INTRODUCTION

This procedure applies to the process for painting steel transmission and sub-transmission structures on the National Grid System.

PURPOSE

This procedure defines the requirements for the application of paints or coatings to transmission and sub-transmission steel structures on the National Grid System. Included are the technical requirements for surface preparation, product handling, waste disposal, priming, and painting.

Per order of the NY PSC the following lines

- Spier – Rotterdam 1
- Spier – Rotterdam 2

ACCOUNTABILITY

1. T&D Work Methods
   A. Update procedure as necessary
2. Project Management & Complex Construction
   A. Ensure that this procedure is understood and implemented
   B. Ensure that personnel are trained in this procedure
3. Transmission and Sub-Transmission Asset Management
   A. Manage the program to maintain a safe and reliable system
   B. Provide guidance and support for the execution of the procedure
4. T&D Maintenance
   A. Perform painting based upon inspection results per this procedure
5. Transmission Line Services
   A. Provide switching and grounding as necessary to perform the work

COORDINATION

Transmission and Sub-Transmission Asset Management
T&D Maintenance
Project Management and Complex Construction
Substation Operations, Maintenance and Construction
T&D Control Centers

REFERENCES

NG Transmission Line Standard SP.06.01.301.201, 4 pages, Structure Signage

NG-EOP T007.00 Transmission Line Inspection and Maintenance Activities

NG-EOP T007.01 Ground Level Visual Inspection

NG-EOP T008 Marking Work Areas for Work on Transmission Lines

NG-EOP T011 Transmission Personal Protective Grounding on Overhead AC Transmission Lines

NG-EOP D002 Overhead Distribution and Sub-Transmission Personal Protective Grounding

NG-EOP G014 Clearance and Control

National Grid Employee Safety Handbook

National Grid Environmental Policy EP17

Contractor Safety Requirements

Keeler & Long Application Guide APG-7

Steel Structures Painting Council (SSPC) Surface Preparation Specification as found in the Steel Structures Painting Manual, Volume No.2, latest revision; - SSPC -SP2 "Hand Tool Cleaning"

Steel Structures Painting Council Paint Application Specification as found in the Steel Structures Painting Manual, Volume No.2, latest revision; - SSPC – PA2 “Measurement of Dry Paint Thicknesses with Magnetic Gages”

DEFINITIONS

Allowable Work Area: The defined area of a structure where work may be performed.

Assets: Transmission or sub-transmission line facilities and equipment.

Contractor: The party responsible for executing the work specified by this document.

Inspection: A careful viewing of assets to find defects and other problems that require maintenance or monitoring.

Job Brief: A detailed daily written documentation of planned work and procedures (completed the day of work commencement on site).

Maintenance: Work to correct defects or other problems, often generated through the inspection process.

Minimum Approach Distance: The closest point of approach to energized lines or equipment by a qualified employee or by any conductive object, without the use of insulating gloves, sleeves, or portable protective devices. Note: Table R-6 in OSHA 1910.269 defines the Minimum Approach Distances to be followed by a qualified employee while working near energized lines and equipment.

Painter: Worker skilled and proficient in 100% fall protection, climbing and rescue, structure preparation and painting, and structure condition assessment.

Qualified Worker(s) (as defined in 1910.269): Workers shall be trained in and familiar with the safety related work practices, safety procedures and other safety requirements that pertain to their respective job assignments. Workers shall also be trained in and familiar with any other safety practices, including applicable emergency procedures (such as pole top/bucket rescue). Qualified workers shall be trained and competent in:

- Skills and techniques necessary to distinguish exposed live parts.
- Determining nominal voltage of exposed live parts.
- Knowledge of minimum approach distances.
- Proper use of precautionary techniques, use of PPE including insulating and shielding materials and properly rated insulated tools for working on or near energized parts of electrical equipment.

Sub-Transmission NE: 15kV to 46kV

Sub-Transmission NY: 15kV to 115kV

Transmission NY: 115kV and above

Transmission NE: 69kV and above

TRAINING

Provided by L&D upon request by user department

DOCUMENT CONTENTS

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1.0 GENERAL

1.1 All work under this procedure shall be performed in a professional manner by properly skilled, trained, and certified workers

1.2 This procedure does not substitute for the knowledge of competent, qualified individuals

1.2.1 Specific needs or concerns not adequately addressed in this procedure

a. Shall be reported to the National Grid representative for resolution before proceeding

1.3 Coordination with National Grid is required to obtain

1.3.1 Clearance for de-energized work

1.3.2 Non Reclose Assurance (NRA)

a. When any circuit on a structure is to remain energized

1.4 Work on structures with energized circuits

1.4.1 Shall comply with EOP T008, “Marking Work Areas for Work on Transmission Lines”

1.5 Paint

1.5.1 Specified by National Grid

1.5.2 Procured and properly stored by the contractor

1.5.3 Shall conform to the requirements of Appendix B

2.0 WORKER CLASSIFICATION

Two classifications of workers

2.1 Electrically Qualified Worker/Painter

2.1.1 Transmission journeyman line worker

a. Qualifications and training subject to approval by National Grid

b. Allowed to use the “Electrically Qualified AC Live-Line Work Minimum Approach Distance (MAD)”

