AB ORLEN LIETUVA

APPROVED BY:
Director of Quality, Labour Safety and Environmental Control
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OCCUPATIONAL HEALTH AND SAFETY PROCEDURE BDS-33 OPERATION AND MAINTENANCE OF LIFTING CRANES

I. GENERAL

Purpose and Scope of Application

1. Occupational Health and Safety Procedure BDS-33 'Operation and Maintenance of Lifting Cranes' (hereinafter, the Procedure) aims at defining the occupational health and safety requirements for maintenance and operation of lifting cranes and crane equipment at AB ORLEN Lietuva (hereinafter, the Company).

2. This Procedure shall apply to all employees of the Company and its contractors (to the extent required by a contract concluded between the Company and a contractor) operating the lifting cranes and involved in their maintenance.

II. REFERENCES

3. This Procedure has been developed in line with the effective revisions of the following documents:

3.1. Regulations on Safe Operation of Lifting Cranes approved by the Minister of Social Security and Labor of the Republic of Lithuania;

3.2. Recommendations on Operation of Lifting Cranes approved by the Chief State Labor Inspector of the Republic of Lithuania;

3.3. Safety Rules for Operation of Electric Equipment approved by the Minister of Energy of the Republic of Lithuania;

3.4. Law of the Republic of Lithuania on Supervision of Potentially Hazardous Installations;

3.5. Regulations on the Use of Occupational Health and Safety Signs in the Workplace approved by the Minister of Social Security and Labor;

3.6. Standard LST EN 14502–1 Cranes. Equipment for the lifting of persons. Part 1. Suspended baskets.

III. TERMS AND DEFINITIONS

4. The terms used herein shall be defined as follows:

Expert – a representative of the notified body for inspection of technical condition of potentially hazardous installations authorized to inspect the technical condition of lifting cranes.

Notified body for inspection of technical condition of potentially hazardous installations (notified body) – a legal entity established in the Republic of Lithuania, a legal entity or other organization established in another Member State of the European Union or the European Economic Area, or branch thereof established in the Republic of Lithuania or another Member State, recognized by accreditation bodies as competent to inspect the technical condition of potentially hazardous installations [3.4].

Lifting crane (crane) – lifting machine that can be used to lift and move the loads suspended on a hook or any other device for grabbing and lifting loads.

Bridge (overhead) crane – crane with its lifting component (hoist) traveling along the bridge beam. The bridge (that includes a beam or runways) may move or be rigidly supported (fixed). Mobile bridge travels along a rail and may be mounted directly on a chassis or vertical supports with a chassis, or may be of mixed type. Fixed bridge is rigidly mounted to the supporting structures (e.g. of building);

Jib (boom) crane – crane where a lifting component is fixed to a jib or a trolley traveling on a jib, e.g. truck mounted boom crane, crawler boom crane, tower crane, etc.;

Cable crane (with carrying ropes) – crane with lifting device mounted to a trolley traveling on the rope stretched between two anchoring points.

Lifting equipment – lifting mechanisms (manual and electric hoists and winches, spreader beams, etc.), safety devices (load limiters, load moment limiters, crane mounting devices, etc.), lifting accessories (wire rope and chain slings, synthetic slings, lifting chains, lifting hooks, etc.).

Crane lifting capacity – the maximum lifting load of a crane (it includes the weight of a clamshell bucket, electromagnet, spreader and other detachable lifting accessories).

Crane repair – replacement of broken or otherwise unusable parts and assemblies with equivalent parts or assemblies, or repair thereof without altering the crane technical characteristics. Crane modification works are not considered maintenance.

Crane modification – actions to change the crane technical characteristics, e.g. replacing the drive, increasing the width of opening, extending the boom length, increasing of the lifting height, reinforcing the crane to increase its lifting capacity, when such alterations have not been included into the crane technical documentation, also other cases of technical modifications that may cause load changes in crane assemblies and structural elements, crane stability and rigidity. Modification is not a technical maintenance.

Crane Maintenance Specialist – Senior Engineer of Equipment Technical Supervision and Materials Analysis Group of the Company's Mechanical Department, holding a Crane Maintenance Foreman Certificate and assigned, by decree of Equipment Technical Supervision and Materials Analysis Manager, to perform maintenance of the Company's lifting equipment.

Crane Maintenance Foreman – an employee of the Company who is subordinate to Director of Maintenance, holds a Crane Maintenance Foreman Certificate and is assigned, by decree of Director of Maintenance, to organize and coordinate maintenance and repairs of lifting equipment of a relevant organizational unit.

Crane Supervisor – an employee trained as prescribed by this Procedure, possessing required expertise and skills and certified as Crane Supervisor. At the Company, Crane Supervisor shall be appointed with decree by the head of organizational unit where works with crane are performed. At contractor’s company, Crane Supervisor of shall be appointed by CEO or representative of contractor’s company responsible for execution of works on the site.

Crane Operator – an employee trained as prescribed by this Procedure, possessing required expertise and skills and certified as Crane Operator. At the Company, Crane Operator for crane operations and movement of loads shall be appointed with decree by the head of organizational unit where works with crane are performed. At contractor’s company, Crane Operator for crane operations and movement of loads shall be appointed by CEO or representative of contractor’s company responsible for execution of works on the site.

Inspection of Crane Electric Parts – periodical inspection of the machine condition with various measuring devices being subject to control (when assembled), repairs and measurements with operating voltage on. If required, voltage of electrical motors, generators and other units may be disconnected, and sensors, measuring devices, etc. can be replaced. Partial repairs are made when no special disassembly works are required.

Rigger – an employee trained as prescribed by this Procedure, possessing required expertise and skills and certified as rigger. At the Company, Rigger for rigging/slinging operations shall be appointed with decree by the head of organizational unit where works with crane are performed. At contractor’s company, Rigger for rigging/slinging operations shall be appointed by CEO or representative of contractor’s company responsible for execution of works involving lifting crane on the Company.

Signaler – a Rigger assigned by Crane Supervisor to ensure communication (by radio or using hand signals) with Crane Operator and to precisely direct the load, if Crane Operator is not able to see the whole path of the load being lifted neither directly nor using additional equipment. Functions of signaler may also be performed by Rigger provided that he/she can perfectly see the whole path of the load and is at all times seen by Crane Operator.

