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Gas Bleeder Protective Coatings
Dated: 1978

ATMOSPHERIC CORROSION PROTECTIVE COATINGS FOR THE COKE OVEN GAS BLEEDER STACK AT THE CHICAGO COKE PLANT

D2-015-006

interlake, inc.

RESEARCH CENTER

Interlake, inc.

ATMOSPHERIC CORROSION PROTECTIVE COATINGS FOR THE COKE OVEN GAS BLEEDER STACK AT THE CHICAGO COKE PLANT

D2-015-006

F. Gabrielow
August, 1978

150 WEST 137TH STREET • CHICAGO, ILLINOIS 60627 • (312) 849-2500

c.c.: J. L. Bitner
N. H. Keyser
J. Lee
R. J. Martello

INTEROFFICE CORRESPONDENCE

Copies to:

Date: August 22, 1978

J. L. Bitner
N. H. Keyser
R. J. Martello

To: Mr. J. Lee

From: F. Gabrielow

Subject: Atmospheric Corrosion Protective Coatings for the C.O. Gas Bleeder Stack at Chicago Coke Plant

Reference: D2-015-006

The detailed recommendations and specifications for the corrosion protective coating of 150-feet high bleeder stack were prepared. The painting work could be carried out as soon as repairs to the stack shell are made, and weather permitting. Also, repairs of the steam valves and drainage of the area surrounding stack footing are badly needed.

The field inspections and estimates based on reference drawings Nos. 37588 and 37636 indicate that this project involves about 3200 square feet of metallic surfaces.

The following quantities of the coating materials would be required for the project (all items in one gallon containers except item (j)):

(a)	DG #167 POLY/EP PRIMER	22 gals	@	$12.74 =	$280.28
(b)	DG #39026 ACRI/THANE EN. BROWN (81-07-02) ...	20 gals	@	14.80 =	296.00
(c)	DG #39052 ACRI/THANE EN. OSHA RED (87-25-09).	1 gal	@	19.60 =	19.60
(d)	DG #39054 ACRI/THANE EN. OSHA YLW (54-25-59).	4 gals	@	18.80 =	75.20
(e)	DG #39056 ACRI/THANE EN. OSHA GRN (38-23-27).	1 gal	@	14.80 =	14.80
(f)	DG #39053 ACRI/THANE EN. OSHA ORGE (69-25-26).	1 gal	@	19.60 =	19.60
(g)	DG #515 HR ALUMINUM	1 gal	@	7.60 =	7.60
(h)	DG #4800 REDUCER (for primer)	6 gals	@	5.00 =	30.00
(i)	DG #4900 REDUCER (for enamel)	6 gals	@	6.36 =	38.16
(j)	DG #39099 COMPONENT B CATALYST	27 pints	@	6.80 =	183.60
	Total all Items				964.84
	Sales Tax @ 5%				48.24
				Sub-Total	$1,013.08

Item (a) One unit consists of two one-gallon cans per carton.
Item (b) thru (f) include one pint of catalyst (#39099 Component B) for each gallon of resin (Component A).

IS-5018-1-E

To: Mr. J. Lee
Subject: Atmospheric Corrosion Protective Coatings for the C.O. Gas Bleeder Stack at Chicago Coke Plant

August 22, 1978
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The #721 Z/R Primer is available from the present stock on hand. Request all materials to ship to Chicago Coke Plant; there is no shipping cost to us.

Vendor: (DG) VALSPAR CORPORATION
DETROIT GRAHPITE DIVISION
200 SAYRE STREET
ROCKFORD, ILLINOIS 61101; TEL. (815)965-7721

The total cost of the painting materials, including any price increases in effect at the time of shipment, is estimated at $1,100.00. We have an option to provide all painting materials for this project. Our cost of painting materials is always appreciably lower than the cost offered by the contractors.

This specification is being reviewed with three candidate painting contractors capable of this kind of work to obtain the cost proposal for this urgent coating project.

F. Gabrielow

FG/mw

Interlake, inc.

ATMOSPHERIC CORROSION PROTECTIVE COATINGS FOR THE COKE OVEN GAS BLEEDER STACK AT THE CHICAGO COKE PLANT

Specification No. II-4237
August, 1978

Technical Center

150 WEST 137TH STREET • CHICAGO, ILLINOIS 60627 • (312) 849-2500

1. FIELD COATING SCHEDULE OF THE 150 FEET HIGH COKE OVEN GAS BLEEDER STACK FACILITY AT THE CHICAGO COKE PLANT

1.1 Detailed Work Area: All exterior surfaces of the stack and accompanying hardware, stack tip; reinforcements, miscellaneous piping, valve bodies and turning knobs/wheels, flanges, hangers, bolts, nuts, etc.; manholes and accompanying doors and closure assemblies; walkways, platforms, handrails, posts and toe boards; stack step irons and ladder cages; 60-foot long section of 42-inch diameter gas main between the stack and tie-in junction on the designated tower, related support steel, brackets and trestle steel; and all other miscellaneous items which relate to this facility as they may be designated by the Corrosion Engineer during the coating work.