1. OSHA 1910.269

i. Table 1 below

c. Skilled and proficient in

1. Structure 100% fall protection
2. Climbing and rescue
3. Structure preparation and painting
4. Structure condition assessment

2.1.2 All refresher training conducted and documented annually

2.1.3 Approved duties

a. Painting

b. Directing Non-Electrically Qualified Painters

c. Safety Observer

2.1.4

Table 1 – Electrically Qualified AC Live-Line Work Minimum Approach Distances

Nominal Voltage (AC kV – line to line)	ELECTRICALLY QUALIFIED MAD
69	3 feet 0 inches
115	3 feet 2 inches
230	5 feet 3 inches
345	8 feet 6 inches

2.2 Painter (Non-Electrically Qualified)

2.2.1 Electrical Hazard Awareness Training

a. Approved by National Grid

b. Skilled and proficient in

1. Structure 100% fall protection
2. Climbing and rescue
3. Structure preparation and painting
4. Structure condition assessment

2.2.2 All refresher training conducted and documented annually

2.2.3 Shall observe the “Non - Electrically Qualified AC Live-Line Work Minimum Approach Distance (MAD)”

1. OSHA 1910.269

i. Table 2 below

2.2.4 Approved duties

a. Painting

1. Under direction / supervision of worker per 2.1 above

i. Must be on site anytime work being performed

2.3 All worker qualifications shall be reviewed and approved by T&D Maintenance

Table 2 – Non - Electrically Qualified AC Live-Line Work Minimum Approach Distances

Nominal Voltage (AC kV – line to line)	NON-ELECTRICALLY QUALIFIED MAD
69	10 feet 8 inches
115	12 feet 4 inches

230	16 feet 0 inches
345	20 feet 0 inches

3.0 ALLOWABLE WORK AREA

3.1 Any circuit is to be considered energized unless

3.1.1 De-energized, isolated and tagged per National Grid EOP G014

a. By National Grid personnel

3.1.2 Properly grounded per National Grid EOP T011 or D002, as applicable

3.1.3 Any work associated with isolating, testing and grounding of a transmission line

a. Shall be performed by an Electrically Qualified Worker

1. With proper PPE, clean and free of contaminants

b. Coordinated with National Grid representative

1. Written permission via Contractor Permission to Work Form per EOP G014

3.2 Base or Lower Structure

3.2.1 Section below a level line positioned the MAD distance in Table 2 below the lowest energized component

3.2.2 Work can be performed in the Base area with the circuit energized

3.2.3 All classified workers may be present in the Base area

3.3 Top or Upper Structure

3.3.1 Section above a level line positioned the MAD distance in Table 2 below the lowest energized component

3.3.2 No work shall be done on the TOP of the structure while the circuit is energized

a. Except double circuit structures – see 3.5

3.4 Top section of Single Circuit Structures

3.4.1 Circuit must be dead – see 3.1 above

a. TOP section becomes an Allowable Work Area

1. Qualified Line Worker only

b. Maintain a safe descent path during work

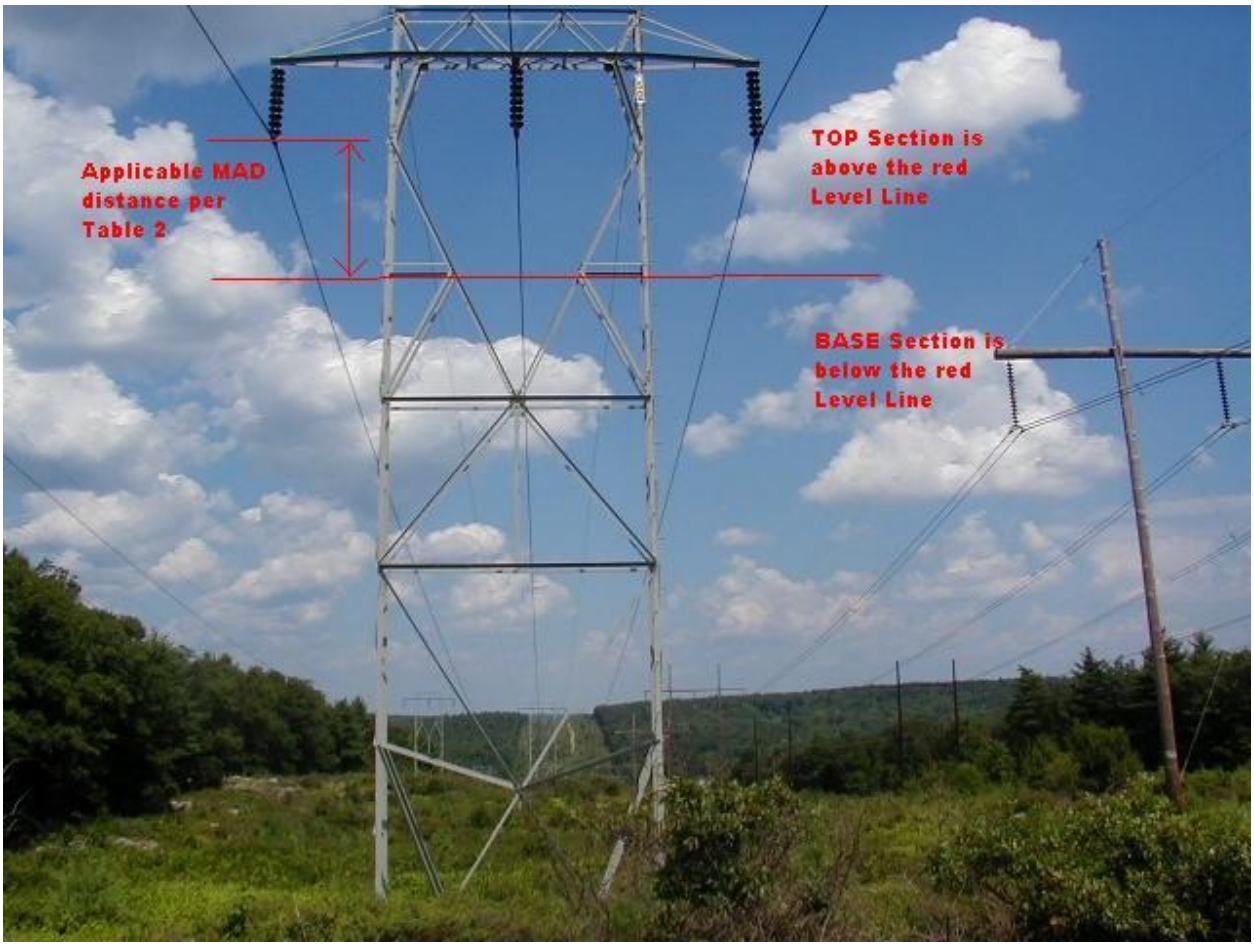

Figure 1 - Single Circuit Allowable Work Area Delineation

3.5 Double Circuit Structures

3.5.1 Circuit on the side of the structure being worked is dead

3.5.2 TOP section becomes an Allowable Work Area

a. On the dead circuit side only

1. From the vertical centerline out toward/under the dead circuit

b. Qualified Line Worker only

c. Maintain a safe descent path during work

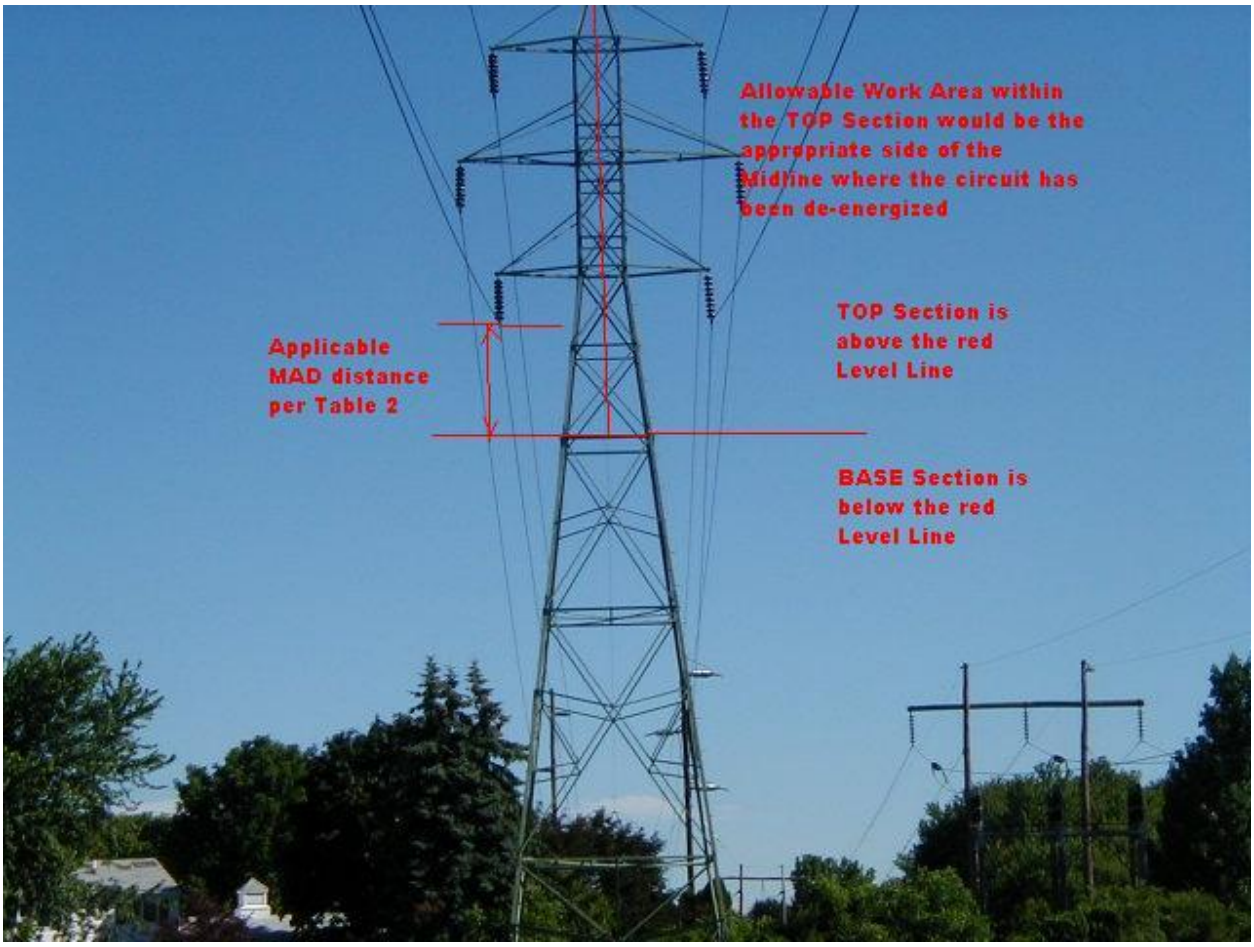

Figure 2 - Double Circuit Allowable Work Area Delineation

3.5.3 Utilize proper marking per EOP T008

3.6 Structures not to be painted without a documented safety plan approved by National Grid

3.6.1 More than two circuits

3.6.2 Steel pole/davit arm

3.6.3 Double circuit structures with circuits directly over one another

3.6.4 Any non-standard design

3.7 No painting or infringement may occur outside the Allowable Work Area

3.7.1 Exceptions must be approved in writing by National Grid

3.8 All workers shall observe the MAD associated with their training at all times

3.9 If installed grounds are not within sight of the structure(s) being worked

3.9.1 The circuit shall be tested at the work location to confirm that it is de-energized

4.0 SAFETY PRE-ASSESSMENT

4.1 Comprehensive Pre- Assessment shall be performed

4.1.1 Prior to starting work

4.1.2 Shall identify

a. Each different type and configuration of structure

b. All associated hazards

4.1.3 By an Electrically Qualified Worker/Painter

a. See 2.1 above

4.2 Develop & document a specific work plan for each structure

4.2.1 Based on the pre-assessment

4.2.2 Maintain MAD at all times

a. Table 1 or Table 2 as determined by worker classification

b. Consider at a minimum

1. Space for worker's body
2. Tools and equipment
3. Climbing space

4.2.3 Work within the Allowable Work Area

a. Some factors to consider include:

1. The configuration of conductor attachments

i. Single/double circuit

ii. Tangent/Suspension

iii. Dead end

iv. Pull-off

v. Under build

vi. Horizontal or vertical

vii. Others

4.2.4 The climbing route for ascending and descending the structure

a. Steps

b. Steel members

c. Obstructions

4.2.5 The position of any loops, taps, switches, stand off insulators, post insulators, etc.

4.2.6 The distances between conductors and from conductors to conductive parts of the structure