IV. DUTIES OF EMPLOYEES

5. **Crane Maintenance Specialist shall:**

5.1. Following the procedure set forth in the effective Regulations on Safe Operation of Lifting Cranes [3.1], register and de-register the Company-owned cranes, arrange inspections of crane technical condition in a due and timely manner, and participate in such inspections;

5.2. Develop schedules of crane technical inspections and repairs, and exercise control over their observance;

5.3. Immediately discontinue crane operation in case of any operation malfunctions, failures or other hazardous factors, and resume the operations only after elimination of the risk causes;

5.4. Participate in the commission for examination of the crane personnel knowledge;

5.5. Exercise control over execution of instructions given by a notified body expert or officers of other controlling authorities;

5.6. Participate in investigation of incidents (accidents, failures, etc.) related to crane operation and maintenance, and provide for measures to prevent such incidents in future;

5.7. Keep the crane-operation related documents (documents provided by the manufacturer, passports, operation manuals, results of technical inspections, etc.) and, if necessary, provide such to the employees involved in routine crane maintenance activities;

5.8. Provide Crane Maintenance Foremen and Crane Operators of the Company with the logbooks referred to in Attachments 1, 2, and 3 as well as exercise control over making records in such logbooks (this item shall not apply to crane owners of other companies as the Logbook format and required entries are determined by crane owner itself in view of the requirements of the Regulations on Safe Operation of Lifting Cranes [3.1]);

5.9. Draw up the list of the Company lifting cranes with indication of the main characteristics of each crane, and frequency of partial and full inspections of their technical condition.

6. **Director of Maintenance shall:**

6.1. Arrange for crane operation control and continuous supervision in each organizational unit of the Company where cranes are installed;

6.2. Appoint Crane Maintenance Foreman for each organizational unit of the Company where cranes are installed, by issuing a relevant decree, and oblige him/her to exercise crane operation control and continuous supervision of the cranes in a particular organizational unit;

6.3. Ensure routine crane maintenance, appoint/hire the employees (fitters, electricians) of adequate qualification, specially trained for this purpose, or outsource a company specialized in such activities and having the qualified personnel.

7. **Crane Maintenance Foreman shall:**

7.1. Ensure that the cranes, rail tracks and lifting accessories are in proper technical condition and used in line with the manufacturer' procedures, Recommendations on Operation of Lifting Cranes [3.2], and this Procedure;

7.2. Supervise crane assembly, maintenance progress and quality, ensure serviceability of crane lifting equipment, prepare crane for technical inspection, arrange routine crane maintenance, and assess fitness of rail tracks for service;

7.3. Ensure timeliness of crane technical inspections, and participate in such inspections;

7.4. Ensure safety of routine crane maintenance works;

7.5. Fill in the crane passport;

7.6. Keep records of lifting accessories in accordance with the established procedure, carry out inspections, ensure proper storage and use of lifting accessories, and keep records in the Lifting Accessories Recording and Inspection Logbook (see Attachment 2). Where lifting accessories of the contractor are used, recording, inspections, storage and usage thereof shall be the responsibility of such contractor;

7.7. Observe and follow the instructions given by Crane Maintenance Specialist of the Company, a notified body expert, officers of other controlling authorities;

7.8. Discontinue or prevent commencement of the works involving crane operations in the following cases:

7.8.1. If the crane is not registered with the State Register of Potentially Hazardous Equipment;

7.8.2. If a non-certified crane operator was assigned, no riggers assigned or riggers not trained, or Crane Supervisor not assigned;

7.8.3. If a conclusion of a notified body on the crane fitness for safe use is not available;

7.8.4. If written instructions issued by a notified body expert or other controlling authorities have not been fulfilled;

7.8.5. in case of any cracks or other crane structure defects reducing the strength of structure and causing risk to health and safety;

7.8.6. in the event of non-acceptable wear and tear of hooks, wire ropes, chains;

7.8.7. If load lifting or boom reach changing mechanisms are out of order;

7.8.8. If brakes of load lifting or boom reach changing mechanisms are out of order;

7.8.9. If hook height limiter, nominal lifting capacity limiter, signaling devices, other safety devices are out of order, or there are other defects posing threat to health, environment, or property;

7.8.10. If Work Method Statement has not been prepared and agreed with the crane owner;

7.9. In case it is identified that crane poses the risk of accident, threat to human health and/or life, threat to assets or environment, ensure that crane is operated only when identified irregularities are fixed;

7.10. Allow routine maintenance to be performed exclusively by the qualified employees (electricians, metal workers, etc. of adequate competences);

7.11. Take care that Crane Operators and employees involved in routine crane maintenance receive occupational safety and health procedures, read them and comply with the requirements set forth therein;

7.12. Ensure protection of crane steel structures against corrosion. Openings for water discharge from the closed cavities of crane must be open;

7.13. Verify the observance of work release and permit issuing procedure;

7.14. Make entries in chronological order in the Crane Routine Maintenance and Repair Logbook (Attachment 3) on routine maintenance activities, inspection results, repairs, accidents, failures, malfunctions, modifications, technical checks and other crane related activities.

8. 8. **Crane Supervisor shall:**

8.1. Prior to commencement of works, make sure that all required technical inspections have been performed, and the crane is fit for operation;

8.2. Ensure planning, organization, coordination, execution and supervision of works involving crane operations;

8.3. Ensure compliance with the occupational health and safety requirements while planning, executing and supervising all lifting operations;

8.4. Identify and initiate preparation of the documents required for lifting works (Work Method Statements, crane setup, load rigging, lifting schemes, etc.);

8.5. Check the certificates of Crane Operator, Riggers, verify entries in the Crane Inspection Logbook (Attachment 1);

8.6. Assign the required number of Riggers and, if necessary, Signalers, and establish the methods for exchanging signals between Riggers (Signalers) and Crane Operator (hand signals, verbal, by phone, radio, etc.);

8.7. According to work execution plan or method statement (part of Construction Work Method Statement Design) prepare rigging diagrams for all loads which are going to be lifted with crane and familiarize with them the Riggers, Crane Operators and other people involved in lifting crane operations or personally supervise and lead crane operations;

8.8. Select the detachable load securing devices according to the weight and dimensions; do not allow using any lifting accessories without marking, or lifting accessories that do not correspond to the crane lifting capacity and load type. Make sure no defective, unmarked or non-inspected lifting accessories are kept on the work site;

8.9. Notify Crane Operator and Riggers of the weight and dimensions of loads to be lifted, the location and procedure of their storage;

8.10. Exercise control over compliance by Crane Operators and Riggers with the occupational health and safety requirements and, if necessary (e.g. after crane is relocated to other workplace, or Riggers or Crane Operator change, or loads are lifted under newly-developed rigging plans, or lifting works executed under work method statement, etc.), indoctrinate them on site about safe execution of the lifting works;

8.11. Make sure that Riggers secure the load properly, and no unauthorized persons stay on site;

8.12. Fence off exclusion zone with warning barrier tape, mark with warning signs and prevent any unauthorized access during lifting operations;

8.13. When load is lifted using several cranes, personally lead and manage entire lifting process, set communication methods between Crane Operators and ensure a coordinated and safe work of all Crane Operators;

8.14. In work execution plan define cases when it might be necessary to move the loads over production, residential or office premises where people are present and ensure that appropriate safety measures are in place and personally supervise and lead crane lifting operations;

8.15. Prohibit crane operations outdoors, when weather conditions deteriorate to the point of jeopardizing safety and health of employees, take measures to prevent the crane collapse or movement, and lower the load safely to the relevant place;

8.16. For reversing of self-propelled cranes in the territory of process units or other territories of the Company where the risk of collision exists, Crane Operator must be assisted by an employee who shall stay in a safe place, clearly visible to Crane Operator, and show safe path by means of hand signs, verbally, or any other way agreed with Crane Operator, until the crane is safely parked;

8.17. Make sure that the self-propelled crane is properly parked;

8.18. When lifting works are carried out under Work Method Statement, familiarize employees with such statement against their signature;

8.19. Assign Rigger as a signaler to communicate (by radio or hand signals) with Crane Operator and precisely direct the load, if Crane Operator is not able to see the whole path of the load being lifted neither directly nor using additional equipment. Functions of signaler may also be performed by Rigger provided that he/she can perfectly see the whole path of the load and is at all times seen by Crane Operator.

9. **Crane Operator shall:**

9.1. Each day before commencing works, make visual inspection of the crane and perform an idle testing of its key mechanisms (safety devices and equipment, brakes) following the prescribed procedure. Crane Operator shall enter the crane inspection results into the Crane Inspection Logbook (see Attachment 1);

9.2. Not commence lifting works in the following cases:

9.2.1. Cracks or deformations of the crane structural steel;

9.2.2. Cracks in the boom (jib) suspension elements, absence of pins, clamps in wire rope fastening points, or they are disengaged;

9.2.3. The number of worn-out or broken wires of a rope exceeds the allowable limits; any of the strands is broken or damaged;

9.2.4. Lifting (hoisting) mechanism has defects compromising the safe operation;

9.2.5. Hook throat worn out more than 10% of the initial cross-section height, hook throat safety latch is out of order, hook fastening in the shackle is damaged;

9.2.6. No lifting capacity limiter and signaling device or they are out of order; in cranes with electric drive – no overwind cutout device;

9.2.7. Additional supports are damaged or incomplete;

9.2.8. No safety covers for mechanisms, no electrical equipment insulation;

9.2.9. Breaks are out of order.

9.3. Inform Crane Maintenance Foreman or Crane Supervisor about the defects detected during the inspection;

9.4. Not commence the lifting works in the absence of lifting plans or work method statement. Perform lifting works with the permission of Crane Supervisor only;

9.5. Leave the crane cabin only when additional supports are lowered or fixed, except for the cases when support control devices are located inside the cabin;

9.6. Prior to commencing the work on a self-propelled crane, lift the heaviest load, which is to be lifted without changing the crane position, to the height of 0.2–0.3 m, and assess the condition of soil. If the condition of soil may change in the course of work due to the changed weather conditions, the procedure described in this item has to be repeated;

9.7. Each time before lifting the load, lift it to the height of 0.2–0.3 m and make sure the breaks are reliable as well as make sure that Rigger checks the correctness of rigging;

9.8. Having finished or interrupted the work lower the load to the specified location; do not leave it suspended. Switch off and lock the blade switch located in the cabin, and/or electric power supply blade switch. Lock up the crane cabin after completion of works;

9.9. Lift or shift the load only following the signs given by Rigger and/or Signaler, and follow instructions given by Crane Supervisor;

9.10. Relocate loads from one place to another at the height no less than 0.5 m above the objects located in the path of the load;

9.11. Do not lift the load when its weight exceeds the crane lifting capacity, and do not derive from the crane operating conditions specified by manufacturer;

9.12. Prior to reversing with self-propelled crane, make visual check of the roads for any obstacles, taking into consideration the distances to them. Drive at maximum speed of 5 km/h and watch the surroundings carefully using side mirrors. In case of any doubt, stop, disembark and reassess the distance to obstacle. Reversing of self-propelled cranes is prohibited within the territory of process units or other territories of the Company where the risk of collision exists, if no assistance is available by an employee who, from the safe place clearly visible to Crane Operator, shows the safe path by means of hand signs, verbally, or any other way agreed with Crane Operator until the crane is safely parked;

9.13. Ensure that the loading and boom (jib) position of a crane moving with the suspended load is as specified in the operating procedure. If no indication is available in the operating procedure or the crane is moving without any load, the boom (jib) has to be positioned along the movement direction. Moving the crane and rotating its boom simultaneously shall be prohibited, except for rail-mounted grab bucket cranes operating on a straight track section;

9.14. Participate in technical inspections of the operated crane.

9.15. Crane Operator SHALL NOT:

9.15.1. Work with lifting crane when weather conditions or other factors do not align with the conditions established in technical documents of lifting crane (e.g. wind speed over 15 m/s, thick fog, heavy rain, snow, thunderstorm, glazed frost, etc.). Conditions that do not allow to work shall be reported by Crane Operator to Crane Supervisor;

9.15.2. Maneuver loads through windows or to balconies without special window rigging platforms or special window rigging devices installed;

