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TECHNICAL SPECIFICATION

PAINTING OF EQUIPMENT IN
CONTAINMENT AND AUXILIARY BUILDINGS

KRSKO NUCLEAR POWER PLANT
KRSKO, YUGOSLAVIA

SP-A501-044687-000 SEPTEMBER 3, 1975

SAFETY RELATED

PREPARED FOR

WESTINGHOUSE POWER SYSTEMS PROJECTS DIVISION

Prepared by Frank P. Bordu Date 1-23-79

Reviewed by [signature] Date 1-23-79

Approved by Frank P. Bordu Date 1-23-79

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W.O. 044687-000
REVISION 1
September 17,1975
REVISION 2
November 18, 1975
REVISION 3
November 25, 1977
REVISION 4
February 27, 1978
REVISION 5
January 29, 1979

RECORD OF CHANGE
FOR
PAINTING OF EQUIPMENT
IN CONTAINMENT AND AUXILIARY
BUILDINGS

REVISION 5

Sheet 1 of 1
January 29, 1979

Revision 5 includes updated pages only. Latest changes are referenced in the right hand margin of the updated pages.

CONTENTS PAGE

2.0 APPLICABLE DOCUMENTS

2.2 Applicable Codes and Standards

Added subitem f. as shown.

5.0 SURFACE PREPARATION AND COATING APPLICATION

5.2 Special Conditions

5.2.7A This item added as shown.

7.0 MATERIALS

7.1 Added subitem b.3. and b.3.(a) and b.3.(b) as shown.

RECORD OF CHANGE
FOR
PAINTING OF EQUIPMENT
IN CONTAINMENT AND AUXILIARY
BUILDINGS

REVISION 4

Sheet 1 of 1
February 27, 1978

Revision 4 includes updated pages only. Latest changes are referenced in the right hand margin of the updated pages.

CONTENTS PAGE

ATTACHMENTS

Deleted Equipment Paint Schedule (1 page).

Added the following:

"Color Schedule - Painting of Equipment in Containment and Auxiliary Buildings (5 pages)"

ATTACHMENTS

Added Color Schedule - Painting of Equipment in Containment and Auxiliary Buildings as shown.

RECORD OF CHANGE
FOR
PAINTING OF EQUIPMENT
IN CONTAINMENT AND AUXILIARY
BUILDINGS

REVISION 3

Sheet 1 of 1
November 25, 1977

Revision 3 includes updated pages only. Latest changes are referenced in the right hand margin of the updated pages.

CONTENTS PAGE

The following new Item has been added under Section 2.0:

"2.3 List of Bid Drawings 3".

Under ATTACHMENTS added the following:

"Drawings as listed in Item 2.3".

2.0 APPLICABLE DOCUMENTS

Added Item 2.3 as shown.

RECORD OF CHANGE
FOR
PAINTING OF EQUIPMENT IN CONTAINMENT AND AUXILIARY BUILDINGS

REVISION 1

Sheet 1 of 1
September 17, 1975

Revision 1 includes an updated page only. Latest changes are referenced in the right-hand margin of the updated page.

3.0 GENERAL REQUIREMENTS

3.1 Coordination Efforts

The paragraph under this Item has been numbered 3.1.1 and the following new information has been added:

3.1.2 The shop fabricated equipment herein after specified to be installed in Class I areas, shall be those areas in the reactor containment facility. Shop fabricated equipment specified to be installed in Class II areas, are nuclear areas outside of the reactor containment facility having the potential of becoming contaminated with radioactive material.

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ATTACHMENTS

Drawings as listed in Item 2.3

Equipment Paint Schedule DELETED

Color Schedule - Painting of Equipment in Containment and Auxiliary Buildings (5 pages) 4

1.0 SCOPE

1.1 Scope of Work

This Specification sets forth the WORK required to apply nuclear grade protective coating systems to the equipment to be installed in the containment and auxiliary buildings of the KRSKO Nuclear Power Plant.