4.2.7 The distances to each circuit on multiple-circuit structures

a. Especially if one is properly isolated and grounded and others are not

1. All applicable MAD still apply to the energized circuit

4.3 Work plan

4.3.1 May be different for each structure

a. Even if similar structures

4.3.2 Conductors at a small angle

a. May increase or decrease the distance to the structure to be painted

b. Shall be

1. Identified in the Pre-Assessment
2. Written in the daily job brief

4.4 Climbing Path

4.4.1 Evaluate climbing paths and attachment points

4.4.2 100% fall protection is required

a. No free climbing

4.4.3 Belts shall limit a fall to less than two (2) feet

a. Additional belting can be used to prevent a worker from swinging

1. Continuous observance of MAD

4.4.4 Ensure that no steel members are bent or deformed by the weight of the painter

4.5 If MAD cannot be observed, painting cannot occur unless

4.5.1 The circuit(s) are

a. De-energized, isolated and tagged in accordance with EOP G014

b. Grounded per EOP T011 or D002, as applicable

4.6 Structure determined as unsafe to climb

4.6.1 Notify the National Grid Representative

4.6.2 An alternate plan of action will be determined

a. May cause the cancellation of painting for that specific structure

5.0 JOB BRIEF & SAFETY

5.1 The job brief shall

5.1.1 Be completed daily at each structure

a. Separate form for each structure

b. Repeat for each day work is done at the same structure

5.1.2 Be in English

a. And in the primary language of all workers at the location

5.1.3 Contain the pre-assessment information for the structure

5.1.4 Include pertinent hazard information for materials being used

a. Including MSDS information

5.1.5 Be signed by all workers indicating that each worker has a clear understanding of

a. The work plan for the structure

b. The MAD requirements

5.1.6 Contain

a. Hazard assessments

b. PPE requirements

c. Fall protection equipment

d. Emergency communications and planning

e. Rescue plan

5.1.7 Be on a form approved by National Grid

5.2 Safety Observer shall

5.2.1 Be supplied by the Contractor

5.2.2 Be assigned to each structure being worked

5.2.3 Have the following responsibilities

a. Be familiar with all elements of the job brief

b. Continually monitor all work being performed

c. Enforce MAD requirements

d. Enforce 100% fall protection

e. Monitor and maintain rescue equipment

f. Be proficient in the use of rescue equipment

g. Be capable and qualified to perform a rescue

5.2.4 Be an Electrically Qualified Worker

5.3 Work shall be halted if the Safety Observer is unable to perform their functions

6.0 PREPARATION FOR PAINTING

6.1 Ascent

6.1.1 Inspect / evaluate structure while climbing

a. Check structure members and connection points

1. Tighten loose bolts

6.1.2 Prepare the structure for painting

a. Per Appendix B - Technical Painting Requirements

6.2 Steel ratings

6.2.1 Paint steel structure with a visual rating of 1 through 4 only

a. Unless specifically identified by National Grid

6.2.2 Do not paint steel with a visual rating of 5 & 6

a. As identified by National Grid

6.2.3 Refer to EOP T007.01 Appendix B

6.3 The paint is self-priming

6.3.1 Some structures may require priming

a. Galvanizing or their existing coating is excessively deteriorated

b. Notify the National Grid representative of structures requiring priming

1. Final determination by National Grid

c. Compensation for priming

1. Per the Unit Price Schedule

i. Entire structure

ii. Spot priming a percentage of the structure

iii. Primer supplied and applied per Appendix B - Technical Painting Requirements