9.15.3. Lift vehicles or other loads with people in/on them;

9.15.4. Work when safeguards and brakes are not ready and/or blocked or do not function;

9.15.5. Turn on lifting crane mechanisms when people are present on lifting crane access platforms, in engine room, on boom, counterweight or other dangerous zones. Exception may apply to people inspecting and adjusting lifting crane mechanisms and electrical equipment. In this case, the mechanisms should be turned on under signal given by such person;

9.15.6. Work with a lifting crane that is under repair;

9.15.7. Drag the loads attached to the hook of lifting crane with load lifting ropes inclined across the ground, floor or railroad tracks;

9.15.8. Pull the slings, ropes and chains with lifting crane when they are pressed under loads;

9.15.9. Lift and move loads with people on them;

9.15.10. Lift loads that are frost-bound, partly buried, compressed or stuck.

10. **Rigger shall:**

10.1. Check the marking of lifting accessories and condition of slings (for presence of an information plate specifying the sling lifting capacity, number and testing date, for presence of any mechanical damages, knots, twisting). If any defects or flaws are noticed, notify Crane Supervisor thereof;

10.2. Safely rig (strap) the load and attach it to the crane hook;

10.3. Before giving a signal to lift the load, Rigger shall make sure that the load is reliably secured, nobody is holding it, and the load may not bump into anything/anybody; make sure that there are no loose parts, tools, etc. on the load;

10.4. Make sure there are no people next to the load or between the load to be lifted and the surrounding walls, towers or other equipment, as well as the boom and the load lowering zone; Rigger himself must also leave the dangerous zone;

10.5. Check the correctness of rigging upon lifting the load by Crane Operator to the height of 0.2–0.3 m;

10.6. Use the established signaling system during the load-lifting operations;

10.7. Observe the load relocation and make sure that Crane Operator maintains the height of no less than 0.5 m above the objects located on the path of the load;

10.8. Receive the load when it descends to maximum height of one meter from the ground. If higher, the Riggers shall use hooks and guy wires to direct the load. It is allowed to unsling the load only when it reaches the ground and becomes stable. When the load is descending or ascending, it is prohibited to push or pull the load to change its trajectory from vertical;

10.9. Prevent lifting of loads with their weight exceeding the crane lifting capacity. When the load weight is unknown, lifting of such weight is allowed only with Crane Supervisor's approval and under his/her direct supervision;

10.10. Turn (control) long and over-sized loads only with two guy wires or two hooks;

10.11. Perform the functions of Signaler as instructed by Crane Supervisor;

10.12. Signaler or Rigger, who is directly communicating to Crane Operator (verbally, by hand signs, radio or any other established method), has to wear a high visibility jacket;

10.13. Rigger SHALL NOT:

10.13.1. Stay next to working jib (boom) or tower lifting crane where the risk to be caught between rotating and fixed parts of the crane or rotating parts of the crane and other fixed objects (loads, structures, equipment, etc.) exists;

10.13.2. Allow to lift unstable load or load attached to one horn of double-horn hook;

10.13.3. Allow to lift loads that are buried, stacked with other loads, frost-bound, bolt-anchored, concrete-bound or otherwise fixed to the base that is not lifted;

10.13.4. Redirect ascending/descending or moving loads with own weight and adjust the slings when the load is lifted.

V. CRANE OPERATION REQUIREMENTS. TECHNICAL INSPECTION

11. Cranes shall be assembled and operated following the requirements set forth in the manufacturer’ documentation (operation manuals, procedures, etc.).

12. The crane in operation has to be appropriately marked, with indication of its type (make), registration number, lifting capacity (rated load), dates of completed and future technical inspections (sample of crane marking plate is provided in Attachment 4 hereto).

13. Prior to the commencement of operation, an entry shall be made in the crane passport with indication of the assigned Crane Maintenance Foreman (surname, and position). Such entry shall be made each time a new Crane Maintenance Foreman is assigned. When the assigned Crane Maintenance Foreman is on a sick leave, vacation, business trip, etc., the duties shall be performed by a substituting employee (his/her surname shall not be entered into the passport). Crane Maintenance Foreman shall be provided with proper conditions to perform his/her duties.

14. Crane can be operated only if its technical condition has been inspected and conclusion on its fitness for use submitted. Technical condition of a crane registered with the State Register of Potentially Hazardous Equipment shall be assessed and conclusion (Inspection Report) shall be submitted by a notified body expert. Technical condition of a crane not registered with the State

Register of Potentially Hazardous Equipment shall be assessed and conclusion (Inspection Statement) shall be submitted by Crane Maintenance Foreman of the Company.

15. Crane has to be assessed by performing technical inspections:

15.1. Before operating the crane for the first time;

15.2. When non-self-propelled crane is relocated and assembled on a new site;

15.3. Periodical inspections of cranes registered with the State Register of Potentially Hazardous Equipment:

15.3.1. Partial technical inspection (PTI) at least once in 12 months;

15.3.2. Full technical inspection (FTI) at least once in 36 months; full technical inspection of cranes with low operation intensity (e.g., cranes used for equipment maintenance in power houses, machinery rooms, pump houses, compressor houses) shall be performed at least once in 60 months;

15.4. Periodical inspections of cranes not registered with the State Register of Potentially Hazardous Equipment:

15.4.1. PTI at least once every 12 months. Partial technical inspection of cranes with low operation intensity (e.g., cranes used for equipment maintenance in power houses, machinery rooms, pump houses, compressor houses) shall be performed at least once in 30 months;

15.4.2. FTI at least once every 36 months. Cranes with low operation intensity shall undergo FTI at least once in 60 months;

15.5. Unscheduled inspections shall be performed after an accident, impact of natural phenomena, modifications, repairs of supporting structures by means of welding, long-term downtime (exceeding 12 months).

16. PTI and FTI frequency for each Company crane is defined in the list of the Company cranes prepared by Crane Maintenance Specialist and approved by Director of Maintenance of the Company.

17. When operating a crane moving on rail track, regular supervision of the rail track is required. At the frequency established by the Company, rail track inspections shall be performed, which shall include verification of track straightness, leveling, springing low spots in the load zones and other measured deviations. Inspection and measurement reports shall be kept together with the crane operation documents.

18. Rail track inspections at the Company shall be performed:

18.1. Periodically as set forth in Attachment 5 hereto;

18.2. In case of any indications of existing/possible deviations from the allowable dimensions of rail track;

18.3. Upon reasonable request of a notified body expert, or Crane Maintenance Specialist of the Company.

VI. REQUIREMENTS FOR THE PLACEMENT OF SELF-PROPELLED LIFTING CRANES

19. Self-propelled lifting cranes shall be placed as prescribed by lifting crane operation manual preventing from tilting, collapse or uncontrolled movement or displacement. It is important to evaluate the condition of soil under maximum load. For the placement of jib (boom) lifting cranes (crawler, truck, tower, etc.), the conditions of the site and operation gauge for each lifting crane as indicated in Construction Work Method Statement Design have to be considered.

20. Self-propelled lifting crane shall be positioned so that the distance between the rotating part of the crane in operation and buildings, loads, stacks and other objects is at least 1 meter. If the crane is placed on additional supports, all additional supports of the crane must be installed or technical documentation of the crane must be followed. The supports shall be placed on resistant and stable surfaces and outrigger pads. Outrigger pads of additional supports are a part of crane's inventory. The strength of pads shall be rated for maximum allowable load and load bearing area according to maximum ground bearing pressure of the crane. In case of insufficiently stable soil, excessive sloping of the site or other conditions, additional outrigger pads of larger area, thickness, special shape or other characteristics may be used. Such pads are subject to the same requirements as inventory pads. It is allowed to stack maximum two non-interconnected pallets under each support of lifting crane. All outrigger pads must rest on the base with their entire surface area. Additional supports of lifting crane must rest on the pads with their entire surface area and as close to the center of the pad as possible.

21. Self-propelled lifting cranes close to slopes or excavations must be placed maintaining distances specified in Table 1 hereof. If the distance is smaller, the slope must be reinforced.

Table 1

Excavation depth H, m	Topsoil				
	Sand or gravel	Loamy sand	Loam	Clay	Dry loess (clayey aeolian sediments)
Distance between the slope and nearest support, m					
1	1.5	1.25	1.0	1.0	1.0
2	3.0	2.4	2.0	1.5	2.0
3	4.0	3.6	3.25	1.75	2.5
4	5.0	4.4	4.0	3.0	3.0
5	6.0	5.3	4.75	3.5	3.5

22. It is prohibited to place self-propelled lifting cranes on recently poured non-compacted soil and sites with sloping greater than specified in technical documentation of the crane.

VII. LIFTING OPERATION REQUIREMENTS

23. Access to the control cabins shall be allowed only from the access platforms or elevated walkways.

24. Small-sized loads shall be lifted and moved in a special packaging and stacked in a way to prevent them from falling. Small-sized loads can only be lifted in an orderly packaging designated for and ensuring safe lifting. Such works shall be directly supervised by Crane Supervisor.

25. Lifting and lowering the loads at the distance less than 2 m from a wall, tower, stack, vehicle or other equipment shall be allowed only in the absence of people (including Riggers) between the load and the mentioned objects.

26. Load lifting site has to be clearly visible. In case of poor visibility (insufficient lighting, thick fog, heavy snow or rain, etc.) the works shall be discontinued.

27. Lifted load shall be positioned on the specially prepared place only to ensure it stays in place securely and does not fall, turn over, or slide off. When strapped load (with no lugs) is lifted or lowered, it has to be lowered either after placing timber beams underneath or on special supports in order to be able to easily withdraw slings from under the cargo without damaging them. Pallets of adequate strength have to be placed in the load storage location.

28. Lifting and moving by crane shall be allowed only of the loads with their weight not higher than crane lifting capacity, provided that crane operating mode specified in manufacturer's operating procedures is not violated.

29. Lifting works in the safety zones of electrical overhead lines may be performed only upon relevant instructions issued by the personnel operating the overhead lines, following the effective Safety Rules for Operation of Electric Equipment [3.3].

Additional Requirements for Lifting Operations by Contractor on Cranes of the Company

30. For operation of lifting cranes of the Company in the Refinery and in Pipelines and Terminal Operations Subdivision, the contractors shall be required to obtain a permit to work in accordance with OHS Procedure BDS-6E *Issue of Hazardous Work E-Permits* and for operation of lifting cranes in Power House of the Company to obtain instructions to work in accordance with OHS Procedure BDS-14E *Issuing Hazardous Work E-Instructions*. For operation of lifting cranes in places where explosive atmospheres cannot occur a permit or instruction for cold repair works shall be issued and for operation of lifting cranes in places where explosive atmospheres can occur a permit or instruction for hot works shall be issued.

31. Crane Maintenance Foreman shall issue a key to Work Supervisor or Crane Operator of the contractor for connecting electric circuit of an electric crane. After finishing the work, such key shall be returned to Crane Maintenance Foreman of the Company. Work Supervisor/Crane Operator of the contractor shall confirm the receipt of a key by signing on the Key Issue/Return Registration

Logbook, whereas the return of a key shall be confirmed by the signature of Crane Maintenance Foreman in the said Logbook.

VIII. LIFTING OPERATIONS PERFORMED UNDER METHOD STATEMENT

32. Method Statement shall be prepared when:

32.1.Two or more cranes are located so that the areas of their operation overlap;

32.2.A load is lifted using few cranes;

32.3.Loads are being lifted over buildings (facilities) with people inside;

32.4.In case the manufacturer has presented no technical requirements for installation and erection of cranes.

33. Work Method Statement shall include the following:

33.1. Crane setup scheme;

33.2. Crane rated capacity, hook lifting height, boom (jib) reach, taking into consideration the conditions of construction, installation or other planned works;

33.3. Safe distances from engineering networks, power networks and power transmission lines, roads and pedestrian walkways, safe distances for crane approach to buildings and material storage places;

33.4. Crane positioning and operation conditions near excavations;

33.5. Sequence of crane operations;

33.6. Conditions and procedures for the safe operation of several cranes operating on one track or parallel tracks;

33.7. Load securing (rigging) charts;

33.8. Load storage place and dimensions, access roads, location and layout of safety and warning signs, etc.

34. Work Method Statement (when required) shall be prepared by the contractor that will perform the lifting works.

IX. LIFTING GEAR AND LOAD RIGGING REQUIREMENTS

35. Lifting gear shall be maintained and stored protected against any mechanical damage and exposure to adverse environment.

36. Lifting gear shall be accompanied by the following technical documents: manufacturer-issued certificate; EC declaration of conformity (the certificate and declaration may be combined into a single document); documentation confirming CE marking; instructions for use and maintenance.

