

SCOPE OF WORK

Cleaning and post-cleaning inspection of coils of OS-2 Unit No 1 heaters KR-701/1, KR-701/2 and OS-3 heater KR-1 using Intelligent Pigging Method in 2027-2029

1. General.

1.1. During 2027 Turnover, 2027 Autumn Shutdown and both Spring and Fall Shutdowns of 2028-2029, it will be required to perform inspection of coils of GP-2 KT-1/1 S-001/2 heaters KR-701/1 and KR-701/2, and GP-3 VF heater KR-1, by measuring coil wall thickness using Intelligent Pigging Inspection after internal hydromechanical Pigging cleaning of coil tubes and elbows. Cleaning of coils in GP-2 heaters KR-701 and KR-701/2 is typically carried out during spring shutdowns, while cleaning of heater KR-1 is typically carried out twice a year: in spring (March-April) and in fall (October).

2. Attachments.

- 2.1. Heater KR-701/1 and KR-701/2 drawings with comments.
- 2.2. KR-1 diagrams with comments.
- 2.3. Work pricing tables No. 1 and No. 2

3. Description and specifics of work.

3.1. General requirements.

3.1.1. Prior to the commencement of works, the **Contractor** shall prepare a waste management plan and submit it to the Owner for approval. The waste management plan shall be agreed with the Owner's Project Manager, the Head of Operations, and a specialist from the Environmental Department. All generated waste shall be handled in accordance with the approved waste management plan and in compliance with the Owner's Waste Management Rules.

3.1.2. In accordance with ORLEN Lietuva OHS Procedure for Contractors BDS-40 ([available at https://www.orldenlietuva.lt/EN/ForBusiness/DocumentsForContractors/Pages/Occupational-Safety-and-Health-Documents.aspx](https://www.orldenlietuva.lt/EN/ForBusiness/DocumentsForContractors/Pages/Occupational-Safety-and-Health-Documents.aspx)), the Contractor shall prepare an Occupational Health and Safety Plan.

3.1.3. The **Contractor** shall be solely responsible for obtaining all permits and approvals necessary to mobilize its equipment and execute the works within the Owner's premises.

3.1.4. To obtain a permit to connect its electrical equipment to the Owner's power network, the **Contractor** shall comply with all Owner requirements set forth in ORLEN Lietuva Occupational Health and Safety Procedure for Contractors BDS-40.

3.1.5. The **Contractor's** scope shall include all works described or specified in the drawings (attachments), specifications. Any minor works not explicitly indicated in the drawings or specifications, but which are necessary to ensure proper functionality and completeness of the works, shall be deemed to be included in the **Contractor's** scope.

3.1.6. The **Contractor** shall provide its personnel with amenity, office, and sanitary facilities and shall ensure that such facilities and work areas are properly maintained and kept clean and orderly.

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- 3.1.7. All office containers and tool containers, including their mobilization and demobilization, shall be included in the price of works. The **Owner** will provide designated areas for placement of the site containers and access to utility connection points (electricity, water supply, and sewerage). The **Owner** will provide portable toilets both within the site container area and at the process facilities.
- 3.1.8. The **Contractor** must engage a certified electrician responsible for the connection and disconnection of the **Contractor's** electrical equipment.
- 3.1.9. A waybill is required for the **Contractor** to transport equipment, materials, and other items into the Owner's premises. Each waybill shall bear an appropriate stamp or marking confirming delivery. Waybills shall be submitted to the Owner's work supervisor together with the corresponding material write-off documentation. This requirement applies only to materials supplied by the **Contractor**.
- 3.1.10 The **Contractor** shall connect all temporary facilities (including trailers, amenity and sanitary units, welding stations, and any other facilities required for the execution of the works) to the existing utilities. (The Owner will designate the connection points.)
- 3.1.11 The **Contractor** shall prepare all waste resulting from the cleaning of heaters for disposal in accordance with the agreed Waste Management Plan, which shall specify the quantities and types of waste to be generated and the methods for their handling and disposal. Transportation of coke waste from collection site will be arranged by the **Owner**.
- 3.1.12 After work completion, the **Contractor** shall clean up the site. Mobilization costs shall be included in the price of works.