The content of the main -- COKE OVEN GAS -- and directional arrows shall be stenciled in 3 - to - 4 inch high characters at appropriate intervals with contrasting colors in accordance to the Safety Code requirements.

The Contractor shall not be limited to the wording of the work items indicated nor to carry the coating work on the work items in the order of their listing.

The general area of the work is illustrated in the reference drawings Nos. 37588 and 37636.

1.2 Surface Preparation: Commercial Blast SSPC-SP-6-63 and/or NACE No. 3 Finish as set forth in the NACE visual standard and as further defined in the Paragraph 3 of therein Specifications.

1.3 Coating Application Technique: Airless electrostatic spray, i.e, BINKS Model 71 Airless Electrostatic Hand Spray Gun, Ransburg Electro-Hydrolic Handgun R-E-H, or equivalent/ better unit, with 2500 psi at the tip. The spray gun shall be equipped every time with the tip that produces spray fan width consistent with the width of the metal object being coated! Brush/roller coating is required on the hand rails, posts, toe boards, step irons and other small diameter/surface work pieces. No mitten applications are permitted.

1.4 Field Prime I: Two 30-inch Taylor rings, 18-inch cylinder below rings, and painter's trolley --

One full brush applied coat of DEGRACO #721 ZINC/RICH PHENOLIC PRIMER, gray;
Solids volume: 39%;
DFT(1): 2.0 mils(2)
WFT(3): 5.0 mils;

Field Finish I: All steel above painter's trolley line (total 4 feet high) --

One full spray/brush applied coat of DEGRACO #515 HEAT RESISTANT ALUMINUM;
Solids volume: 17%;
DFT: 1.0 mil;
WFT: 6.0 mils.

1.5 Field Prime II: Balance of the stack and other surfaces --

One full cross-hatch spray coat of DEGRACO #167 POLY/EP PRIMER (two component 1:1 mixed polyamide catalyzed epoxy); orange;
Solids volume: 39%;
DFT: 2.5 mils (2.0 min. & 3.0 max.);
WFT: 6.5 mils (5.5 min. & 7.5 max.);
Dry to overcoat: 3-4 hours;
Spreading rate: 160 sq. ft./gal(4)

Field Finish II: (& Prime II) Balance of the stack shell, platforms, etc. except all step irons and cages, handrails, posts and toe boards --

One full cross-hatch spray/brush coat of DEGRACO #39026 ACRI/THANE BROWN (81-07-02);
DFT: 2.0 mils (1.5 mils min. & 2.5 mils max.);
WFT: 4.0 mils (3.0 mils min. & 5.0 mils max.);
Dry to overcoat: 4 hours at 75°F and 50% RH;
Spreading rate: 270 sq. ft./gal.

(1) Dry film thickness; (2) One mil equals one thousandths of an inch; (3) Wet film thickness; (4) At DFT specified and surface application factor (SAF) 0.65 prior to any reduction.

Field Finish III: (& Prime II)

All step irons and cages, handrails and posts from above toe board line, certain columns 6-feet above footing line --

One full roller/brush coat of DEGRACO #39054 ACRI/THANE SAFETY YELLOW (54-25-59);
DFT: 2.0 mils (1.5 mils min.);
WFT: 4.0 mils (3.0 mils min.);

Field Finish IV: (& Prime II)

All toe boards, certain designated miscellaneous steel items --

One full roller/brush coat of DEGRACO #39052 ACRI/THANE SAFETY RED (87-25-09);
DFT: 2.0 mils (1.5 mils min.);
WFT: 4.0 mils (3.0 mils min.).

2. SCOPE OF WORK: The work entails providing by the contractor of all necessary equipment, labor, and supervision, and, if required, all specified coating materials, to carry out removal of all soil and debris minimum six inches below the top of the concrete footings and two feet beyond the present radiuses, blast cleaning of all dust, dirt, and caked corrosive scales from the designated surfaces, specified surface preparation, application of the coatings, curing and protection of the paint systems until acceptance of the work. The ultimate purpose of these operations is to provide most durable corrosion proofing and esthetic appearance possible of the designated facility.