6.4 Anti-climbing devices

6.4.1 Exist on some structures

6.4.2 May be removed for painting

6.4.3 Shall be reinstalled when the painting completed

6.4.4 Shall not be left off the structure overnight

7.0 PAINT APPLICATION

7.1 Per Appendix B - Technical Painting Requirements

7.1.1 Prepare

a. Site

b. Paint and / or primer

7.2 Apply paint

7.2.1 During the descent process to the higher of

a. 1 foot above grade

b. Top of tower footer coating

7.3 Protect the tower footer coating from paint

7.4 Structure identification numbers / signs

7.4.1 Do not paint over

7.4.2 Notify National Grid of deteriorated identification numbers / signs

a. Replace if directed by National Grid

7.4.3 Aerial numbers

a. Install or replace as required at the direction of the National Grid representative

b. On structures

1. With number ending in zero

i. 10, 20, 30…

2. First structure either side of road crossings

7.4.4 Replacement materials supplied by National Grid

7.4.5 Refer to National Grid Drawing SP.06.01.301.201 for details

7.5 Protection for freshly painted structures

7.5.1 Keep livestock, pedestrians, equipment away

7.5.2 Erect barriers as necessary

7.5.3 Install wet paint signs if applicable

7.6 Protect against paint poisoning and ground contamination

7.6.1 Use tarps as applicable

7.7 Workers shall

7.7.1 Not work directly over another worker on the same structure

7.7.2 Not be in the drop zone while work is proceeding overhead

7.7.3 Comply with National Grid drop zone demarcation procedures

7.8 Paint thickness required (average):

7.8.1 Primer

a. Wet film 3.4 – 5.1 mils

b. Dry film 2.0 – 3.0 mils

7.8.2 Topcoat

a. Wet film 9 – 11 mils

b. Dry film 8 – 10 mils

8.0 DOCUMENTATION

8.1 The work results shall be

8.1.1 Documented in an electronic format

a. Microsoft Access

b. Excel 2000

c. Or equivalent

1. As approved by National Grid

8.1.2 Information for each structure shall include:

a. Line designation(s)

b. Structure number

c. Date/time

1. Started
2. Completed

d. Percent complete

1. Areas not complete

e. Ambient temperature

f. Relative humidity

g. Dew point

h. Steel temperature

1. Minimum per K&L

i. Dew point plus 5°F

ii. 40°F to 110°F

i. Priming required

1. Percent of structure

j. Primer thickness

1. Wet film

2. Dry film

k. Topcoat thickness

1. Wet film
2. Dry film

l. Weather events during work

m. Work site cleanup completed

n. Waste disposal

o. Other notable items

9.0 INSPECTION & ACCEPTANCE

9.1 Inspection shall be performed by the National Grid representative

9.1.1 Structures must be painted under acceptable conditions

9.1.2 Coatings must achieve the desired mil thickness and appearance

9.2 The National Grid representative shall notify the contractor

9.2.1 If the wet film thickness is unacceptable

a. Average of several measurements

1. Either primer or topcoat

9.3 Areas with insufficient thickness shall be recoated at the contractor's expense

9.4 Dry film measurements will be taken 10 days after completion

9.4.1 Average of several measurements

9.4.2 Unacceptable thickness will require a recoat of the entire structure at the contractor's expense

10.0 REVISION HISTORY

Version	Date	Description of Revision
1.0	06/01/15	This document supersedes SP 06.01.601.006 document dated 10/21/10 ; Change department names; put into EOP outline format; update definitions & references

APPENDIX A – CONTRACTOR REQUIREMENTS

A1.1 Materials, tools, and equipment used in the performance of this procedure shall be

- 1.1.1 Of the highest quality
- 1.1.2 Properly maintained
- 1.1.3 Operated following all instructions, with safety always being the ultimate goal.

A1.2 Violation of any National Grid procedures or any governing Local, State or Federal law

- 1.2.1 May subject workers to disciplinary action
  - a May include removal from National Grid property/projects

A1.3 Each contractor shall submit a Health & Safety Plan (HASP) specific to the work with their bid.

A1.4 Exercise all proper, necessary and sufficient actions to prevent accidents, injuries, or damage or property.

A1.5 All workers will fully review

- 1.5.1 Safety requirements
- 1.5.2 Job specific HASP
  - a Documented with an attendance slip signed by every crew member
  - b Send a copy to National Grid for audit and tracking

A1.6 Hazardous waste generation & management

- 1.6.1 Follow National Grid Environmental Policy EP-17
- 1.6.2 All other Federal, State, or Local regulations

A1.7 The contractor shall supply

- 1.7.1 All necessary tools, materials and equipment
- 1.7.2 Dumpsters
- 1.7.3 Storage and office trailers
- 1.7.4 Job site reporting locations
- 1.7.5 Sanitary facilities

A1.8 Waste shall be disposed of per Appendix B Technical Painting Requirements

APPENDIX B – TECHNICAL PAINTING REQUIREMENTS

B1 Standard Coatings

B1.1 Apply all coatings in accordance with the manufacturer's instructions

B1.1.1 Instruction sheets for approved coatings are provided below

B1.1.2 Consult with the manufacturer to obtain the latest version

a No earlier than 60 days prior to the work

B1.1.3 Provide an updated copy to National Grid

B1.2 All structures are to be painted to their original color and scheme

B1.2.1 Unpainted structures shall be painted with Keeler & Long 4404, - Galvanized Gray

B1.3 All lines covered by Article VII in New York

B1.3.1 Consult with National Grid for specific paint color

a See Table B-1 below

B1.3.2 Additional circuits are added to this list as required

Table B-1

Case No.	Project Name	Voltage	First Issue Date		Length (Miles)
			CEC&PN	EM&CP	
26251	Volney – Edic*.	345kV	7/20/73	1/29/74	65
26251	Lafayette – DeWitt*	345kV	7/20/73	1/29/74	8
26251	Oswego – Lafayette*	345kV	7/20/73	1/29/74	50
26251	Oswego – Volney*	345kV	7/20/73	1/29/74	13.5
26423	New Scotland - Reynolds Rd	345kV	8/1/74	8/7/75	12
26465	McIntyre - Browning	115kV	2/7/75	2/17/77	38.5
26482	Lafayette - Oakdale	345kV	3/22/76	8/4/77	40
26520	Homer City - Stolle Road	345kV	12/15/75	8/24/76	37
26573	Finley Road - Flaconer	115kV	5/16/75	8/24/76	27
26729	Wellsville - Andover	115kV	12/30/76	10/25/77	11
26923	Adirondack	115kV	7/20/76	10/4/76	37.6
27290	Lake Placid	115kV	8/14/78	2/14/79	10.3
70068	Nine Mile 2 - Volney	345kV	4/19/82	10/5/83	9.4
70073	Coffeen Street – Adams	115kV	4/18/80	7/16/80	13
70137	Colton – Dennison	115kV	8/8/83	12/21/83	27.2
70346	Oneida – Cortland	115kV	9/4/86	11/24/86	45
92-T-0114	Independence – Clay	345kV	8/20/93	9/20/93	28

B2 Surface Preparation

B2.1 Surfaces shall be prepared by hand tool cleaning methods

2.1.1 Per Steel Structure Painting Council SP-2

B2.2 Remove all loose rust and/or paint by any combination of hand

2.2.1 Wire brushing

2.2.2 Sanding

2.2.3 Scraping

2.2.4 Chipping

2.2.5 Other impact tools

B2.3 Surfaces shall be free of oil, grease, dust, soil, salts and other contaminants

B2.4 All surfaces shall be effectively cleaned

2.4.1 Including but not limited to

a Around rivets, nuts and bolts

b Welds

c Corners

B2.5 Operate tools so that no burrs or sharp edges are left on metal surfaces and no sharp cuts are made into the steel

B2.6 The media waste generated during the surface preparation may contain lead

2.6.1 Follow OSHA 29 CFR Part 126 latest edition

B2.7 Refer to Appendix B4 Disposal of Waste for waste management and disposal

B2.8 Tarps shall be placed under the structure extending 20 feet beyond the outline of the structure to capture paint chips

B2.9 Structural defect such as damaged or deteriorated steel, missing or loose nuts and bolts shall be reported to National Grid.

B3 Coating Preparation & Application

B3.1 All paint shall be thoroughly mixed by an electric mixer to ensure uniformity.

B3.2 No thinning of paint shall be allowed

3.2.1 Except with approval of National Grid

B3.3 Vegetation impeding the painting of a structure shall be removed only to the extent necessary to perform the work

B3.4 Preventative measures shall be taken to ensure that no paint drops on insulators, concrete piers or adjacent property

3.4.1 Tarps shall be placed under the structure extending 20 feet beyond the outline of the structure

3.4.2 Tarps shall be removed when the structure is completed

a Also when adverse weather is expected

B3.5 Apply coatings such that

3.5.1 The required dry mil film thickness is achieved

3.5.2 The finish has a smooth uniform appearance

3.5.3 There are no holidays, sags, runs, or other defects

B3.6 Paint shall be worked into all joints, connections, rivets, bolts and welds with a brush

3.6.1 Other methods of application require approval of National Grid

3.6.2 Spray painting is not allowed

B3.7 No painting shall be performed when

3.7.1 Precipitation is falling

3.7.2 Humidity is 85% or greater

3.7.3 Temperatures are outside the window specified by the paint manufacturer

B4 Disposal of Waste

B4.1 The contractor shall collect, package and label all hazardous waste prior to turning over to National Grid according to all applicable

4.1.1 Federal, state, local regulations

4.1.2 National Grid procedures

B4.2 National Grid will furnish the Contractor with 30 or 55 gallon drums and plastic bags as necessary for hazardous paint waste disposal.