3.2. Description of works.

All heater coil tube wall thickness inspection works must be performed immediately after cleaning. Preliminary inspection e-report must be submitted within 24 hrs after completion of work. Final report (both hard and soft copy) must be presented by the Contractor to the Owner within maximum 15 calendar days after completion of inspection.

During 2027-2029 Spring and Autumn Shutdowns, hydromechanical cleaning (pigging) of OS-2 KT-1/1 S-001/2 heaters KR-701/1, KR-701/2 and OS-3 VF heater KR-1 will be performed in order to remove coke from the coil tubes and elbows. In addition, in order to facilitate the inspection, after cleaning it will be required to perform intelligent pigging inspection measuring coil wall thickness; however, the need for this inspection shall be specified by the Owner no later than two months prior to each shutdown.

1. Each radiant and crossover section of KR-701/1 and KR-701/2 has two streams. Convection section has 4 streams. The scope for one stream:
 - Radiant section for one stream – tube O.D. 141x9,53 -640m, elbows 90° (with inserts) O.D. 152.3x16 – 58 pcs. with internal diameter I.D. 120 mm.
 - Steam inlets for one stream in the radiant section – tube O.D. 33.4 length 1250 mm 2 pcs.
 - Crossover section for one stream – tube O.D. 127x11 length 240 m, elbows 180° - O.D.- 127x10. 10 pcs/one stream.
 - Convection section for one stream – tube O.D. 114.3x11.3 length - 320 m, elbows 180° O.D. 114, 3x9/11 - 17 pcs.

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- Adapter spools at the top and bottom Ds150xPs160 / 6"300 are used for cleaning of the coils of the heaters KR-701/1, 2. Pigging equipment flanges 6" 300 class, RF at the top and the bottom.
- 2. The radiant and convection sections of KR-1 have two streams each. The scope for one stream:
 - Radiant section for one stream – tube O.D. 168.3x7.11 -1506 m, elbows 180° 6"#300(O.D. 168.3x7.11) – 27 pcs. with internal diameter I.D. 154 mm
 - Condensate inlet for one stream in the radiant section – tube O.D. 88.9 length 183 mm 1 pcs.
 - Convection section for one stream- tube O.D. 141.3x6.55 length - 435 m, elbows 180° 5"#300 (O.D. 141.3x6.55) - 16 pcs.
 - Connection at KR-1 process inlet - flange 6" class 300, process outlet – flange 8" class 300.

3.3. Special requirements (if applicable).

3.3.1. Intelligent pigging inspection per each heater KR-701/1;KR-701/2; KR-1 may not take longer than one day.

3.3.2. Total duration of tube cleaning and intelligent pigging inspection per each heater KR-701/1, KR-701/2 cannot take longer than 4 days, including (de)mobilization.

3.3.3. Total duration of tube cleaning and intelligent pigging inspection of heater KR-1 cannot take longer than 3 days, including (de)mobilization.

3.3.4. Preliminary KR-701/1 and KR-701/2 intelligent pigging inspection report with wall thicknesses indicated in it must be presented within 24 hrs after inspection and in any case no later than within 120 hrs from the start of cleaning works.

3.3.5. Preliminary KR-1 intelligent pigging inspection report with wall thicknesses indicated in it must be presented within 24 hrs after inspection and in any case no later than within 96 hrs from the start of cleaning works.

3.3.6. Preliminary report and diagrams must show most depleted, deformed heater elements, which require replacement or more detailed inspection with other methods, and their limits.

3.3.3. Mobilization costs shall be included into the price of works.

3.3.4. Amenity and tool storage trailers (including their mobilization/demobilization) shall also be included into the price of works. The **Owner** will provide place for such trailers, possibility to connect to power, water and sewage network. Toilets will be provided by the **OWNER** both within the area of trailers and in process facilities.

