, the Contractor / Consultant shall submit to the Company an estimate of costs for the proposed change (hereinafter referred to as a change) within ten (10) calendar days of receipt of notice of the change, and shall include an estimate of the impact (if any) of the change on the completion date (s) under the Contract, as well as detailed schedule for the execution of the change, if applicable.

The Contractor / Consultant shall not perform changes in accordance with above, until the Company has authorized a Change Order in writing on the basis of the estimate provided by the Contractor / Consultant.

Changes mutually agreed upon as a change shall constitute a part of the Work under this Contract, and the provisions and conditions of the Contract shall apply to said change.

17. **Assignment:**

The Contractor / Consultant shall not assign, in whole or in part, its obligations to perform under the Contract except with the Company's prior written consent.

18. **Termination of Contract:**

The Company may decide to terminate the Contract in one of the following situations:

(i) **Termination for Default:**

The Company may, without prejudice to any other remedy for breach of Contract, by written notice of default sent to the Contractor / Consultant, terminate the Contract in whole or in part.

(a) If the Contractor / Consultant fails to complete the contracted Works / Services within the time period(s) specified in the Contract or any extension thereof granted by the Company.
(b) If the Contractor / Consultant fails to perform any other obligation(s) under the Contract.
(c) If the Company during the completion period of the Contract has reason to believe that the Contractor / Consultant will not be able to fulfill the obligations under the Contract.

Prior to the exercising of any right by the Company to terminate the Contract, the Company shall issue notice to the Contractor / Consultant specifying the default(s) and the Contractor / Consultant shall submit an explanation within seven (07) days of receipt of such notice. If such explanation is not furnished within the stipulated time or if so furnished, is found to be unsatisfactory and / or the default(s) continues, the Contract may be terminated by the Company.

(ii) **Termination for Insolvency:**

The Company may at any time terminate the Contract by giving written notice to the Contractor / Consultant, without compensation to the Contractor / Consultant, if the Contractor / Consultant becomes bankrupt or otherwise insolvent. Notwithstanding the above such termination will not prejudice or affect any right of action or remedy which as accrued or will occur thereafter to the Company.

(iii) **Termination for Convenience:**

a. The Company may by written notice sent to the Contractor / Consultant, terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the company's convenience, the extent to which performance of work under the Contract is terminated and the date upon which such termination becomes effective.

b. The Works that are complete and ready for Commissioning within thirty (30) days after the Contractor / Consultant's receipt of notice of termination shall be at the Contract prices and on the existing Contract terms. For the remaining Works, the Company can also opt to have any portion thereof completed and commissioned at the contract prices and on the other contract terms.

19. Liquidated Damages:

If the Contractor / Consultant fails to complete the Work or perform the Services specified in the Contract within the stipulated period / scheduled time specified in the Contract, the Company, without prejudice to any other remedies, shall deduct from the bills or any other due payments / guarantees, as liquidated damages, a sum equivalent to 0.1 % per day of the value the Contract, until actual completion of the Work or performance of the Services. However if delay of over 100 days takes place (i.e. equal to 10%), the Company reserves the right to terminate the Contract at the risk and cost of Contractor / Consultant. The liquidated damages shall also be applicable for the Works / Services terminated under Clause 16.

The payment of liquidated damages shall not relieve the Contractor / Consultant from performing and fulfilling all its obligations under the Contract and nor shall the rights and entitlements of the Company be affected or reduced in any manner.

20. Force Majeure:

The parties will not be considered to be in default in the execution of their contractual obligations or any of them to the extent that the execution of such obligations or any of them is delayed or omitted by cause of Force Majeure. Each party will advise the other party by written notice within 07 days of the occurrence of any such case of Force Majeure. The term Force Majeure employed herein shall mean acts of public enemy, wars (whether declared or not) invasion, hostilities, revolution, epidemics, riots (other than among the Contractor / Consultant's own employees) fires, floods, earth quake, commotion, disorder and other causes similar in kind to those herein mentioned, not under the control of either party, which makes the performance of this agreement unfeasible and which by the exercise of due diligence the party seeking excuse from performance is unable to over come.

The Company shall not be liable to the Contractor / Consultant for any damage or loss caused by Force Majeure directly or indirectly.

21. Safety of Employees and Works:

The Contractor / Consultant shall be responsible to take all necessary precautions for the safety of employees on or off the Work, and shall comply with all applicable safety laws and codes to prevent accidents or injury to persons on about or adjacent to the places where the Work is being performed. All statutory rules, orders, regulation from time to time in force relating to taking and observance of all safety precaution governing or which might be deemed to be given during the execution and performance of the Work. The Contractor / Consultant shall comply with any and all personnel safety regulations. Any person of the Contractor / Consultant violating the safety rules shall be removed by the Contractor / Consultant from site and replaced without delay.

22. Insurance:

The Contractor / Consultant shall be responsible for obtaining a Contractor / Consultant's All Risk Policy (CAR) against risks to the Works and shall make good at his own cost, all losses or damages whether to the Works or to the lives, persons, whether under the workmen's compensation Act or Third Party Risk, or property of others from whatsoever cause arising out of or in connection with the works either during the progress of the works or during the period of maintenance provided by this Contract.

The Contractor / Consultant shall arrange insurance approved by the Company fully to cover workmen compensation and other claims arising out of sickness, injury or death of his personnel working at site and also to cover theft, loss of or damage to the Company's material in his possession and to indemnity the Company for third party claims for damage done or said to have been done to those persons or their property as a result of the Contractor / Consultant's activities on and off the site.