37. Only lifting gear marked by the manufacturer may be used for lifting operations. Each item shall have a label affixed that includes the following information:

- Manufacturer’s identification (serial) number, indicating traceability to the sling’s certification;
- Applicable standard and CE mark;
- Manufacturer’s name or logo and date of manufacture;
- Rated load capacity (maximum safe lifting weight).

38. Before use, lifting gear shall be inspected by the crane operation supervisor. Additional inspections shall be carried out by the crane maintenance foreman, based on operating conditions and frequency of use. Inspection results shall be recorded by the crane maintenance foreman in the Lifting Gear Inventory and Inspection Logbook (Annex 2). Damaged or defective lifting gear shall be immediately removed from service.

39. Removal criteria for lifting gear (slings) are as follows:

39.1. Wire rope slings shall be removed from service if any of the following conditions are present:

- Missing or illegible sling identification;
- Broken wires: for strand-laid and single-part slings, 10 randomly distributed broken wires in one rope lay, or 5 broken wires in one strand in one rope lay. For cable-laid slings, 20 broken wires per lay. For less than eight-part braided slings, 20 broken wires per braid. For eight-part or more than eight braided slings, 40 broken wires per braid;
- Severe localized abrasion or scraping;

- Kinking, crushing or any other damage resulting in damage to the rope structure;
- Corrosion of the rope, end attachments or fittings.

39.2. Chain slings shall be removed from service if any of the following conditions are present:

- Missing or illegible sling identification;
- Visible cracks or breaks;
- Visible wear, nicks;
- Stretched chain links or components;
- Bent, twisted, or deformed chain links or components;
- Excessive pitting or corrosion;
- Weld splatter.

39.1. Sling bands shall be removed from service if any of the following conditions are present:

- Missing or illegible sling identification;
- Acid or caustic burns;
- Melting or charring of any part of the sling;
- Tears, cuts, or snags;
- Broken or worn stitching in load bearing splices;
- Excessive abrasive wear;
- Knots in any part of the sling;
- Discoloration and brittle or stiff areas on any sling part which may mean chemical or ultraviolet/sunlight damage.

40. Unless manufacturer prescribes otherwise, crane hook shall be equipped with safety latches to prevent accidental detachment of the removable load securing device. Safety latch is required for both crane hook and sling hook.

41. Sling hooks shall be secured at the attachment points or load lifting lugs in a way to prevent slipping out or loosening, when ropes or chains are free of load. Lifting hook tip shall be placed into the load-lifting lug from the inside out. Hooks shall not be placed into small lugs (sufficient looseness should be kept between a hook and lug).

42. Slings and/or spreader beams shall be selected based on the load weight, number of rigging points and distance between them. When loads are lifted using the general-purpose slings, the angle between their legs should not exceed the angle indicated by a sling manufacturer and the lifted load manufacturer. Standard angle between the legs of general-purpose slings shall not exceed 90º.

43. Spreader beams shall be used for lifting of long loads, when lifting height is not big and also when the premises has low ceiling. When using spreader beams, lifting accessory tilt angle may be reduced or avoided. Load has to be kept under a spreader beam so as to avoid its overbending; projection of the load or its separate parts shall be also avoided. Furthermore, it is important to take into consideration the weight of the spreader beam itself and accordingly reduce the maximum weight of the load to be lifted.

44. Wire ropes, chains and lifting slings cannot be knotted, twisted, or pulled across sharp edges. It is necessary to use edge protection profiles or wire rope protective hoses.

45. Wire ropes shall be used for lifting loads with smooth, oily or slippery surface; whereas wire ropes with hooks shall be used for attaching a crane hook to load lifting lugs. Using the wire ropes for lifting sharp-edged and hot loads is prohibited. Only wire ropes of more than 8 mm diameter and natural and artificial fiber ropes of more than 16 mm diameter can be used as lifting accessories. Using the polyethylene ropes of orange color for lifting is prohibited.

46. Only standard ropes with standard end connections can be used for load rigging. Wire ropes should not be bent/twisted at the termination clamps/clips.

47. Chains must be used for lifting hot-surface loads, sharp-edged beams, girders or profiles. Chains with hooks shall be used for attaching the crane hook to load lifting lugs. Use of the chains for lifting loads with smooth or slippery surface is prohibited.

48. Chemical-fiber lifting slings and straps shall be used for lifting loads with extremely slippery or sensitive surface, e.g. rollers, shafts, varnished items:

48.1. Made of polyester – resistant to most acids and thinners, identifiable by a sewn blue label;

48.2. Made of polyamide with a sewn green label – alkali resistant;

48.3. Made of polypropylene with a brown label – with relatively low lifting capacity, however of high chemical resistance.

49. It is forbidden to use lifting slings and straps for lifting sharp-edged and hot loads. Lifting slings and straps can only be used in a way that their marked ends are attached in a crane hook.

50. Lifting accessories can be disengaged only when the load is safely positioned on the surface.

51. When the lifting operations are finished, idle and free of load attachment devices shall be left in a lifted-up position. Lifting accessories shall be safely removed and orderly arranged.

X. STORAGE OF LOADS

52. Lifted load may be put down only on the specially prepared place to ensure it stays in place securely and does not fall, turn over, or slide off.

53. Pallets of adequate strength shall be placed in the storage location to be able to easily withdraw lifting accessories from under the load without damaging them.

54. Loads onto the vehicles shall be put in a way to ensure convenience and safety of attaching the lifting accessories for unloading. Inserts, containers, etc. have to be used for that purpose. Vehicles shall be loaded ensuring their proper load balance.

XI. ROUTINE MAINTENANCE AND REPAIR OF CRANES

55. Routine maintenance of cranes shall be carried out periodically within the scope and under the frequency set forth in Attachment 5 hereto.

56. Only persons of adequate qualification or specialized companies having qualified personnel shall be entitled to perform crane repairs and their routine maintenance.

57. Decisions on crane repairs (in view of the manufacturer' recommendations, technical inspection report/statement requirements, and actual condition of the crane and the under-crane track) and its operation after repairs shall be made by Crane Maintenance Foreman, who makes the relevant entries in the Crane Maintenance and Repair Logbook (Attachment 3).