1.2 Work Included

The WORK includes the furnishing of all labor, supervision, facilities, and equipment, and the performance of all operations and incidentals necessary for the complete shop or field coating of the carbon steel surfaces of the equipment as listed on the Equipment Paint Schedule included herein. The SUPPLIER/SUBCONTRACTOR shall be responsible for ordering, purchasing, receiving, storing, and the control of nuclear coating materials. No change in material selection will be permitted after submittal of the Proposals without written approval of the ENGINEER and the OWNER. The WORK shall include, but not necessarily be limited to the following:

a. Cleaning of the equipment prior to painting.

b. Touchup of equipment surfaces previously primed.

c. Finish coating of the equipment.

d. Humidity and temperature control (as required by the SUPPLIER/SUBCONTRACTOR'S material product data sheets to meet application and curing criteria).

1.3 Work Not Included

Painting of the following items is not included in this Specification:

a. Painting of concrete, steel floor, and wall surfaces in the containment and auxiliary buildings.

b. Galvanized metal items.

c. Nonferrous metal items.

d. Prefinished equipment such as control panels, instrumentation panels and gages, and switchgear.

1.4 Information Required with the Proposal

The Proposal shall include, but not be limited to, the following:

a. Previous experience in the application of nuclear grade coatings.

b. Personnel experience and qualifications.

c. Training program for applicators and inspectors.

d. Equipment list (owned or leased) for:

1. Surface preparation and coating application.

2. Temperature and humidity control.

3. Testing and inspection.

4. Lighting.

e. Temporary facilities and enclosures used in field coating.

f. Quality assurance program (See Section 9.0).

g. Statement of guarantee.

h. Coating performance data for each material selected from Section 7.0 (See Item 7.6).

i. Any exceptions, additions, or deviations that are taken to this Specification.

2.0 APPLICABLE DOCUMENTS

2.1 Supplemental Specifications and Information

Items attached, as listed on the contents page, are hereby made a part of this Technical Specification.

2.2 Applicable Codes and Standards

The following referenced portions of the following codes and standards in effect on October 1, 1973 provide information regarding the requirements of this Specification:

a. American National Standards Institute (ANSI)

1. N5.9-1967, "Protective Coating (Paints) for the Nuclear Industry."

2. N45.2.2-1972, "Packaging, Shipping, Receiving, Storage, and Handling of Items for Nuclear Power Plants (During the Construction Phase)."

3. N101.2-1972, "Protective Coatings (Paints) for Light Water Nuclear Reactor Containment Facilities."

4. N101.4-1972, "Protective Coatings Applied to Nuclear Facilities, Quality Assurance for."

b. Steel Structures Painting Council (SSPC):

1. SP 1 - 63 (1971) "Solvent Cleaning."

2. SP 6 - 63 "Commercial Blast Cleaning."

3. SP 10 - 63T "Near White Blast Cleaning."

c. National Association of Corrosion Engineers (NACE) TPC Publication No. 2, "Coatings and Linings for Immersion Service," 1972.

d. American Society for Testing Materials (ASTM)

1. D01.43-1971, Proposed "Manual of Coating Work for Nuclear Power Plant Primary Containment Facilities."

2. E84-70, "Surface Burning Characteristics of Building Materials, Test for."

e. National Fire Protection Association (NFPA):

1. No. 30-1973, "Flammable and Combustible Liquids Code."

2. No. 241-1973, "Building Construction and Demolition Operations."

f. General Services Administration (GSA) Federal Specification TT-P-0086F-1971, "Paint, Red-Lead-Base Ready-Mixed." 5

2.3 List of Bid Drawings

The following Gilbert Associates, Inc. Drawings bearing W.O. 044687-000 set forth the extent and location of the WORK to be performed under the Contract and are hereby made a part of this Specification:

Drawing No.	Rev.	Date	Status	Title
E-004-230	5	7-20-77	Final Design Ref.	Layout-Auxiliary Building Floor El. 82.85M., 86.00M., 89.64M. & 91.62M.
E-004-231	8	9-9-77	Final Design Ref.	Layout-C.C., Aux., & Reactor Bldgs., Fl. El. 91.62M., 94.21M., 96.04M. & 96.74M.
E-004-232	9	8-22-77	Final Design Ref.	Layout-Intermediate Control, & Diesel Generator Bldgs. Fl. El. 100.30M.
E-004-233	8	8-23-77	Final Design Ref.	Layout-Reactor, Comp. Cooling, Aux., & Fuel Handling Bldgs. Fl. El. 100.30M.