Insurance will be required where ever applicable:

Company's Address:

GENERAL MANAGER (PROCUREMENT)
SUI SOUTHERN GAS COMPANY LIMITED,
2ND FLOOR, HEAD OFFICE, ST-4/B, B-14,
SIR SHAH SULEMAN ROAD,
GULSHAN-E- IQBAL,
KARACHI –PAKISTAN.

Contractor / Consultant's Address:

_____
_____
_____

23. **Dispute Resolution:**

If any dispute shall arise as to the interpretation of this Contract or any matter or thing arising there from, the same shall be settled as far as possible by way of amicable resolution. Failing such settlement, the dispute may be referred for arbitration to two Arbitrators, one to be nominated by each Party. The appointed Arbitrators shall before proceeding on the reference appoint an Umpire. The Award given by the Arbitrators or the Umpire as the case may be shall be final and binding on the Parties. The proceedings shall be governed by the Pakistan Arbitration Act, 1940 and any statutory modification thereof. The venue of arbitration shall be Karachi.

All costs of Arbitration shall be borne by the Parties themselves, unless otherwise ordered by the Arbitrator. Notwithstanding the existence of any difference or dispute, or the commencement or continuance of any arbitration proceedings, Works to be done or Services to be provided under this Contract shall not be suspended or discontinued by the Contractor / Consultant nor shall any payment be withheld by the Company except the difference of the amount in dispute, which is the subject matter of such proceedings.

24. **Income Tax and Duties:**

All kinds of Government Taxes and Duties (income tax, custom duties, etc.) also the provincial sales tax as per provincial law, against any item of the contract, shall be entirely the responsibility of the Contractor / Consultant. Income Tax will be deducted as applicable under the prevailing Government Rules. Rate of Income Tax deduction in relation to submission of Income Tax certificate from the Contractor / Consultant should also be stipulated.

All Foreign Service providers are required to obtain Advance Ruling from the Federal Board of Revenue (FBR) under Section 206A of the Income Tax Ordinance 2001 (Pakistan's Income Tax Law). The advance Ruling issued by FBR covers application of Income Tax Ordinance 2001 to Transaction proposed or entered in to Foreign Service Provider".

25. **Payments:**

Payment will be made within 30 days after completion of works.

The Contractor / Consultant shall submit to the Company during the execution of the Work on-account bills along with a statement / details of executed Work.

The rates and prices in such on-account bills and statement of Work shall be in accordance with those in the SOR/BOQ so far as such rates and prices are applicable and on the approved rates and prices for other items of Work. All payments against on-account bills shall be treated as provisional payments and will be subject to final adjustment.

The Company may withhold payment or on-account of subsequently discovered evidence, nullify the whole or part of any certificate to such extent as may be necessary to protect itself from loss on-account of:

(a) Defective Work not remedied.
(b) Claims filed or reasonable evidence indicating probable filling of claim.
(c) Failure of the Contractor / Consultant to make payments properly to Sub-Contractor / Consultants.
(d) Damage to another Contractor / Consultant.

When the grounds are removed payment shall be made for amounts withheld because of them.

Payments in respect of extra / additional Work will be made on the basis of the original Contract rates and the Contractor / Consultant will not be entitled to any extra compensation / payment including idle charges because of such delays.

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The making and acceptance of the final payment after successful completion of Work shall constitute a waiver of all claims by the Company other than those arising from faulty Work appearing after final payment and of all claims by the Contractor / Consultant, except those previously made and still unsettled.

Supplier (s) are required to submit signed and stamped acknowledgement slip, Sale Tax return, Annex "C" & Annex "I" (whichever applicable) in which Sales Tax (of relevant Sales Tax invoice) is paid.

26. Blacklisting of Suppliers and Contractor / Consultants:

The company shall permanently blacklist or temporarily debar (at least for 6-months from participating in SSGC's tender proceeding) if, a supplier or Contractor / Consultant who either constantly fails to perform satisfactorily or found to be indulged in corrupt and fraudulent practices as defined blow:

26.1 Corrupt and fraudulent practices" includes the offering, giving, receiving, or soliciting of anything of value to influence the action of an official/company.

26.2 If the supplier/Contractor / Consultant found responsible for the detriment of the company during proceedings of procurement/contract, process or its execution.

26.3 Misrepresentation of facts (by providing fake documents, concealing/ mis- reporting facts pertaining to the bid) in order to influence the procurement process or the execution of the purchase order/contract.

26.4 Collusive practices among bidders (prior to or after bid submission) designed to establish bid prices at artificial, non-competitive levels and to deprive the company of the benefits of free and open competitive.

Please follow the Attached Blacklisting Mechanism

Please follow the Attached Black Listing Mechanism

27. GOP's Obligation:

The contract shall be governed by the Law of Pakistan. The Contractor / Consultant is obligated to comply with all regulations and ordinance in force or to be passed by the Government of Pakistan in connection with Labor legislation during the course of the work to be performed. Any additional financial charges on account of revision in minimum wages by GOP will be company's responsibility while the contract is in operation.

This contract embodies the entire understanding of the parties hereto on this subject and there are no commitment, terms, conditions or obligations, oral or written, express or implied, other than those contained herein.

28. Late Bid:

Sealed bids shall be mailed/submitted/dropped in tender box placed at Tender Room, CRD Building, and SSGC Head Office, In accordance to the time specified in invitation to bid & tender notice (which ever applicable), Bids are to be delivered on or before closing time after which all bids submitted after the time prescribed shall not be entertained and will be returned without being opened. In case bid is sent through courier, the same shall be delivered at least half an hour before scheduled opening time.