3.3.5 Post-cleaning inspection of heaters KR-701/1, KR-701/2, and KR-1 is not carried out after every cleaning operation. The Owner shall inform the Contractor of the need to perform heater coil inspection (Smart Pigging Inspection) no later than two months prior to the commencement of the works. The Contractor shall confirm in the technical part of the proposal that the commercial part includes both hydromechanical cleaning and cleaning with inspection, and that prices for both options have been provided for each shutdown, by completing Tables No. 1 and No. 2.

3.3.6 Under normal company's operation, both heaters KR-701/1 and KR-701/2 are usually cleaned simultaneously, and after that heater KR-1 is cleaned. Under certain conditions, a different cleaning

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scenario is possible, e.g., where GP-2 heater KR-701/2 and GP-3 heater KR-1 are cleaned simultaneously. When submitting its commercial proposal, the Contractor shall take such scenarios into account and include them in its assessment and pricing.

3.3.7 Due to production-related reasons, it is possible that only one of the KR-701 heaters shall require cleaning. The Contractor shall take this scenario into account when preparing its commercial proposal. When submitting its proposal, in the commercial part the Contractor shall take into account the possibility that mobilization and attendance may be required to clean coil of only one KR-701 heater, and shall include the associated costs in its pricing.

3.4. Requirements for work execution and documentation.

3.4.1. Prior to the commencement of the cleaning works, the Contractor shall submit baseline data in the form of a hard-copy report (an electronic version is also preferred) on the flow characteristics of each heater coil stream, based on recorded pressure and flow-rate measurements.

3.4.2. Upon completion of the cleaning works, the Contractor shall submit a final report in hard-copy form (an electronic version is also preferred) on the flow characteristics of each heater coil stream, based on recorded pressure and flow-rate measurements.

3.4.3. After cleaned heater coil wall thickness measurement, the Contractor shall present soft and hard copy report on measured coil element wall thickness.

3.5. Qualification and technical requirements for contractor.

QUALIFICATION CRITERIA	YES/NO (if YES, attach supporting documents, otherwise proposal may be rejected. If NO, proposal will be rejected).
Valid certificate issued by the National Energy Regulatory Council (NERC) of the Republic of Lithuania which entitles to perform this type of works. If currently such certificate is not available, present letter of commitment that such certificate will be obtained no later than two weeks before the start of works. Note: if certificate or letter of commitment is not presented, proposal will be rejected.	YES / NO
List of subcontractors (if any). Where subcontractors are indicated, it shall be required to present their valid (NERC) certificates for respective works. If subcontractors are indicated but not named and/or valid VERT certificates are not provided, the proposal will be rejected, or, where applicable, subject to further clarification.	YES / NO

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List of similar works performed in the recent 5 years. Note: the works shall be those performed in oil refineries. If the list is absent or works are not similar to those specified herein or were performed not in oil refineries, proposal will be rejected.	YES / NO
Confirm that after KR-701/1, KR-701/2 and KR-1 coil pigging you can perform coil tube wall thickness measurement by intelligent pigging inspection.	YES/NO
Present confirmation that it will be possible to clean and inspect two heaters at the same time.	YES / NO
Present confirmation that total duration of tube cleaning and intelligent pigging inspection per each heater KR-701/1, KR-701/2 shall not take longer than 4 days or 96 hrs (including (de)mobilization) and that preliminary post-inspection report shall be presented within max. 120 hrs from the start of cleaning.	YES / NO
Present confirmation that total duration of tube cleaning and intelligent pigging inspection of heater KR-1 shall not take longer than 3 days or 72 hrs (including (de)mobilization) and that preliminary post-inspection report shall be presented within max. 96 hrs from the start of cleaning.	YES / NO
List of company employees with employment contracts and crane operation manager (supervisor) certificates.	YES / NO
List of company employees with employment contracts and rigger qualification.	YES / NO
TECHNICAL CRITERIA	YES/NO (if YES, attach supporting documents, otherwise proposal may be rejected. If NO, proposal will be rejected).
Confirmation that, upon completion of the cleaning works, hard-copy and electronic reports on the quality of the cleaning performed will be provided.	YES / NO
	YES / NO