Drawing No.	Rev.	Date	Status	Title
E-004-234	6	8-24-77	Final Design Ref.	Layout-Reactor, Auxiliary, C.C., & F.H. Buildings Floor El. 103.00M., 103.70M. & 104.00M.
E-004-235	8	9-9-77	Final Design Ref.	Layout-Intermediate, Control & Diesel Generator Buildings Floor El. 107.62M.
E-004-236	7	8-25-77	Final Design Ref.	Layout-Reactor, Comp. Cooling, Auxiliary & Fuel Handling Buildings Floor El. 107.62M.
E-004-237	5	9-13-77	Final Design Ref.	Layout-Aux. Bldg. Fl. El. 111.22M., 112.82M. & 113.10M.
E-004-238	8	9-13-77	Final Design Ref.	Layout-Intermediate & Control Bldgs. Fl. El. 115.55M.
E-004-239	7	9-9-77	Final Design Ref.	Layout-Reactor, Aux., & F.H. Bldgs. Fl. El. 115.55M. & 119.10M.
E-004-240	6	7-22-77	Final Design Ref.	Layout-Misc. Floor Plans
E-004-250	0	9-22-76	Information Only	Layout-Section A-A
E-004-251	2	6-29-77	Final Design Ref.	Layout-Section B-B
E-004-252	0	9-22-76	Information Only	Layout-Section C-C
E-004-253	0	9-22-76	Information Only	Layout-Section D-D
E-004-260	2	8-11-77	Final Design Ref.	Layout-R.B. Laydown Space Reactor Building Fl. El. 115.55M.
E-004-270	1	7-22-76	Final Design Ref.	Layout-Incore Instrumentation System

3.0 GENERAL REQUIREMENTS

3.1 Coordination Efforts

3.1.1 Prior to the start of coating WORK on the JOBSITE there shall be a meeting with the ENGINEER, SUPPLIER/SUBCONTRACTOR, and WESTINGHOUSE. Each specific phase of the WORK shall be reviewed to assure complete understanding of all applicable Contract specifications and procedural requirements. In addition, the SUPPLIER/SUBCONTRACTOR shall demonstrate the surface preparation and coating procedures for steel equipment items to assure his compliance with the requirements of the CONTRACT DOCUMENTS.

3.1.2 The shop fabricated equipment herein after specified to be installed in Class I areas, shall be those areas in the reactor containment facility. Shop fabricated equipment specified to be installed in Class II areas, are nuclear areas outside of the reactor containment facility having the potential of becoming contaminated with radioactive material.

3.2 Coating Work Schedules

3.2.1 To minimize the amount of interference with other crafts, the SUPPLIER/SUBCONTRACTOR shall coordinate with WESTINGHOUSE, the scheduling of all coating operations.

3.2.2 ASTM D01.43 (Proposed) shall be used as a guide for all Class I and Class II coating WORK performed under this Specification.

4.0 STORAGE, MIXING, AND PREPARATION OF PAINT AND RELATED MATERIALS

4.1 Storage

Paint shall be protected from direct sunlight and stored in a separate structure provided by the SUPPLIER/SUBCONTRACTOR. The structure shall be constructed of noncombustible materials (in accordance with NFPA 241). It shall have sufficient ventilation to prevent the concentration of fumes and vapors from exceeding 25% of the lower flammability limit. The structure shall contain sufficient fire protection appliances of the A:B:C: classification. In cold weather, the storage area shall be heated to maintain a paint temperature of approximately 15 C. Only safely installed approved heaters shall be used in the storage area. No paint shall be used or stored past the shelf life or beyond temperature limitations recommended by the manufacturer.

4.2 Use

Only originally sealed, intact, identified, and undamaged material containers shall be used. Containers shall remain unopened until needed for use and then kept covered when not in use.

4.3 Mixing

Mechanical vibrators, air-driven mixers, or sparkproof electric-driven impellers may be used to thoroughly mix the coating after properly measuring the required components. Catalysts, thinners, and other components shall be added only in the exact quantities specified by the paint manufacturer. Containers used for mixing shall be dry and clean and shall not be used for any other purpose such as solvent storage. Materials that are mixed and not used prior to expiration of pot life of the coating shall be discarded.