29. Rebate / Discount:

Unit rate (s) given in the Bill of Quantities shall take into account all relevant factors including discount if any. Discount given separately at the time of bid opening will not be considered.

30. Joint Ventures:

In the event that the bidder is bidding as a Joint Venture, the Company will require the joint venture agreement duly executed by the parties to the Joint Venture to be submitted with the bid. The joint venture parties shall also furnish an undertaking to be jointly and severally liable for all liabilities arising out of obligation under the Purchase Order / Contract. The, Joint Venture agreement of the parties must specify share of each partner and name of the lead partner along with their registration with the FBR, SST and BST as the case may be failure to specify these two narrations the joint venture agreement will not be entertained.

31. Correction / Amendments in Quoted Price:

Any overwriting in BOQ / SOR is not allowed. In case of type of any amendment / correction required in unit price / total amount the same has to be strikeout and re-written with corrected figures, properly signed & stamped out, in order to avoid an ambiguous bid.

Sui Southern Gas Co. Ltd. Procurement Dept.

FINANCIAL PROPOSAL

SECTION – VI.

SCHEDULE OF RATES

6 SCHEDULE OF RATES

(SUMMARY)

SOR No.	Description	Total Amount (Rs.)
1.	Welders Qualification and Procedure Qualification	
2.	Visual Welding Inspection & RT/ PAUT/TOFD of Mainline, crossings and Tie-in joints.	
3.	RT, UT & Visual Inspection of Valve Assemblies and Above Ground Installations.	
4.	Visual Welding Inspection of mainline.	
5.	Weld Repair	
6	Dye Penetration Testing (DPT)	
Grand Total :		
In words Rupees _____		

Signed and Stamped
Name:
Designation:

General Note:

1) The numbers of units mentioned above are maximum. Payment will be made for the actual.
2) Visual Inspection, RT, Advanced-UT, Interpretation, Costs of Tests, etc., are to be included in the above rates. Bidder shall quote and include for all applicable other expenses including idle charge in the items listed above.
3) The Company has the option to delete any or all of the above items.
4) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
5) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.
6) Bidders are advised to visit & familiarize with pipeline project route at their own end prior to submitting bid for welding inspection services.
7) The bidder should quote for all the joints as per scope of work of the tender enquiry.

SOR-01

SCHEDULE OF RATES

Welder Qualification and Procedure

S. No.	Description	Nos.	Unit Rate	Total Amount (Rs.)
1.	Welder Qualification Test	04		
2.	Procedure Qualification Test	00		
Net Total :				

Note:

1) The numbers of units mentioned above are maximum. Payment will be made for the actual.
2) Visual Inspection, RT, PAUT/TOFD, Interpretation, Costs of Tests, etc., are to be included in the above rates excluding mechanical test. Bidder shall quote and include for all applicable other expenses including idle charge in the items listed above.
3) The Company has the option to delete any or all of the above items.
4) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
5) Welder Qualification Tests shall be carried out at the discretion of the Company's constructions department based on the conditions that welders engaged in a given process of welding for the last months or more may need not be re-qualified by the successful Inspector.
6) The bidder should quote for all applicable other expenses including idle charges in the items listed above.
7) Preparation of Procedure qualification (WPS/PQR) and approval shall be carried out by NDT Company / Contractor Company.
8) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.

SOR-02

SCHEDULE OF RATES

Visual Welding Inspection, RT / PAUT-TOFD (Mainline, Crossing, Tie-ins, etc.)

S.No.	Pipe Diameter (Inches)	No. of Joints (Maximum)	Rate/Joint	Total Amount (Rs.)
1.	8"	300		

Note:

1) The numbers of joints indicated above are maximum & payment shall be on the actual number of weld joints, within maximum weld joints mentioned above for the project. The inspector shall confirm in writing from the Company for the radiographic examination percentage prior to commence of work at site.
2) RT, PAUT/TOFD, visual inspection, costs of tests (if required), etc. are to be included in the above rates. Bidders shall quote and include for all applicable other expenses including idle charges in the items listed above.
3) The Company has the option to delete any or all of the above items.
4) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
5) The Bidder shall quote and include for all applicable other expenses including idle charges in the items listed above.
6) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.

SOR-03

SCHEDULE OF RATES

RT, PAUT-TOFD & Visual Welding Inspection (Valve Assemblies & Above Ground Installations) Sales Meter Station (SMS) & Town Border Station (TBS)

S.No.	Pipe Diameter (Inches)	Total No. of Joints	Rate/Joint (Rs.)	Total Amount (Rs.)
1	24"	30		
2	20"	30		
3	18"	20		
4	16"	60		
5	12"	80		
6	8"	120		
			Total:	

Note:

1) The numbers of joints indicated above are maximum payment shall be on the actual number of weld joints,
2) Visual Inspection, Radiography, Interpretation, Costs of Tests, etc., are to be included in the above rates. Bidders shall quote for all sizes of joints.
3) The Company has the option to delete any or all of the above items.
4) The bidder shall quote for all applicable other expenses including idle charges in the items listed above.
5) The successful Inspector shall submit its Radiography inspection plan within one week after the issuance of Letter to Proceed.
6) 100% radiography shall be carried out on all joints of above ground installations.

SOR-04

SCHEDULE OF RATES

(Visual Welding Inspection)

S.No.	Pipe Diameter (Inches)	No. of Joints (Maximum)	Rate/Joint (Rs.)	Total Amount (Rs.)
1	8"	750		

Note:

1) In addition to the non-destructive inspection requirements the quality of welding shall be continually controlled visually by welding inspector.
2) The visual welding inspection will be made at the start and up to the completion during the welding of the joint including capping by deploying competent inspection personnel.
3) Inspectors of non-destructive inspection equipment shall be required to demonstrate the inspection procedures capability to detect reject-able defects and the Inspectors ability to properly interpret the indications given by the equipment.
4) The competent visual inspection is required all the time before & during the welding and after the weld has been completed, for all the Production welds, Crossing welds, Tie-ins welds, Valve Assemblies welds and welds repair & cutout welds, as required by the Company.
5) The numbers of joints mentioned above are maximum for the project. Payment will be made for the mentioned number of weld joints visually inspected.
6) The Company has the option to delete any or all of the above items.
7) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
8) The Bidder shall quote and include for all applicable other expenses including idle charges in the weld joints listed above.
9) The successful Inspector shall submit its visual inspection execution plan within one week after the issuance of Letter to Proceed.
10) Bidders are advised to visit & familiarize with pipeline project route at their own end prior to submitting bid for welding inspection services.
11) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.

SOR-05

SCHEDULE OF RATES

Weld Repairs
(RT, PAUT-TOFD & Visual Welding Inspection)

S.No.	Pipe Diameter (Inches)	No. of Joints (Maximum)	Rate/Joint (Rs.)	Total Amount (Rs.)
1	24"	10		
2	20"	10		
3	18"	10		
4	16"	20		
5	12"	20		
6	8"	100		
			Total:	

Note:

1) The numbers of weld joints indicated are maximum. Payment shall be made for actual RT, PAUT-TOFD, and visual inspection within mentioned maximum above weld joints.
2) The Company has the option to delete any or all the above items.
3) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
4) Visual Inspection, RT / PAUT-TOFD, Interpretation, Costs of Tests, etc., are to be included in the above rates. Bidder shall quote and include for all applicable other expenses in the weld joints mentioned above.
5) Bidder shall quote and include for all applicable other expenses including idle charges in the weld joints listed above.
6) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.

SOR-06

SCHEDULE OF RATES

Dye Penetration Testing

S.No.	Pipe Diameter (Inches)	No. of Joints (Maximum)	Rate/Joint (Rs.)	Total Amount (Rs.)
1	4 & above	30		
2	2	30		
3	½ to 1	20		
			Total:	

Note:

In case where RT shoot is not viable then PAUT-TOFD / DPT should be carried out with prior approval from Client nominated representatives.

1) The numbers of joints indicated are maximum. Payment shall be made for actual DPT/visual inspection within mentioned above weld joints.
2) The Company has the option to delete any or all the above items.
3) Visual Inspection, DPT, Interpretation, Costs of Tests, etc., are to be included in the above rates. Bidder shall quote and include for all applicable other expenses in the weld joints mentioned above.
4) The Company has the option to substitute any NDT method / technique as required where applicable / SSGC's discretion.
5) Welding inspection services provided by NDT Company / Contractor Company shall be performed as per given scope of work and mandatory requirements of applicable standard. Any change that effect quality of work will adhere to penalty and re-work.

TENDER ENQUIRY NO. SSGC/SC/14265 SECTION-VI

SCHEDULE OF REQUIREMENT

AND

BID FORM

Sr. NO.	DESCRIPTION OF ITEMS / PART NOS. (1)	QUNATITY (3)	UOM (4)	TOTAL AMOUNT
	HIRING OF THIRD PARTY WELDING INSPECTION AND INDUSTRIAL NDT(RT/PAUT-TOFD/DPT) SERVICES FOR LAYING AND INTEGRATION OF 8" DIA. x 7 KM PIPELINE FROM POD SUJWAL TO NEAREST POINT OF EXISTING 8" DIA. x 28 KM AYESHA POD SURJANI (AS PER SOR)			
1	[1] SC063407 **Delivery Schedule:**	1.00	Lot	

Fix Bid Bond Amount in PKR: 195,000

NOTE :

(i) The quoted unit price and corresponding total amount shall be inclusive of all duties & Taxes, excluding Sales Tax as per provincial laws.
(ii) Incase of supply of material alongwith services GST will be exclusive of quoted rate of material.
(iii) Bidders are essentially required for quote their rates on bid form / BoQ.
(iv) Prices given in the bid form and BOQ shall take into account all relevant factors including discounts, if any. Discount given separately at the time of bid opening will not be considered.
(v) Any Bidder who change/amend the BOQ or Price Schedule (description, quantity, uom etc.) will be render the bid as conditional bid and will be liable for rejection.

SIGNAUTRE OF BIDDER: _____

NAME.....: _____

NAME OF BIDDER....: _____

STAMP.....: _____

DATE.....: _____

(On Stamp Paper @ Rs.100 for first Rs.100, 000 and Rs.50 per subsequent Rs.100, 000 of Guarantee Value)

BID BOND FORMAT

Sui Southern Gas Company Limited,
ST-4/B, Sir Shah Muhammad Suleman Road,
Block 14, Gulshan-e-Iqbal,
Karachi.

Tender Enquiry No SSGC / SC /

Dear Sirs,

In consideration of Messrs _____ hereinafter called "The Bidder" having submitted the accompanying bid and in consideration of value received from _____ we hereby agree to undertake as follows:

1. To make un-conditional payment of Rupees _____ upon your return demand without further recourse, question or reference to the Bidder or any other person, in the event of the with drawl of the aforesaid Bid by the Bidder before the end of the period specified in the Bid after the opening of the same for the validity thereof, or if no such period to be specified within 120 days after said opening and or in the event that the Bidder within the period specified thereof, or if no period be specified with 15 days after prescribed forms are presented to the Bidder of signature the Bidder shall fail to execute such further contractual documents if any as may be required by the Company, or on the Bidders' failure to give the requisite Performance Bond as may be required for the fulfillment or resulting Contract with 10 days of the acceptance of the Bid.

2. To accept written intimation(s) from you as sufficient evidence of the existence of default or non compliance as aforesaid on the part of the Bidder and to make payment immediately upon receipt of the written intimation.

3. No grant of time or other indulgence to, or composition, or arrangement with the Bidder in respect of the aforesaid Bid with or without notice to us shall in any manner discharge or otherwise, however, affect this guarantee and our liabilities and commitments hereunder.

4. The guarantee shall be binding on us and our successors in interest and shall be irrevocable.

5. This guarantee shall remain valid upto _____.

Yours faithfully,

Note: Any extensions / amendments (in all guarantees/bonds) if required shall be made on stamp papers of Rs.50

(On Stamp Paper @ Rs.100 for first Rs.100, 000 and Rs.50 per subsequent Rs.100, 000 of Guarantee Value)

PERFORMANCE BOND FORMAT

Sui Southern Gas Company Limited,
ST-4/B, Sir Shah Muhammad Suleman Road,
Block 14, Gulshan-e-Iqbal,
Karachi.

Bank Guarantee # .....
Date of Issue : .....
Date of Expiry : .....
Amount : .....

Tender Enquiry No SSGC / SC /

Dear Sirs,

In consideration of your entering/having entered into Contract No._____ with M/s. _____ hereinafter called "The Contractor" and in consideration of value received from the Contractor, we hereby agree and undertake as follows:-

1. To make un-conditional payment of Rupees _____ and un-conditional payment in such amount as you may require from time to time as and when called upon by you to do so, not exceeding in the aggregate payment of Rupees _____, being the amount covering liquidated damaged and security for the due fulfillment by the Contractor of all liabilities, obligations, commitments and total and faithful performance of the above Contract by the Contractor as specified in the above mentioned Contract upon your written demand(s) without further recourse, question or reference to the Contractor or any other person in the event of the Contractor's default in compliance with its obligations, liabilities and faithful performance arising under and in pursuance of the Work committed by it in the above mentioned agreement of which you shall be the sole judge.

2. To accept written intimation(s) from you as sufficient evidence of the existence of default or non compliance as aforesaid on the part of the Contractor and to make payment immediately upon receipt of the written intimation.

3. To keep this guarantee in full force from the date of this guarantee till the Contractor's obligations as specified in the above referred Contract and all other obligations of the Contractor as are contained in the above contract are duly fulfilled by the Contractor to the satisfaction of the Company.

4. No grant of time or other indulgence to, or composition, or arrangement with the Contractor in respect of the performance of its obligations under and in pursuance of the said agreement or any clause thereof, with or without notice to us shall in any manner discharge or otherwise howsoever effect this guarantee and our liabilities and commitment there under.

5. The guarantee shall be binding on us and our successors in interest and shall be irrevocable.

6. This guarantee shall not be affected by any change in the constitution of the guarantor bank or the constitution of _____.

6. This guarantee shall remain valid upto _____.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

DECLARATION FORM

(FORMAT OF DECLARATION)

M/s. _____ [the Seller/Supplier] hereby declares its intention not to obtain or induce theprocurement of any contract, right, interest, privilege or other obligation or benefit from Sui Southern GasCompany Limited or any administrative subdivision or agency thereof or any other entity owned or controlledby Sui Southern Gas Company Limited (SSGCL) through any corrupt business practice.

Without limiting the generality of the foregoing, [the Seller/Supplier] represents and warrants that it has fullydeclared the brokerage, commission, fees, etc., paid or payable to anyone and not given or agreed to give andshall not give or agree to give to anyone within or outside Pakistan either directly or indirectly through anynatural or juridical person, including its affiliate, agent, associate, broker, consultant, director, promoter,shareholder, sponsor or subsidiary, any commission, gratification, bribe, finder's fee or kickback, whetherdescribed as consultation fee or otherwise, with the object of obtaining or inducing the procurement of acontract, right, interest, privilege or other obligation or benefit in whatsoever form from SSGCL, except thatwhich has been expressly declared pursuant hereto.

[The Seller/Supplier] certifies that it has made and will make full disclosure of all agreements andarrangements with all persons in respect of or related to the transaction with SSGCL and has not taken anyaction or will not take any action to circumvent the above declaration, representation or warranty.

[The Seller/Supplier] accepts full responsibility and strict liability for making any false declaration, notmaking full disclosure, misrepresenting facts or taking any action likely to defeat the purpose of thisdeclaration, representation and warranty. It agrees that any contract, right, interest, privilege or otherobligation or benefit obtained or procured as aforesaid shall, without prejudice to any other rights andremedies available to SSGCL under any law, contract or other instrument, be voidable at the option ofSSGCL.

Notwithstanding any rights and remedies exercised by SSGCL in this regard, [the Seller/Supplier] agrees toindemnify SSGCL for any loss or damage incurred by it on account of its corrupt business practices andfurther pay compensation to SSGCL in an amount equivalent to ten times the sum of any commission,gratification, bribe, finder's fee or kickback given by [the Seller/Supplier] as aforesaid for the purpose ofobtaining or inducing the procurement of any contract, right, interest, privilege or other obligation or benefitin whatsoever form of SSGCL.

_____

SIGNATURE & STAMP

NOTE

1. The above declaration is to be furnished along with the bid on letter head, for bid(s)amounting to total bid value of Rs. 10,000,000/- (Ten million) or above.
2. Please note that submitting the declaration is a mandatory requirement.

CONTRACT FORM

Contract No. SSGC/SC/

ARTICLES OF AGREEMENT

THIS AGREEMENT, made and entered into this _____ day of _____, 2018 by and between Sui Southern Gas Company Limited, having its office at ST-4/B, Sir Shah Muhammad Suleman Road, Block 14, Gulshan-e-Iqbal, Karachi, hereinafter referred to as the "Company" of the one part and **M/s.** _____ _____ hereinafter referred to as the "Contractor", (which expression shall include the successors, of the said firm, heirs, executives, administrators and assigns of the Partners of the said firm individually or severally) of the other part.

WITNESSETH:

WHEREAS, under the procedures, bids have heretofore been received by the Company for carrying out "_____" work and the tender of the Contractor for the said work has been accepted by the Company.

NOW THEREFORE, for and in consideration of the promises, negotiations, covenants and agreements hereunder contained and to be performed by the parties hereto, the said parties hereby covenant and agree as follows:-

Article-1 Work and Cost of the Work:

i) In consideration of the covenants and agreements to be kept and performed by the contractor and for the faithful performance of this Contract and the completion of the work embraced therein according to the specifications and conditions herein contained and referred to or agreed to in course of subsequent negotiations and in accordance with the Contract, the Company shall pay and the Contractor shall receive and accept as full compensation for everything furnish and done by the contractor under this agreement as sum of approximately **Rs.**_____ (_____), or such other sums as may be ascertained in accordance with the conditions of Contract, etc. and at rates quoted against each item of work and agreed to and accepted by the parties as one instrument, and at the times and in the manner prescribed by the conditions of the Contract.

ii) The Contractor at his own proper cost and expense shall do all work and furnish all labour, materials, tools, supplies, machinery and other equipment and plant that may be necessary for the satisfactory completion of all the works as set forth in the contract documents.

Article-2 - Time:

The maintenance of a rate of progress in the works at a rate which will result in its completion within the specified time, is of the essence of the contract and the Contractor agrees to proceed with all the due diligence and care at all times to take all precautions to ensure the timely completion as defined herein; time being deemed to be essence of the Contract of part of the Contractor.

The said work shall be started on the Contractor's receipt from the Company of a written order to proceed, and the Contractor shall have the work called for duly and fully complete in total _____. **months {including** _____ **(**___**) weeks** mobilization period} from the date of issuance of such order.

Article-3 - Contract Documents:

It is understood and agreed that the contract documents which comprise this Contract are attached hereto and made a part hereof and consist of the following :-

a) The Article of Agreement.

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

b) Bid ((submitted vide letter No._____ _____, dated _____ comprising Letter of Invitation, Instructions to bidders, Scope of Work, Special and General Conditions of Contract, Tender Form, Bill of Quantities, Drawings, etc.).

c) **Company letter No._____, dated _____.**

Contractor letter No._____, dated _____.

d) **Notice of Award (Letter of Intent (LOI) No.SSGC/MAT/S&C/_____, dated _____.**

e) **Acceptance by the Contractor on the copy of LOI.**

f) **Letter to Proceed No.SSGC/PROC/S&C/_____, dated _____.**

g) **Performance Bank Guarantee No._____, dated _____, amounting to Rs._____ issued by M/s. _____.**

It is agreed by the parties to the contract that this contract shall be executed in two counterparts; one copy to be retained in the office of the Sui Southern Gas Company Limited and one given to the Contractor.

IN WITNESS WHEREOF the parties hereto have executed this Contract at Karachi in two counterparts by their duly authorized representatives as of the day and year herein above set forth.

Signed for and on behalf of
M/s. Sui Southern Gas Company Limited
_____.

Signed for and on behalf of
M/s. _____ Karachi

Signature : _____

Name : _____

Signature : _____

Name : _____

In the presence of :

Signature : _____

Name : _____

Signature : _____

Name : _____

Signature : _____

Name : _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Supplier code: _____

FORM-X

Bank account details form for all Beneficiaries

(Mandatory requirement for Digital Online Banking)

As per FBR Regulations ref # C.No.4 (24) IT-Budget/2021-142150-R dated 23rd Sept'2021 to make the payment online w.e.f. 01-11-2021. All beneficiaries are required to fill in the below details, which is mandatory:

Name of Firm: _____

Address of Firm: _____

_____

CNIC #: _____

NTN #: _____

Bank Name: _____

Bank A/C Title name: _____

Branch code: _____

Bank A/c #: _____ (16 Digits)

Bank IBAN #: _____ (24 Digits)

☐ Information already submitted.

Note: Please be attached copy of Cheque / Account Maintenance Certificate.(Mandatory)

Sui Southern Gas Co. Ltd. ★ H.O. Gulshan-e-Iqbal ★ Procurement Dept.

_____

Authorized Sign & Stamp

Date: _____

Note: All payments transactions will be made on above mentioned Account details. This is only a one time information to be provided by the all beneficiaries. Incase if the above detail has already submitted, please tick the box above "Information already submitted" and also ensure Form-X is duly signed & stamped.

ANNEXURE: I

Declaration of Ultimate Beneficial Owners Information for Public Procurement Contracts.