B4.3 Hazardous paint waste (such as paint chips) shall be placed in drums and labeled appropriately per National Grid policy EP-17

4.3.1 No other waste shall be combined with the hazardous waste

a In the event of mixed waste the contractor will be assessed a penalty equal to the increase in costs

4.3.2 Drums shall be completely full before returning them to the National Grid hazardous waste disposal collection area

a As directed by the National Grid representative

4.3.3 If waste from the contractor for National Grid disposal is deemed unacceptable by the disposal company

a The contractor will bear all costs and penalties required to correct the situation

B4.4 All other waste and debris

4.4.1 Becomes the property of the contractor

4.4.2 Shall be properly disposed of in accordance with all federal, state and local laws.

B4.5 Empty paint cans shall

4.5.1 Be completely emptied

4.5.2 Have the residual paint wiped out

4.5.3 Be allowed to dry

4.5.4 Placed into plastic bags

a Fill the bags completely

B4.6 Disposal containers and debris shall be removed from the rights-of-way and secured at the end of each work day.

B4.7 Other materials with paint on them shall be

4.7.1 Completely dried

4.7.2 Placed into plastic bags

4.7.3 Placed in the dumpster

a Such as clothing, mitts, rags, gloves, etc.

B4.8 All remaining paint shall be consolidated and used

4.8.1 Left over paint will be the responsibility of the contractor for proper disposal, or returned to National Grid

B4.9 No on-site disposal of wastes is allowed.

B5 Coating Data Sheets

A.130

Product Data Sheet

Keeler & Long

PPG High Performance Coatings

Keeler & Long/PPG
856 Echo Lake Road
Watertown, CT 06795
1-800-238-8596

Tri-Polar™ Ferrite Primer
KL6000 Red

Product Information

Product Code:	KL6000 Red
Product:	Oil/Alkyd
Suggested Use:	Conventional single component, oil/alkyd, rust-inhibitive, ferrite primer formulated for use in conjunction with alkyd or silicone alkyd topcoats. Can be used as a primer for structural steel, tanks, piping, transmission and communication towers, conveyors, equipment, and other similar surfaces.
Not Recommended:	Priming surfaces in severe environments; or where strong solvent-based topcoats are to be applied, such as epoxies or urethanes.

Product Description

Color:	Red
Gloss 60°:	Flat
VOC:	2.67 lbs./gal. (320 g/L) unthinned
Method:	Calculated
Weight/Gallon:	12.9 ± 0.5 lbs./gal.
In Service Heat Limitations:	300°F (148.8°C) maximum dry heat
Flash Point:	105°F (40.5°C)
Package:	Full filled one and five gallon containers
Percent Solids by Volume:	58.9 ± 3.0%
Percent Solids by Weight:	79.3 ± 3.0%

Drying Schedule

Air Dry @ 77°F (25°C) ASTM D5895

Dry to Touch:	2 hours
Dry to Handle:	4 hours
Dry to Recoat:	24 hours Drying times listed may vary depending on temperature, humidity and air movement.
Substrate:	Metal

Application Data

Substrate Preparation:	The service life of the coating is directly related to the surface preparation. The surface to be coated must be properly prepared, dry, clean and free of contamination. Minimum surface preparation is SSPC-SP3 Power Tool Cleaning.

Application Data (continued)

Basecoats:	Fumeproof™ Enamels, Hydro-Poxy™ Enamels, Poly-Silicone Enamels, Kolor-Sil™ Enamels
Application Method:	Apply by air or airless spray, brush or roller application. Air Spray: DeVilbiss MBC gun, 704 or 777 air cap with "E" tip and needle or equivalent equipment. Atomization Pressure: 30 – 60 psi. Airless Spray: Equipment capable of maintaining a minimum of 2500 psi at the tip without surge. 0.015" (0.381 mm) to 0.019" (0.483 mm) orifice. Brush: Use a high quality natural bristle brush. Roller: Use a 3/8" nap roller cover with a solvent resistant core. Refer to Application Guide APG-1 for additional information.
Thinner Code & Percent:	Thin up to one pint per gallon with KL1638 as needed for application.
Coverage Sq. Ft/Gal. @ 2.5 mils:	378 sq. ft/gal.
Mixing Instructions:	Mix thoroughly before and occasionally during use.
Wet Film Per Coat:	3.4 to 5.1 mils
Dry Film Per Coat:	2.0 to 3.0 mils
Clean Up Solvent:	KL1638 Danger: Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool, or waste in a sealed water-filled metal container. Refer to www.hpc.com, Spontaneous Combustion Advisory for additional information.

A.130 May, 2004

A.130

Product Data Sheet

Keeler & Long

PPG High Performance Coatings

Keeler & Long/PPG
856 Echo Lake Road
Watertown, CT 06795
1-800-238-8596

Tri-Polar™ Ferrite Primer
KL6000 Red

Additional Information

Apply only when air, product and surface temperatures are at least 45°F (7.2°C) and surface temperature is at least 5°F (3°C) above the dew point.

Store materials at temperatures between 45°F (7.2°C) and 90°F (32.2°C).

Read all label and Material Safety Data Sheet (MSDS) information prior to use. MSDS are available by calling 1-800-238-8596.

Not intended for residential use.

Spray equipment must be handled with due care and in accordance with manufacturer's recommendation.

High-pressure injection of coatings into the skin by airless equipment may cause serious injury, requiring immediate medical attention at a hospital.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust or fumes. LEAD IS TOXIC. EXPOSURE TO LEAD DUST OR FUMES CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a properly fitted NIOSH-approved respirator and prevent skin contact to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the USEPA National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead. In Canada contact a regional Health Canada office. Follow these instructions to control exposure to other hazardous substances that may be released during surface preparation.