58. All repair works shall be performed only upon preparation and approval of the relevant repair technology and Quality Control Plan.

59. For crane inspection or repairs, the crane has to be protected from accidental switch-on (for electric motor-driven cranes, a power supply switch has to be locked up, and for internal combustion engine-driven cranes, the startup key has to be taken out).

60. Materials for repair of lifting crane steel structures have to be selected in accordance with the crane technical documentation provided by its manufacturer. Metal quality of the calculated elements and parts shall be certified and have the manufacturer's quality certificates. For welding of steel structures, the calculated elements shall be welded according to the relevant welding procedure specifications. Calculated elements of steel structures shall be welded by certified welders only holding the relevant qualification certificate. Welding quality documents (repair technology, welding logbook, welding procedure specifications, list of used materials, their certificates, copies of welder certification documents) shall be provided to Crane Maintenance Specialist of the Company.

61. In cases when crane technical documentation has no indication of structural steel material grades and properties, the analysis of materials used by the manufacturer has to be performed and materials selected accordingly with physical and chemical properties similar to those used by the manufacturer.

62. Repair documents, statements of works completed during routine maintenance as well as protocols and other documents shall be kept together with the crane passport, and the data about replaced assemblies or spares shall be recorded in the crane passport.

XII. REQUIREMENTS FOR LIFTING PEOPLE WITH LIFTING CRANES

63. It is allowed to lift people with cranes only in special suspended baskets complying with requirements of Standard LST EN 14502–1 [3.6].

64. Suspended basket must have manufacturer's operation and maintenance manual in Lithuanian or other language understandable for users.

65. Suspended basket must be coupled to the lifting crane so that it could not be uncoupled without special tools. This requirement does not apply to baskets designed for use on container loaders with expandable gripper clamps, where both swivel locks are mechanically blocked and controlled from electrical switch manually operated by personnel in the basket.

66. Vertical distance between the bottom of the basket hooked on the crane and the hook of the crane shall be minimum 3 meters.

67. Basket entry/exit door or gate cannot open outwards and must have an automatic latch to prevent accidental opening.

68. Suspended baskets must have personal protective equipment anchoring points.

69. Crane Supervisor shall lead entire process of lifting people ensuring coordinated and safe lifting.

70. When people are in the basket, Crane Operator must always stay in normal crane control post. The two-way communication between people in suspended basket and Crane Operator must be maintained during the lifting process.

71. During entire lifting process, emergency rescue equipment must be in place.

72. Crane Operator and Signaler are not allowed to perform other work while lifting people. They are allowed to operate only one crane and one suspended basket.

73. Suspended basket load lifting equipment shall not be used for any other purpose.

74. Suspended baskets shall not be used in case of wind speed over 15 m/s, storm, icing, snow, thick fog, wet snow or other adverse weather conditions that can compromise the safety of the staff.

75. Any unexpected movements of the basket (e.g. usage of guide ropes or an anchoring) shall be avoided.

76. Suspended baskets, hook, stoppers and rigging equipment shall be inspected before each use.

77. If suspended basket is moving through an opening, any risk of contact injury must be prevented.

78. People in suspended baskets shall be secured to anchors with belts. The length of belt between anchoring points must allow to move only within the suspended basket. Maximum length shall be indicated in manufacturer’s manual.

79. Rated lifting capacity of the basket shall not be exceeded.

80. Tools and materials carried by employees shall be secured to protect against displacement or fall.

81. During ascending, descending and positioning of basket, people in suspended basket must keep all parts of body inside of the basket to avoid any contact with clamping points.

82. People in suspended basket are not allowed to stand on the handrails or guardrails of the basket, to work standing on them or any other objects in the suspended basket.

83. During entry and exit, the basket must be placed on a solid surface.

84. Suspended basket must have a plate fixed on it in a clearly visible place containing this information:

- name and address of manufacturer or supplier;
- year of manufacture;
- type;
- identification number;
- suspended basket net mass;
- rated lifting capacity of suspended basket and maximum number of persons allowed. Suspended baskets used with cranes must be painted in bright color.

XIII. EMPLOYEE TRAINING

85. Crane Supervisor must be trained under module *Organization of Lifting Crane Operations* (module code 507160004) of vehicle repair technician modular vocational training program (code T54071601) or until 31 December 2021 has acquired specific knowledge and skills under Lifting

Crane Supervisor Training Program and has required expertise and skills and is certified as Crane Supervisor. As decided by the owner of self-propelled lifting crane, for simple loading and unloading operations the functions of Crane Supervisor may be assigned to Crane Operator who completed training under modular vocational training program for mobile jib (boom) crane operator (code T32104106), loading crane (hydraulic manipulator) operator (code T32104108), crawler jib (boom) crane operator (code T32104107) or is certified as Crane Supervisor.

86. Crane Operator must be trained in accordance with training and knowledge testing procedure established by the owner of the crane or person representing the employer, have necessary knowledge, skills and certified as Crane Operator. In established training and knowledge testing procedure crane manufacturer's requirements for the competence and skills of Crane Operator must be taken into account. If Crane Operator is being transferred to operate a different type of crane, e.g. from tower crane to bridge (overhead) crane, before such transfer Crane Operator must be trained and certified to operate respective type of crane.

87. Rigger shall be trained under module *Rigging Operations* (code T32104106) of modular vocational training program for mobile jib (boom) crane operators, or under training and knowledge testing procedure established by the owner of the crane or person representing the employer, have necessary knowledge, skills and certified as Rigger.

88. The Company's Crane Maintenance Foremen and Crane Supervisors, Crane Operators, and Riggers shall be trained periodically as prescribed by Mandatory Employee Training Rules of the Company. Crane Maintenance Foremen, Crane Supervisors, Crane Operators, and Riggers of contractors shall be trained in accordance with procedure established by the contractor.

89. Crane Maintenance Foremen, Crane Supervisors, Crane Operators and Riggers shall be subject to additional training, certification or qualification improvement in the following cases:

89.1. If it is reasonably established that an employee violates, fails to observe or is not aware of the requirements of occupational safety and health legislation applicable to the works performed;

89.2. If so instructed by an incident or accident investigation commission, as well as if required by a notified body expert or a controlling authority officer.

90. Company employees operating lifting cranes and crane equipment shall be familiarized with the requirements of the present Procedure. Manager of a respective organizational unit of the Company shall be responsible for this familiarization.