4.4 Thinners and Solvents

4.4.1 Thinners shall not be used except as specified, recommended by the paint manufacturer, or by authority of WESTINGHOUSE. Thinners shall be kept under separate lock and key and shall be used only under the supervision of personnel acceptable to WESTINGHOUSE. Hazardous solvents such as chlorinated hydrocarbon solvents and paint strippers shall not be used on the JOBSITE.

4.4.2 Any materials containin solvents with a Threshold Limit Value (TLV) below 100 ppm shall not be used unless specifically approved by WESTINGHOUSE. The TLV for chemical substances in workroom air is listed in a document available from the American Conference of Government Industrial Hygienists, Box 1937, Cincinnati, Ohio 45201.

4.4.3 Thinners shall not lessen the wet and dry mil thickness.

5.0 SURFACE PREPARATION AND COATING APPLICATION

5.1 General

5.1.1 It shall be the responsibility of the SUPPLIER/SUBCONTRACTOR to examine the equipment to determine its acceptability to be prepared and coated as herein specified. The surfaces of steel equipment with burrs, weld splatter, and sharp edges which cannot be readily smoothed by the SUPPLIER/SUBCONTRACTOR, shall be reported to WESTINGHOUSE for correction. Application of coatings by the SUPPLIER/SUBCONTRACTOR signifies acceptance of the surfaces and responsibility for the performance of coatings applied.

5.1.2 The surface preparation of Class I steel equipment items, whether shop or field coated, shall be in accordance with SSPC SP-10.

5.1.3 The surface preparation of Class II steel equipment items whether shop or field coated, shall be in accordance with SSPC SP-6.

5.2 Special Conditions

5.2.1 The SUPPLIER/SUBCONTRACTOR shall be prepared to control temperature and humidity by the use of special equipment (heaters and dehumidifiers) in any area of the plant, where the equipment is being coated, if environmental conditions are not within specified limits and if the construction schedule does not permit postponement. In conjunction with environmental control, the SUPPLIER/SUBCONTRACTOR may be required to erect temporary enclosures during the preparation, painting, and curing operations. The dehumidifier shall be explosion-proof and heaters shall be placed in such a manner to reduce the fire hazard to a minimum (see NFPA 241, Section 3.2).

5.2.2 Stainless steel, galvanized, and aluminum surfaces shall not be blasted or painted. Such surfaces shall be fully protected when they are in proximity to blasting and painting operations.

5.2.3 Machined surfaces such as threads and shafts, nameplates, identification numbers (I.D.), and nonmetallic components shall be fully protected during cleaning, blasting, and painting operations.

5.2.4 Filters and openings shall be covered to avoid defilement and clogging during cleaning, blasting, and painting operations.

5.2.5 The application of epoxy coatings is not permitted at temperatures below 10 C.

5.2.6 The SUPPLIER/SUBCONTRACTOR shall be fully responsible for the equipment from the moment it is assigned to him and terminates when it is finish coated.

5.2.7 Previously primed steel surfaces to be topcoated in the field, shall be cleaned of oil, grease, dirt, crayon marks, surface deposits, or other deleterious material. Clean rags, fresh water, detergents, or solvents, conforming to SSPC SP 1, shall be used as required.

5.2.7A Hot insulated piping may be primed with red lead primer, GSA Federal Specification TT-P-0086F Type II, but it may also be left unprimed. This applies to hot insulated piping in Class I and Class II areas. 5

5.2.8 The as-received condition of items to be coated is defined on the Equipment Paint Schedule under the column "Status." The condition of the carbon steel equipment items will generally be as follows:

> Steel equipment items, both <u>inside</u> and <u>outside</u> containment, will generally be received with a prime coating of inorganic zinc. These items will require solvent cleaning and may require primer touchup of damaged surfaces prior to finish coating.

6.0 COATING SYSTEMS

6.1 Requirements

6.1.1 The dry film thickness (DFT) shall be as recommended by the manufacturer to meet the design criteria specified under Section 7.0. The film thickness shall be obtained by one or more successive coating applications. The color shall be as shown on the Drawings or Equipment Paint Schedule. No changes shall be permitted without prior written approval by the ENGINEER and WESTINGHOUSE.

6.1.2 Paint shall be applied only within the ambient temperature and humidity ranges specified by the coating manufacturer.