1. Name
2. Father's Name/Spouse's Name
3. CNIC / NICOP/Passport No.
4. Nationality
5. Residential address
6. Email address
7. Date on which shareholding, control or interest acquired in the business.
8. In case of indirect shareholding, control or interest being exercised through intermediary companies, entries or other legal persons or legal arrangements in the chain of ownership or control, following additional particulars to be provided:

1	2	3	4	5	6	7	8	9	10
Name	Legal form (Company/Limited Liability Partnership /Association of Persons/Single Member Company/Partnership Firm/Trusted/Any other Individual, Body Corporate (to be Specified)	Date of Incorporation / Registration	Name of Registering Authority	Business Address	Country	Email Address	Percentage of shareholding control or interest of BO in the Legal Person or Legal Arrangement	Percentage of shareholding, Control or Interest of Legal Person or Legal Arrangement in the Company	Identity of Natural Person who Ultimately owns or Controls the Legal Person or Arrangement

9. Information about the Board of Directors (details shall be provided regarding number of shares in the capital of the company as set opposite respective names).

1	2	3	4	5	6	7	8
Name and surname (in block Latter's)	CNIC no (in case of foreigner Passport No)	Father's / Husband's Name in Full	Current Nationally	Any other Nationality lies)	Occupation	Residentially address in full of the registered / principle office address for a subscribers other that natural Person	Numbers of shares taken by cash subscribers (in figures and words
			Total numbers of shares taken (in figures and words)				

10. Any other information incidental to or relevant to beneficial owner(s).

Name and signature
(Person authorized to issue notice on behalf of the company)

Form of Bid-Securing Declaration

[The Bidder shall fill in this Form in accordance with the instructions indicated.]

Date: *[date (as day, month and year)]*
No.: *[number of Bidding process]*
Alternative No.: *[insert identification No if this is a Bid for an alternative]*

To: *[complete name of Procuring Agency]*

We, the undersigned, declare that:

We understand that, according to your conditions, Bids must be supported by a Bid-Securing Declaration.

We accept that we will be blacklisted and henceforth cross debarred for participating in respective category of public procurement proceedings for a period of (not more than) six months, if fail to abide with a bid securing declaration, however without indulging in corrupt and fraudulent practices, if we are in breach of our obligation(s) under the Bid conditions, because we:

(a) have withdrawn our Bid during the period of Bid validity specified in the Letter of Bid; or

(b) having been notified of the acceptance of our Bid by the Procuring Agency during the period of Bid validity, (i) fail or refuse to sign the Contract; or (ii) fail or refuse to furnish the Performance Security (or guarantee), if required, in accordance with the ITB.

We understand this Bid Securing Declaration shall expire if we are not the successful Bidder, upon the earlier of (i) our receipt of your notification to us of the name of the successful Bidder; or (ii) twenty-eight days after the expiration of our Bid.

Name of the Bidder:* _____

Name of the person duly authorized to sign the Bid on behalf of the Bidder** _____

Title of the person signing the Bid _____

Signature of the person named above _____

Date signed _____ day of _____, _____

*: In the case of the Bid submitted by joint venture specify the name of the Joint Venture as Bidder

**: Person signing the Bid shall have the power of attorney given by the Bidder attached to the Bid

[Note: In case of a Joint Venture, the Bid-Securing Declaration must be in the name of all members to the Joint Venture that submits the Bid.]

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

Section-IX A

SUI SOUTHERN GAS COMPANY LIMITED

UNDERTAKING OF COMPLIANCE WITH INTEGRATED MANAGEMENT SYSTEM (IMS) MANUAL AND BLACKLISTING MECHANISM

I, _____ [Supplier's Authorized Representative Full Name], of _____ [Supplier Company Name], with principal office located at _____ [Full Address], do hereby solemnly affirm and declare as follows:

1. That I am the duly authorized representative of _____ [Supplier Company Name], and have the legal authority to make this declaration on behalf of the company.
2. That I confirm having accessed, read, and fully understood the **Integrated Management System (IMS) Manual** provided by **Sui Southern Gas Company Limited (SSGC)**, available at the official website: https://www.ssgc.com.pk/web/wp-content/uploads/2025/06/IMS-Mannual-1-1.pdf
3. That _____ [Supplier Company Name] agrees to comply fully with all the policies, procedures, and responsibilities outlined in the IMS Manual, and will ensure that all relevant employees, contractors, and agents are made aware of and comply with the same.
4. That _____ [Supplier Company Name] acknowledges that failure to comply with the IMS Manual may result in corrective action, including but not limited to financial penalties as per SSGC policy and suspension or termination of business with Sui Southern Gas Company Limited (SSGC).
5. That the bidder has also read, understood, and accepted the **Blacklisting Mechanism of Sui Southern Gas Company Limited (SSGC),** available at: https://www.ssgc.com.pk/web/wp-content/uploads/2024/09/blacklisting_mechanism_2024.pdf
6. Any type of violation of the tender terms and non-performance will result in the enforcement of the Blacklisting Mechanism, which will be dealt with in accordance with the Blacklisting Rules/Mechanism.
7. This affidavit is made in good faith and for the purpose of affirming our commitment to health, safety, environmental standards, and compliance with the **Integrated Management System (IMS) Manual** and the **Blacklisting Mechanism** of Sui Southern Gas Company Limited (SSGC), as well as all other applicable policies and procedures of SSGC.

Signed at _____ [City] on this _____ day of _____, *20* .