A.130 May, 2004

A.110

Product Data Sheet

Anodic Self-Priming Paint
KL4400 Series

Keeler & Long/PPG
856 Echo Lake Road
Watertown, CT 06795
1-800-238-8596

PPG High Performance Coatings

Product Information

Product Code:	KL4400 Series
Product:	Oil-Alkyd/Zinc Dust
Suggested Use:	A single component, high-build, high solids, rust inhibitive coating designed such that a single coat will provide long term protection.
Recommended Uses:	Can be used for painting weathered galvanized or previously painted surfaces of transmission or communication towers, poles, substation structures, chain link fencing, buildings and bridges.
Not Recommended:	Immersion service; severe acid or alkali environments; surfaces subject to splash or spillage of acids, alkalies or solvents.

Product Description

Colors:	Gray and Grayish shades of Blue, Green, Beige
Gloss 60°:	Flat
VOC:	0.54 lbs./gal. (65 g/L)*
Method:	Calculated
Weight/Gallon:	15.7 ± 0.5 lbs./gal. *
In Service Heat Limitations:	200°F (93°C) maximum, dry heat
Flash Point:	105°F (40.5°C)
Package:	Full filled five gallon containers
Percent Solids by Volume:	91.7 ± 3.0% *
Percent Solids by Weight:	96.5 ± 3.0% *

Drying Schedule

Air Dry @ 77°F (25°C) ASTM D5895

Dry to Touch:	12 - 24 hours
Dry to Handle:	48 - 72 hours
Dry to Recoat:	30 - 60 days
	Drying times listed may vary depending on temperature, humidity and air movement.

Application Data

Substrate:	Metal, weathered galvanized or previously painted surfaces in sound condition.

Application Data (continued)

Substrate Preparation:	The service life of the coating is directly related to the surface preparation. The surface to be coated must be properly prepared, dry, clean and free of contamination. Minimum surface preparation is SSPC-SP2 Hand Tool Cleaning. Can be applied to previously painted surfaces in sound condition.
Basecoats:	Kolor-Nine™ Primers, Kolor-Sil™ Enamels, Poly-Silicone Enamels, Vinyl-Butyral Wash Primer, Weathered Galvanizing
Application Method:	Apply by airless spray, brush, roller or mitt.
	Airless Spray: Equipment capable of maintaining a minimum of 2500 psi at the tip without surge. 0.019" (0.483 mm) to 0.023" (0.584 mm) orifice.
	Brush: Use a high quality natural bristle brush.
	Roller: Use a 3/8" nap roller cover with a solvent resistant core.
	Refer to Application Guide APG -7 for additional information.
Thinner Code & Percent:	For airless spray application, thin up to 25% by volume with KL1638 as needed. Thinning is not recommended for brush, roller or mitt application.
Coverage Sq. Ft./Gal. @ 8 mils:	184 sq. ft./gal.*
Mixing Instructions:	Mechanically mix thoroughly to insure complete pigment suspension.
Wet Film Per Coat:	6.5 to 10.9 mils *
Dry Film Per Coat:	6.0 to 10.0 mils
Clean Up Solvent:	KL1638
	DANGER: Rags, steel wool or waste soaked with this product may spontaneously catch fire if improperly discarded. Immediately after use, place rags, steel wool or waste in a sealed water-filled metal container. Refer to www.hpc.com, Spontaneous Combustion Advisory for additional information.

A.110 May, 2004

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Product Data Sheet

Keeler&Long

PPG High Performance Coatings

Keeler & Long/PPG
856 Echo Lake Road
Watertown, CT 06795
1-800-238-8596

Anodic Self-Priming Paint
KL4400 Series

Additional Information

Apply only when air, product and surface temperatures are between 45°F (7.2°C) and 95°F (35°C) and surface temperature is at least 5°F (3°C) above the dew point.

*Values are calculated using KL4407, Anodic S/P Gray. Values will vary with color.

Store materials at temperatures between 45°F (7.2°C) and 90°F (29.4°C).

Read all label and Material Safety Data Sheet (MSDS) information prior to use. MSDS are available by calling 1-800-238-8596.

Not intended for residential use.

Spray equipment must be handled with due care and in accordance with manufacturer's recommendation.

High-pressure injection of coatings into the skin by airless equipment may cause serious injury, requiring immediate medical attention at a hospital.

WARNING! If you scrape, sand, or remove old paint, you may release lead dust or fumes. LEAD IS TOXIC. EXPOSURE TO LEAD DUST OR FUMES CAN CAUSE SERIOUS ILLNESS, SUCH AS BRAIN DAMAGE, ESPECIALLY IN CHILDREN. PREGNANT WOMEN SHOULD ALSO AVOID EXPOSURE. Wear a properly fitted NIOSH-approved respirator and prevent skin contact to control lead exposure. Clean up carefully with a HEPA vacuum and a wet mop. Before you start, find out how to protect yourself and your family by contacting the USEPA National Lead Information Hotline at 1-800-424-LEAD or log on to www.epa.gov/lead. In Canada contact a regional Health Canada office. Follow these instructions to control exposure to other hazardous substances that may be released during surface preparation.

A.110 May, 2004