6.1.3 Coatings may be applied by spray, brush, or roller; however, a spray application is recommended. The coating manufacturer's instructions on the type of spray equipment, air pressure, mixing, and thinning shall be followed. Successive coats on any surface shall be applied within the time limits established by the coating manufacturer.

6.1.4 Sags, brush marks, runs, or other defects shall be corrected immediately before the coating dries.

6.2 Touchup and Repair

6.2.1 Areas in which the priming has been defaced shall be cleaned to white metal and feather edged at least 5 centimeters onto the adjoining firm coating.

6.2.2 Primer damage exceeding 35% of the total surface area shall be reported to WESTINGHOUSE. WESTINGHOUSE and the SUPPLIER/SUBCONTRACTOR shall jointly determine the extent of preparatory WORK required prior to the application of coatings.

7.0 MATERIALS

7.1 The following products are approved for use on the steel equipment items listed on the Equipment Paint Schedule:

a. Class I areas

Carbon steel surfaces

1. Ameron Corporation, Brea, California

(a) Primer - Dimetcote 6.

(b) Topcoat - Amercoat 90.

2. Carboline Company, St. Louis, Missouri

   (a) Primer - Carbozinc 11.

   (b) Topcoat - Phenoline 305.

3. Mobil Chemical Company, Edison, New Jersey

   (a) Primer - Mobilzinc 7.

   (b) Topcoat - Val Chem Hi Build Epoxy - 89 series.

b. Class II areas

   Carbon steel surfaces

   1. Carboline Company, St. Louis, Missouri; Topcoat - Carboline 290 WB.

   2. Mobil Chemical Co., Edison, New Jersey; Topcoat - Val Chem Water Epoxy Enamel - 91 Series.

   3. Color-Medrode, Yugoslavia

      (a) Primer - Red Lead TT-P-0086F, Type II. 5

      (b) Topcoat - Oplatin Extra Ultra-Alkyd Enamel.

   NOTE: These topcoats are to be used over existing primers. For unprimed or damaged surfaces, follow instructions as previously outlined in this Specification.

7.2 Selection is limited to one subsupplier/sub-subcontractor in each of the above coating categories. This permits the possible selection of several material suppliers for the total plant coating WORK, but prevents mixing of materials within any single category.

7.3 The SUPPLIER/SUBCONTRACTOR shall require the material supplier to have and implement a quality assurance program which meets the requirements of the referenced codes, standards, and WESTINGHOUSE. The quality assurance program shall include all relevant manufacturing, quality control, and documentation procedures which are necessary to assure traceability, mterial certification, formulation, conformance, and compliance with specified requirements. Materials used under this Specification for equipment in Class I and Class II areas shall be purchased, received, and inventoried on a Class I basis.

7.4 The SUPPLIER/SUBCONTRACTOR shall require certification from the material supplier that his coating systems, as listed in Section 7.0 of this Specification, meet or exceed the requirements for severe exposure as specified in the referenced codes and standards. Upon request by the ENGINEER, test data shall be made available for review.

7.5 The coating systems shall meet the criteria and intent pertinent to pressurized water reactor containments specified in the referenced codes and standards and the following time temperature profile:

a. 260 F (127 C) 10 seconds

b.	270 F (132 C)	6 minutes 40 seconds
c.	270 F (132 C)	16 minutes 40 seconds
d.	210 F (99 C)	1 hour
e.	230 F (110 C)	2 hours, 3 minutes, and 20 seconds
f.	195 F (91 C)	24 hours
g.	200 F (93 C)	27 hours
h.	160 F (71 C)	20 days

7.6 The SUPPLIER/SUBCONTRACTOR shall require coating performance data from the material supplier for each material selected from Section 7.0. This information shall be submitted with the Proposal and shall include the following:

a. Design basic accident, ANSI N5.9.

b. Decontamination factor.

c. Radiation resistance - rads.

d. Fire spread rating (ASTM E 84).

e. Abrasion resistance.

f. Percentage of solids by volume.

g. Recommended film thickness.

h. Drying time between coats.

8.0 TESTING, INSPECTION, AND ACCEPTANCE CRITERIA

8.1 Testing, inspection, and acceptance criteria shall be in accordance with the applicable codes and standards as specified in Item 2.2.

8.2 All WORK shall be subject to inspection and evaluation by WESTINGHOUSE at any stage of the WORK. The SUPPLIER/SUBCONTRACTOR shall assist in the effort as required. Any WORK failing to meet the specified requirements shall be remedied promptly by the SUPPLIER/SUBCONTRACTOR at his expense.

8.3 Gages and equipment for tests shall be furnished by the SUPPLIER/SUBCONTRACTOR and calibrated and certified during the course of the WORK. The SUPPLIER/SUBCONTRACTOR shall have, at the JOBSITE, the following test equipment (or EQUAL) which includes, but is not limited to, the following:

a. Keane-Tator Surface Profile Comparator with magnifier.

b. Elcometer or Mikrotester (0-25 or 0-40 mils).

c. Humidity sensors such as a sling psychrometer.

d. Surface thermometers or pyrometers.

e. Air temperature thermometer.

f. Tooke Gauge.

g. Elcometer adhesion tester.

8.4 The SUPPLIER/SUBCONTRACTOR shall perform his own inspection for quality control by using the test equipment and visual inspection to check for the following:

a. Presence of rust.

b. Anchor pattern.

c. Air pressure.

d. Relative humidity.

e. Ambient and surface temperatures.

f. Wet and dry film thickness.

g. Sags, runs, cracks, delaminations, overspray, holidays, and so forth.

8.5 Inspection personnel, inspection techniques, extent of inspection, and the procedure for qualification of coating inspectors shall conform to the referenced codes and standards. The coating inspector's qualifications shall be documented and approved by WESTINGHOUSE.

9.0 SPECIAL REQUIREMENTS

Quality Assurance Requirements

a. A quality assurance program is required only for equipment in Class I areas which is defined as all nuclear coating WORK inside the containment building. This quality assurance program shall be in conformance with WESTINGHOUSE requirements and the referenced codes and standards which recommends forms and techniques to control materials and application. These shall be the basis for the selection and format of presented data describing the SUPPLIER/SUBCONTRACTOR'S quality assurance procedures. Approval of these forms shall be by joint agreement between the OWNER, ENGINEER, WESTINGHOUSE, and the SUPPLIER/SUBCONTRACTOR.

b. Nuclear coating WORK outside the containment building is designated as Class II and does not require a quality assurance program. However, the SUPPLIER/SUBCONTRACTOR shall include in the Proposals, the quality control measures that shall be implemented in Class II areas to assure traceability of materials, record of application, and performance of inspection.

Equipment Paint Schedule

Auxiliary Building Fl. El.

Item No.	Equipment Name	Space No.	Paint Mfg.	Rec'd. Status	Primer	Finish	Dft Per Coat	No. of Coats	Munsell Color No.

COLOR SCHEDULE - PAINTING OF EQUIPMENT IN CONTAINMENT & AUXILIARY BUILDINGS

Equipment Description	Paint Mfgr	Primer	DFT	Finish	DFT Per Coat	Total No. of Coats	Color Identification
REACTOR BUILDING							
Within Containment - Class I Areas	Ameron	Dimetcote 6	2.5 mils	Amercoat 90	5.0 mils	2	White
AUXILIARY BUILDING							
Class II Areas - Equipment within Systems							
AF Auxiliary Feedwater	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
BD Steam Generator Blowdown	Mobil	91 Series	-	94-G-15	2.0 mils	2	EP6 Gulf Green
BR Boron Recycle	Mobil	91-Y-2	-	91-Y-2	2.0 mils	2	EP7 Sunlite Yellow
CA Compressed Air	Mobil	91 Series	-	84-F-34	2.0 mils	2	EP3 Warm Gray
CC Component Cooling	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
CI Containment Spray	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
CS Chemical & Volume Control	Mobil	91-Y-2	-	91-Y-2	2.0 mils	2	EP7 Sunlite Yellow
CX Containment Leak Test & Pressurization	Mobil	91 Series	-	84-F-34	2.0 mils	2	EP3 Warm Gray

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COLOR SCHEDULE - PAINTING OF EQUIPMENT IN CONTAINMENT & AUXILIARY BUILDINGS (Cont'd)