Signature: _____
Name: _____
Designation: _____
Company Name: _____
Contact Details: _____

(Company Stamp / Seal Mandatory)

Witnessed by:

Signature of Witness: _____
Name of Witness: _____
Date: _____

Signature of Witness: _____
Name of Witness: _____
Date: _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O. Gulshan-e-Iqbal

SSTW-05

Ref No _____ Dated _____

M/s _____

SNTN _____

Address _____

NOTICE UNDER RULE 3(1) OF THE SINDH SALES TAX SPECIAL PROCEDURE (WITHHOLDING) RULES, 2011.

Dear Sir,

Kindly note that we are a withholding agent under the Sindh Sales Tax Special Procedure (Withholding) Rules, 2011, and that we shall withhold and deduct the prescribed amounts of Sindh sales tax against your tax invoices in relation to the services provided or rendered by you to us. We hold NTN/FTN .....

2. We undertake to deposit the withheld/deducted amounts of Sindh sales tax in the Sindh Government's head of account "B-02384" against a SRB-prescribed PSID/Challan (SST-04 or SSTW-04) in the manner prescribed under the aforesaid Sindh Sales Tax Special Procedure (Withholding) Rules, 2011, and we shall provide you a certificate of deduction-cum-deposit in terms of rule 3(9) thereof.

Signature _____

Name _____

CNIC _____

Designation _____

Date _____

Official seal _____

Sui Southern Gas Co. Ltd. Procurement Dept. H.O Gulshan-e-Iqbal

Sui Southern Gas Company Limited

Procurement Department

Standard Advisory to all Bidders

SUB: Sindh Sales Tax Withholding On Services Payment

(Effective from 1 July 2024)

Dear Sir,

Background

Please be informed that:

1. Uptil February 2024, SSGC deducted 20% of Sindh Sales Tax amount from Invoice value payable to a Vendor for services rendered in Sindh & deposit the same with Sindh Revenue Board, while remaining 80% is deposited by the Vendor themselves.

2. From March 2024 – June 2024, SSGC deducted 80% of Sindh Sales Tax amount from Invoice value payable to a Vendor for services rendered in Sindh & deposit the same with Sindh Revenue Board, while remaining 20% is deposited by the Vendor themselves

Amendment in Law

Sindh Revenue Board (SRB) has amended Withholding Rules thereby requiring SSGC to deduct 20% of sales tax amount from Invoice Value.

Revised Procedure for Sindh Sales Tax Withholding

In order to ensure implementation of above amendment, following process is being implemented 01. July 2024:

1) 80% Sales Tax to continue to be withheld on 'Past" Invoices only (where Vendor has already deposited 20% Sales Tax in Government treasury provides evidence thereof).

2) 20% Sales Tax will be deducted on Current and future invoices (while 80% will be deposited by vendor directly with SRB)

It is needless to mention that only Sindh Withholding Rules have been amended white there is no change in other Rules (income tax withholding Balochistan Sales Tax withholding; etc.)

SSGC

سوئی سدرن گیس کمپنی لمیٹڈ
پروکیورمنٹ ڈیپارٹمنٹ

تمام ٹھیکیداروں کے لئے معیاری ایڈوائزری

خدمات کی ادائیگی پر سندھ سیلز ٹیکس
(۱ جولائی ۲۰۲۴ سے نافذ العمل)

<u>پس منظر</u>

مطلع کیا جائے کہ:

1. فروری 2024 تک، SSGC نے سندھ میں فراہم کی جانے والی خدمات کے لیے وینڈرز کی انوائس ویلیو سے سندھ سیلز ٹیکس کی رقم کا 20% کاٹ لیا ہے اور اسے سندھ ریونیو بورڈ کے پاس جمع کرایا ہے، جبکہ وینڈرز بقیہ 80% خود جمع کراتے ہیں۔

2. مارچ 2024 سے جون 2024 تک، SSGG نے سندھ میں فراہم کی جانے والی خدمات کے لیے وینڈرز کی انوائس ویلیو سے سندھ سیلز ٹیکس کی رقم کا 80% کاٹ لیا ہے اور اسے سندھ ریونیو بورڈ کے پاس جمع کرایا ہے، جبکہ بقیہ 20% وینڈرز خود جمع کراتے ہیں۔

<u>قانون میں ترمیم</u>

سندھ ریونیو بورڈ (SRB) نے ود ہولڈنگ رولز میں ترمیم کی ہے جس کے تحت SSGC کو انوائس ویلیو سے سیلز ٹیکس کی رقم کا 20% کٹوتی کرنا ہوگی۔

<u>سندھ سیلز ٹیکس ودہولڈنگ کا نظرثانی شدہ طریقہ کار</u>

مندرجہ بالا ترمیم کے نفاذ کو یقینی بنانے کے لیے، 01 جولائی 2024 سے درج ذیل عمل کو نافذ کیا جا رہا ہے:

1) 80% سیلز ٹیکس صرف 'ماضی' انوائسز پر کٹوتی جاری رہے گی (جہاں وینڈر نے پہلے ہی سرکاری خزانے میں 20% سیلز ٹیکس جمع کرایا ہے اس کا ثبوت فراہم کرتا ہے)۔

2) 20% سیلز ٹیکس موجودہ اور مستقبل کے انوائسز پر کاٹا جائے گا (جبکہ 80% وینڈر براہ راست SRB کے ساتھ جمع کرائے گا)

یہ واضح رہے کہ صرف سندھ ودہولڈنگ رولز وائٹ میں ترمیم کی گئی ہے دیگر رولز (انکم ٹیکس ود ہولڈنگ بلوچستان سیلز ٹیکس ود ہولڈنگ وغیرہ) میں کوئی تبدیلی نہیں کی گئی ہے۔