91. Employees of contractors operating lifting cranes and crane equipment shall be familiarized with the requirements of the present Procedure. Head of the contracting company shall be responsible for such familiarization.

92. Crane Supervisors, Crane Operators, and Riggers must be trained to communicate verbal messages and hand signals in accordance with Regulations on the Use of Occupational Health and Safety Signs in the Workplace [3.5].

XIV. FINAL PROVISIONS

93. Responsibility for periodic review and updating of this Procedure, if needed, shall lie with Director of Quality, Labour Safety and Environmental Control.

XV. ATTACHMENTS

Attachment 1. Employee Training Logbook (form).
Attachment 2. Lifting Accessories Recording and Inspection Logbook (form).
Attachment 3. Crane Maintenance and Repair Logbook (form).
Attachment 4. Crane Plate (example).
Attachment 5. Scope and Frequency of Routine Maintenance of Lifting Cranes

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Prepared by:
Occupational Safety Regulation Manager
Egidijus Luomanas

(Cover Sheet)

AB ORLEN LIETUVA

CRANE INSPECTION LOGBOOK

Type of Crane _____

Reg. No. _____

Lifting Capacity _____

Started _____

Completed _____

_____ **year**

(Sheet 2, etc.)

INSPECTED AND CHECKED	IN ORDER	OUT OF ORDER	NONE
Structural steel			
Boom (jib) condition			
Hook and its suspension parts			
Hook safety latch			
Hook throat			
Wire rope condition			
Wire rope end terminations			
Lifting hook attachment chains and rings			
Crane supports and pads			
Hook overwind cut-out device			
Overwind cut-out device			
Lifting capacity limiter			
Crane tilt indicator			
Signaling and control devices			
Counterweight position indicator			
Wind speed indicator			
Mechanism safety covers			
When performing idle testing of a crane, check the operation of the following elements:			
- crane mechanisms and electric equipment			
- safety equipment and devices			
- brakes			
Crane technical inspection terms:			
- partial technical inspection			
- full technical inspection			

Inspection results (defects identified) _____

Crane inspection performed by Crane Operator (Name Surname, signature)

_____

Crane inspection performed
[Date] _____ [Time] ___ :___

(Cover Sheet)

AB ORLEN LIETUVA

LIFTING GEAR REGISTRATION AND INSPECTION LOGBOOK

Started _______________

Completed _______________

______ **year**

(Sheet 2, etc.)

Inspection date	Description of lifting gear	Type of lifting gear	Technical characteristics			Inspection results	Signature of Crane Maintenance Foreman
			Serial No.	Lifting capacity, t	Length, m		

(Cover Sheet)

AB ORLEN LIETUVA

ROUTINE CRANE MAINTENANCE AND REPAIR LOGBOOK

Type of Crane _____

Reg. No. _____

Lifting Capacity _____

Started _____

Completed _____

_____ **year**

(Sheet 2, etc.)

Date	Routine maintenance activities, description of repairs, data on accidents, modifications, technical inspections, etc.	Name Surname of employee authorized by the company that completed repairs, modification, technical inspection	Conclusion on fitness for service	Name Surname and signature of Crane Maintenance Foreman

Crane Plate (example)

GANTRY CRANE KKS-10

Reg. No. KR-01-00001

Lifting capacity: 10000 kg

Next PTI: 06/10/2022

FTI: 06/10/2024

Place for sticker with date of technical inspection

Scope and Frequency of Routine Maintenance of Lifting Cranes

Item No.	Scope of maintenance	Frequency
1	Visual inspection of crane mechanical equipment	During PTI and FTI
2	Inspection of operating mechanisms, electrical equipment, safety devices and control equipment	During PTI and FTI
3	Inspection and adjustment of brakes	Every 12 months
4	Preparation of crane hook neck and presentation for NDT laboratory for penetrant testing	During PTI and FTI
5	Crane hook neck penetrant testing Test reports submitted to Crane Maintenance Specialist of the Company	During PTI and FTI
6	Inspection of hook and hook suspension	During PTI and FTI
7	Cleaning, inspection and lubrication of wire ropes and their fixing parts	During PTI and FTI
8	Inspection of pulleys, axles, their fixing parts, and elements of jib crane boom (jib) suspension elements	During PTI and FTI
9	Lubricating of wheel axles	Every 12 months
10	Inspection and adjustment (if required) of distance between beam and travel wheels	During PTI and FTI
11	Inspection of interlocks, limit switches, and sound/light alarms	During PTI and FTI
12	Replenished lubrication of bearings, reducers and replacement of lube points, if required	Every 12 months
13	Checking the lube oil level in reducers, replenishment, changing, as required Checking the lube oil level dipstick and repairing, if required	Every 12 months
14	Visual inspection of crane steel structures and welded (pinned) joints	During PTI and FTI
15	Tightening of fastening and fixing parts and mechanism assemblies	During PTI and FTI
16	Under-crane track leveling. Leveling reports submitted to Crane Maintenance Specialist of the Company	During PTI* and FTI
17	Static and dynamic crane testing with load	During FTI
18	Painting of hook fastening assembly in yellow (the plate to painted from both sides) and inscription of the lifting capacity in black	During FTI
19	Inspection of crane electrical part	During PTI and FTI
20	Measuring the insulation resistance for equipment, auxiliary circuits and el. installations of up to 1000V Measurement reports submitted to Crane Maintenance Specialist of the Company	Every 12 months
21	Measuring resistance of crane grounding system (points) Before the measurement, joints should be checked with hammer for cracks or completely ruptured joints or any other defects. Measurement reports submitted to Crane Maintenance Specialist of the Company	Every 12 months
22	Preparation of Routine Maintenance Report and its submission to Crane Maintenance Specialist of the Company The Report should include indication of the work completed, inspection results, materials replaced, etc.	During PTI and FTI
23	In case repairs for any of the crane parts are required, preparation of the punch list and its presentation to Crane Maintenance Foreman	As required
24	Crane handover to a respective Crane Maintenance Foreman and notified body expert/Company Crane Maintenance Specialist for the relevant technical inspection	During PTI and FTI
25	Update the crane information label	During PTI and FTI

* only for lifting cranes registered with the State Register of Potentially Hazardous Equipment