3.0 SURFACE PREPARATION AND COATING WORK:

3.1 Remove all debris and soil around the footings and structural steel as notified; remove all oily, greasy, and tarry deposits if any present, cleaning all contaminated areas with a solvent naphtha or other suitable commercial cleaner and wipe all surfaces dry.

3.2 Power air blast all designated exterior service surfaces of existing or repaired carbon steel, masonry material and/or stainless to remove any caked and loose dirt, rust scale and other contaminants to provide a commercial quality cleanliness according to SSPC-SP-6-63 and/or NACE No. 3 finish as set forth in the NACE visual standard.

Commercial blast cleaned surface is defined as surface from which all oil, grease, dirt, rust scale, and foreign matter have been completely removed and all rust, mill scale, and old paint have been removed except for slight shadows, streaks, or discolorations caused by rust stain or mill scale oxide binder. If the surface is pitted, slight residues of rust or paint are found in the bottom of pits.

3.3 Air blow all flue dust, fine blasting materials and any dirt off of all service surfaces prior to the application of the specified primer and subsequent finish coatings as often as necessary to achieve a quality result and contamination free applications.

3.4 Virgin Ottawa sand or "Black Beauty" abrasives may be used for the air blast cleaning work. All necessary measures shall be undertaken to use only reasonably dry abrasives as well as to protect them from the rain moisture and compressed air moisture. The air compressor must be equipped with an automatic air moisture trap or have a moisture trap drained manually daily as often as necessary.

3.5 All coating materials issued to the contractor shall be protected from condensation and outdoor precipitation moisture as well as direct exposure to sunlight resulting in hazardous overheating of the painting materials above 80°F. No coating materials shall be left overnight unprotected on the job site.

3.6 The primer coating shall be applied as soon as possible after the blasting and air cleaning operations are thoroughly accomplished and always before the prepared surfaces begin to rust. No air blast cleaned surface shall stand overnight before coating application. The prepared surfaces left unprimed overnight must be re-cleaned next day before priming is resumed again. The specified coating shall be applied at proper drying time intervals to absolutely dry surfaces and under favorable outdoor conditions (no rain and drizzle; no objectionable high wind, airborne dust, proper nozzle size of spray gun, etc.) by skilled applicators in a workmanlike manner necessary to achieve a quality result in the coating work.

3.7 When spraying, two or more cross-passes, that is one horizontal pass overlaid by another vertical pass, is required to obtain the specified dry film thickness. This technique shall result in more uniform, pinhole free coverage than a one-pass coverage.

3.8 Painting contractor may perform coating work only when there is no atmospheric precipitation, outdoor temperature is above 50°F and relative humidity (RH) is below 85 percent or less if so specifically required on the product labels. The coating work must be temporarily suspended if the forecasted precipitaion would occur in less than an hour time to allow a minimum pre-drying time for the coatings already applied.

3.9 The job standard of an adequate size shall be established on a readily accessible area prior to the beginning of the actual full scale work. The job standard shall include surface preparation an application of the paint coatings in accordance with these specifications on representative surfaces. The job standard work shall be performed by the painting contractor's personnel who will be performing the work on the job site, and using representative equipment that will be used on the job. All concerned parties from the Interlake, Inc. and painting contractor shall be present during all phases of the work to reach mutual agreement and approval of the completed job standard. The job standard shall not be considered as having been established until an approval by the owner's Corrosion Engineer is reached.

3.10 The painting contractor shall provide the personnel and require the use on the job of all necessary instrumentation such as (a) wet film gauges for the primer and finish coats while these are wet; (b) dry film gauges capable to read to the nearest 0.2 mil per one division.

3.11 All coating equipment, paint filters, tools, lighting and all necessary spare parts shall be explosion proof and/or non-sparking to suit the particular safety requirements of the job. All this equipment shall be available for use every time the coating work is performed and maintained in good working order.

Spray equipment must include the air agitated pressurized paint pots, all routinely required mechanical paint mixers, paint filters and cartridges, set of spray tips, tools, scrapers, wire and bristle brushes which are available on the job any time of the work day. The spray equipment must be suitable to perform a quality job specified herein. The necessary cleaning and/or repairs shall be made throughly and promptly so that as little time as possible is wasted.

Equivalent bulk cleaning solvents shall be provided by the contractor (such as MEK and naphtha) and may be used to clean contractor's equipment and appliances only. This is provided these cleaners and/or solvents are thoroughly removed thereafter and that they will not adversely affect the quality of the specified coating materials. The Corrosion Engineer shall be consulted on the equivalent bulk cleaners and solvents prior to their use.