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Present signed work schedule for the following work mode: two 11-hour shifts 7 days/week. Note: in case of failure to submit such signed Schedule, the proposal will be rejected.	
Number of workers in each team (crew). In case of failure to present such information, the proposal will be rejected. The number of crews must correspond to the work schedule. This information should preferably be submitted together with the work schedule.	YES / NO
Clearly specify the equipment that will be assigned to each crew, including the quantity and technical specifications of each equipment unit. The quantity of equipment must correspond to the number of brigades because inspection works are to be performed at the same time. This information shall be submitted together with the work schedule.	YES / NO
Number of work managers. Owner requires at least 1 work manager per shift. Failure to provide this information will result in the proposal being rejected.	YES/NO

4. Materials, equipment, and services to be provided by the Owner.

- 4.1. Scaffolding and insulation – by **another contractor engaged by the Owner**;
- 4.2. Mobile crane and forklift – by **another contractor engaged by the Owner**;
- 4.3. 3-ton containers for coke collection – **by another contractor engaged by the Owner**;
- 4.4. Water connection points will be indicated by the Owner's staff of the process facility where cleaning and inspection works will be performed.
- 4.5. All piping sections and inserts which obstruct the connection of cleaning and inspection equipment shall be (de)mounted by **another mechanical contractor engaged by the Owner**.

5. Materials, equipment, and services provided by the Contractor.

- 5.1. All required equipment for cleaning shall be provided by the Contractor.
- 5.2. Flow and pressure measurement with possibility to print out and save on electronic media shall be provided by the Contractor.
- 5.3. All materials needed for connecting to the cleaned heaters – from the Contractor.
- 5.4. Equipment for heater coil element wall thickness measurements and saving of data on electronic media - by the Contractor.
- 5.5. Nozzles for connecting to the Owner's firewater supply pipes – by Contractor.

6. Requirements for work completion.

- 6.1 All works shall be completed in accordance with the submitted and approved schedule;

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6.2. Heater KR-701/1, KR-701/2, and KR-1 coil inspection findings in the form of soft-copy report must be presented to OL work coordinator for the assessment of the technical condition of coils and estimation of the scope of required repairs. Preliminary report to be presented within max. 24 hrs after completion of inspection.

6.3. All waste generated during the cleaning works shall be segregated, packaged, labeled, and according to Owner's requirements specified in the approved waste handling plan.

6.4. After completion of the works, the work site and territory shall be cleaned up and transferred over to OL work coordinator and head of unit against signature of respective Handover and Acceptance Statement (HAS).

7. Requirements for work acceptance.

7.1. The worksite shall be cleaned and restored, including the proper removal of waste and the repair of any equipment or other property damaged during the execution of the works.

7.2. HAS with final inspection report to be presented for each heater separately.

7.3. The Contractor shall be paid after signing a work handover-acceptance statement.

8. Requirements for work schedule.

8.1 All works shall be done according to the schedule provided by Owner;

8.2. The works shall be performed in two 11-hour shifts 7 days a week.

8.3 Preliminary schedule of shutdowns for cleaning of heaters KR-701/1, KR-701/2 and KR-1:

8.3.1 The 2027 spring shutdown coincides with the Company's Turnaround. The planned shutdown is: from 3 May 2027 to 7 June 2027.

8.3.2. The planned 2027 fall shutdown is: from 4 October 2027 to 20 October 2027.

8.3.3. The planned 2028 spring shutdown is: from 6 March 2028 to 22 March 2028.

8.3.4. The planned 2028 fall shutdown is: from 5 October 2028 to 21 October 2028.

8.3.5. The planned 2029 spring shutdown is: from 5 March 2029 to 21 March 2029.

8.3.6. The planned 2029 fall shutdown is: from 5 October 2029 to 21 October 2029.

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