Equipment Description		Paint Mfgr	Primer	DFT	Finish	DFT Per Coat	Total No. of Coats	Color Identification
AUXILIARY BUILDING (Cont'd)								
CZ	Chilled Water	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
FC	Feedwater Chemical Control	Mobil	91-Y-2	-	91-Y-2	2.0 mils	2	EP7 Sunlite Yellow
FD	Floor Drain (Nuclear)	Mobil	91 Series	-	84-G-15	2.0 mils	2	EP6 Gulf Green
GH	Gas Handling	Mobil	91 Series	-	84-J-5	2.0 mils	2	EP13 Black
HC	Hydrogen Control and Monitoring	Mobil	91-Y-2	-	91-Y-2	2.0 mils	2	EP7 Sunlite Yellow
HE	Handling Equipment	Mobil	91 Series	-	------	2.0 mils	2	See Specific Color Notes
IA	Instrument Air	Mobil	91 Series	-	84-F-34	2.0 mils	2	EP3 Warm Gray
MW	Reactor Makeup	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
RC	Reactor Coolant	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
RH	Residual Heat Removal	Mobil	91 Series	-	84-G-15	2.0 mils	2	EP6 Gulf Green
SF	Spent Fuel Pit Cooling and Cleanup	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue
SI	Safety Injection	Mobil	91-Y-2	-	91-Y-2	2.0 mils	2	EP7 Sunlite Yellow

COLOR SCHEDULE - PAINTING OF EQUIPMENT IN CONTAINMENT & AUXILIARY BUILDINGS (Cont'd)

Equipment Description	Paint Mfgr	Primer	DFT	Finish	DFT Per Coat	Total No. of Coats	Color Identification
AUXILIARY BUILDING (Cont'd)							
TR Thermal Regeneration	Mobil	91 Series	-	84-G-15	2.0 mils	2	EP6 Gulf Green
WD Waste Disposal (Solid)	Mobil	91 Series	-	91-W-104	2.0 mils	2	EP1 White
WP Waste Processing (Liquid)	Mobil	91 Series	-	91-W-104	2.0 mils	2	EP1 White
WS Refueling Water	Mobil	91 Series	-	84-B-12	2.0 mils	2	EP5 Sky Blue

GENERAL COLOR NOTES:

1. Equipment paint colors have been set up by "system." Said systems and their associated equipment components are those listed and identified on final plant layout equipment list Drawings E-004-450, E-004-451, and E-004-452. All equipment items listed with a particular system shall be painted the appropriate color as listed in the above schedule, except where directed otherwise in the following General and Specific Color Notes. See color chips provided as part of this equipment paint schedule.

2. Equipment within certain systems may have items located in both Class II and unclassified areas of the plant. Matching color in the appropriate coating material must be used when required.

3. All piping outside the containment vessel, except as noted otherwise, shall be IVORY (see Specific Color Notes). All ivory-colored system piping will be specifically identified with labels and color-coded stripes or banding as per Yugoslavian standards. All valve handles or wheels shall be BLACK.

4. All fire protection system stations, equipment, and piping shall be RED.

5. All electrical and control cabinet or consoles, switchgear equipment, conduit envelopes etc., are factory finished.

SPECIFIC COLOR NOTES:

Handling Equipment System - HE

Containment polar crane	EP1	White
Fuel building crane:		
Bridge	P12/P15	Safety Yellow w/Black Diagonal Hazard Striping
Cab	P12	Safety Yellow
Trolleys, etc.	P12	Safety Yellow
Hook(s)	P13	Safety Orange

Drumming station crane:
(same as fuel building crane)

COLOR SCHEDULE - PAINTING OF EQUIPMENT IN CONTAINMENT & AUXILIARY BUILDINGS (Cont'd)

COLOR CHIPS FOR EQUIPMENT PAINTNG

Color Key

Color No.	Color Name or Description	
	Nonprotective	Protective (MOBIL)
EP 1	White	White
EP 2	Ivory	Ivory
EP 3	Medium Gray	Warm Gray
EP 4	Light Blue	---------
EP 5	Medium Blue	Sky Blue
EP 6	Medium Green	Gulf Green
EP 7	Light Yellow	Sunlite Yellow
EP 8	Light Orange	---------
EP 9	Medium Orange	---------
EP 10	Orange	---------
EP 11	Light Brown	---------
EP 12	Medium Brown	---------
EP 13	Black	Black