3.12 All work shall be continuously inspected by the contractor who is ultimately responsible for all phases of the coating work to be in compliance with these specifications so that it results in the best possible corrosion proofing of the facility involved. The owner's Corrosion Engineer and Project Engineer shall have an access to the work in progress at all times and shall reserve the right (1) to implement any mechanical repairs revealed by the blast cleaning, (2) to inspect this work at any time for compliance with all requirements of these specifications. Also, owner's Corrosion Engineer reserves the right, (3) to approve each phase of the work before further work may be carried out, (4) to halt all work observed to be improper or not in compliance with these specifications and to require that the painting contractor promptly corrects all improper practices, unjustifiable spillage and waste of the paint materials, defective equipment and/or deficient work, when such are noticed, at his expense.

4. SPECIAL AND GENERAL CONDITIONS

The following provisions and general conditions shall apply to this specifications in a whole with the exception of the provisions which may conflict with the heretofore set requirements as interpreted by the owner's Corrosion Engineer:

4.1 The Specification I.I.C. 1001 - Standard General Conditions.

4.2 Interlake, Inc. Contractor's Responsibility.

4.3 The coating work of the facility will require such arrangement as to enable the contractor to safely cope with any elevation of the facility being coated, preservation of the job carried out until final approval of the job is reached as well as the utmost control of the airborne over spray to prevent objectionable air and product contamination in the surrounding plant work areas and outside the plant areas.

4.4 The contractor shall pay utmost attention to the fire and electrical hazards, scaffolding, and personal safety belts and hook-up lines which shall be fully implemented on the job. Personal breathing mask or its disposable filter variation shall be worn all the time by the spraymen while carrying out the spraying. The contractor is responsible for compliance with all other OSHA, state and city regulations applicable to the job at the time the coating work is being carried out.

4.5 All manufacturer's product and label instructions shall be observed as they are an integral part of these specifications.

4.6 The assigned crew members by the contractor shall be most satisfactorily qualified to accomplish the coating work as specified herein and they shall not be indiscriminately substituted for during the course of the work without consulting the owner's Corrosion Engineer on the matter.

4.7 The Interlake, Inc. Corrosion Engineer reserves the right (1) to modify these specifications and use of the painting materials as may be required during the actual painting; and (2) elect to supply the painting materials to the Contractor. The Contractor shall not order any painting materials without specific prior instructions of the owner's Corrosion Engineer to this effect.

4.8 The Contractor shall guarantee that the coating work will be carried in a workmanlike manner so that the best coating adhesion, corrosion proofing and esthetic effects are obtained. The selected colors shall be free of however accidentally spilled spots, and color lines to be properly clean cut. Furthermore, the Contractor shall guaranteee to repair or replace to the satisfaction of the Owner and his Corrosion Engineer at no additional cost any defective coating system due the poor surface preparation, workmanship or improper application, which may show itself within one year after date of the final acceptance.

AN ACCOUNT BREAKDOWN OF THE CONTRACT PRICE
FOR THE PAINTING OF 150 FOOT HIGH C.O. GAS BLEEDER STACK
AT THE CHICAGO COKE PLANT

Provide the breakdown of the contract price for the labor, equipment, materials and supervision related to the cleaning, surface preparation, priming, and finish painting of the designated service surfaces in accordance with the II-4237 (1978) specifications:

Estimated total square-foot area of the facility to be painted: _____

Detailed quantity and cost of the specified paint materials:

DEGRACO #167 POLY/EP PRIMER	_____ gals;	$_____
DEGRACO #39026 ACRI/THANE EN. BROWN (81-07-02)	_____ gals;	_____
DEGRACO #39052 ACRI/THANE OSHA RED (87-25-09)	1 gals;	_____
DEGRACO #39054 ACRI/THANE EN. OSHA YELLOW (54-25-99)	_____ gals;	_____
DEGRACO #39056 ACRI/THANE EN. OSHA GREEN (38-23-27)	1 gals;	_____
DEGRACO #39053 ACRI/THANE EN. OSHA ORANGE (69-25-26)	1 gals;	_____
DEGRACO #4900 Reducer (for A/T EN.)	_____ gals;	_____
DEGRACO #4800 Reducer (for Primer)	_____ gals;	_____
Sub-Total	_____ gals;	$_____

Total Amount for Labor, Equipment, All Materials Excluding Paints $_____

Total Amount for Complete Painting (Labor and Materials) $_____

Number of Working Days Required to Complete the Painting Project _____

Company Name:

Authorized Signature and Title:

Date:

Contract Price Expiration Date: