SECTION 01 11 13
SUMMARY OF WORK

EXTERIOR COATINGS FOR DD#2 PONTOON DECK, SOUTH APRON, SOUTH WATER CATCHMENT & PARTIAL WINGWALL

Project Background:

Contractor to install owner-furnished Ceram-Kote coating to floating dry dock #2 at the Alaska Ship & Dry Dock located in Ketchikan, Alaska. Approximate sf is 25,790. The shipyard is operated by Vigor Industrial. Contractor to work with Vigor and coordinate efforts around shipyard operations. In general, the dry dock will be made available to contractor from June 5th thru July 6th 2020. Contractor to adhere to manufacturers recommended preparation and installation guidelines. Technical representative of Ceram Kote will be onsite for 1 week at start of project to oversee installation and ensure correct application. Contractor responsible for all containment of fugitive dust, grit, debris, overspray, wash water, and any other potential contaminates from surrounding environment and waterway. Wash water to be collected and treated prior to disposal. No wash water is allowed in to navigable waterways. Contractor responsible for all waste and disposal of any excess product. Shipyard operator to remove all appurtenances from dry dock and secure services to dock prior to contractor install.

PART 1 GENERAL

1.01 SECTION INCLUDES

A This specification defines the requirements for materials, surface preparation, application, and touch up of coatings for the DD#2 Pontoon deck in Ketchikan, Alaska. The project scope covers recoating of the exterior surfaces of the Drydock.

1.02 REFERENCES

A. Alaska Statute (AS):

1. 18.63 - Hazardous Painting Certification

B. American Society for Testing and Materials (ASTM):

1. ASTM D2697 - Standard Test Method for Volume Nonvolatile Matter in Clear or Pigmented Coatings

2. ASTM D1640 - Standard Test Method for Drying, Curing, or Film Formation of Organic Coatings at Room Temperature

3. ASTM D4285 - Standard Test Method for Indicating Oil or Water in Compressed Air

4. ASTM D4414 - Practice for Measurement of Wet Film Thickness by Notch Gages.

5. ASTM E337 - Standard Test Method for Measuring Humidity with a Psychrometer (the Measurement of Wet-and Dry-Bulb Temperatures

C. Environmental Protection Agency (EPA):

1. EPA 24 - Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings

D. National Association of Corrosion Engineers (NACE):

1. RP0287-2002 - Field Measurement of Surface Profile of Abrasive Blast-Cleaned Steel Surfaces Using a Replica Tape

2. SP0716-2016 - Soluble Salt Testing Frequency and Locations on Previously Coated Surfaces

3. NACE VIS 7 - Guide and Visual Reference Photos

E. Steel Structures Painting Council (SSPC) Specifications:

1. SSPC-PA 1 - Shop, Field, and Maintenance Painting of Steel

2. SSPC-PA 2 - Measurement of Dry Paint Thickness with Magnetic Gauges

3. SSPC-SP 3 - Power Tool Cleaning

4. SSPC-SP 10 - Near White Blast Cleaning

5. SSPC-VIS 1 - Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning (Revised 2002)

1.03 SUBMITTALS

A. Contractor shall submit for approval the following items:

1. Applicators: Provide information on the qualifications, experience, and certification(s) of all coating applicators to be utilized on the Project.

2. Material Data Sheets: Provide Manufacturers Technical Data Sheets for all paints, coatings, solvents, detergents and degreasers planned for use.

3. Application Instructions & Recommendations: Provide manufacturers application instructions and recommendations for each product. Instruction and recommendation information should include surface prep, ambient temperature and humidity requirements, thinning information, recoat windows, curing times and other relevant application information.

4. MSDS Information: Provide Material Safety Data Sheets (MSDS) for all coatings and coating related products used.

5. Quality Control and Inspection Program: Provide a written plan and procedures that documents the Contractor's proposed Quality Control and Inspection program. Information should include safe operating procedures, planned inspection points, quality assurance measures, etc.

6. Alternate Systems: If different manufacturers, abrasive blast products, coating materials or chloride test materials are proposed, provide Manufacturer name, certification and documented experience information; technical and performance information to demonstrate product capability, fitness for service, corrosion and dielectric resistance information, and chemical properties.

1.04 QUALIFICATIONS

A. Coating Manufacturer: CeRam-Kote

B. Contractor: The Contractor must be a company specializing in performing shop and field applied coatings for marine steel systems with a minimum 5 years of documented experience. Contractor must be certified by the coating manufacturer for application of the CeRam-Kote products.

C. Painter: The painter must be an individual specializing in performing work of this Specification with a minimum of 2 years documented experience and must be certified in the State of Alaska in accordance with AS 18.63.

1.05 QUALITY CONTROL

A. Contractor shall provide and maintain an effective quality control program to assure conformance to the specifications and plans with respect to materials, workmanship, finish, and functional performance.

B. Unless specified herein, the coating manufacturer's printed recommendations and instructions for surface preparation, mixing, thinning, handling, applying, curing, and protecting coating and for all other procedures relative to coating shall be strictly observed.

C. It is the applicator's responsibility to perform work to the requirements of this specification and to conduct inspections and tests necessary to ensure compliance. The Owner may conduct any inspection deemed necessary to verify compliance.

1.06 DELIVERY, STORAGE AND HANDLING

A. Protect the coating materials from freezing or overheating. Transport and store the coating materials in areas between 45° F and 130° F. If the coating materials freeze or overheat (exceed 130° F), reject the coating materials and notify the Project Representative.

PART 2 MATERIALS

2.01 COATING SYSTEMS

A. The following materials shall be used for the subject coating applications. Do not tint, shade, or modify the coating formulation at the job site.

2.02 ABRASIVE BLAST MATERIAL

A. Abrasive blast materials shall use dry, neutral pH, hard abrasives of angular configuration that are free of oil, dust, clay or other foreign particles. The following list is of suggested abrasive materials and manufacturers:

1. Steel Shot S460 – Marco or Blast One

2. Steel Grit GL16 – Marco or Blast One

3. 35grit Copper slag - Kleen Blast or Blast One or Marco

4. Or approved Equal.

2.03 CLORIDE CONTAMINATION FIELD TEST KIT

A. The following test kit shall be used for evaluating chloride contamination of surfaces in preparation for recoating:

1. Chlor*Test or eChlor*Test: Chlor*RID International, Inc. P.O. Box 908, Chandler, AZ 85244

PART 3 EXECUTION

3.01 SAFETY

A. It is the responsibility of the Contractor and any subcontractors to perform all work in a safe manner. Also, it is the responsibility of the Contractor to assure that all applicable health and safety standards and all local, state, and Federal safety regulations are met. The omission in this Specification of any applicable safety regulation does not relieve the Contractor of responsibility to comply.

B. The Contractor shall keep on hand and/or post copies of all local, state, and federal safety regulations governing the work procedures at the work site. This shall also include copies of the Material Safety Data Sheets (MSDS) for all chemicals used on the Project. The Contractor shall brief all workers at the job site of the location of the regulations and MSDS.

C. Provide safe access to the work areas. The work areas shall be kept free of debris.

D. Any ignition source, such as internal combustion engines, welding operations, smoking areas, shall be kept at a safe distance from surfaces during coating preparation, application and curing.

E. Blast nozzles shall be equipped with a “dead man” type shut-off device. Blasting hoses, spray equipment, air movers, and other type equipment shall be grounded.

F. Inspect protective clothing and personal protective equipment before use to ensure they are in proper, functioning condition.

G. It is the Contractor’s responsibility to dispose of <u>all</u> materials, both hazardous and non-hazardous. All unused mixed materials shall be disposed of immediately. All cans containing coating materials or thinners, containers that were used for mixing materials, and rags or other items contaminated with coating materials or thinners

shall be disposed of according to applicable safety and waste disposal regulations.

H. The Contractor shall coordinate with the Facility Manager while performing surface preparations or painting.

3.01 ENVIRONMENTAL

A. Contractor will ensure that all Federal, State and Local environmental regulations are followed while the work is being executed.

B. Construction debris will not be allowed to enter surface waters (i.e. contractors may use work platforms, containment tarps, their boats, or a boom to ensure debris does not enter surface waters). Collected debris will be removed from the water and disposed of at an appropriate upland facility.

C. Wash water is to be collected by the contractor then treated and disposed. Wash water is not to be allowed into the navigable water by any means.

D. Blast grit to be picked up and disposed as soon as practical and properly disposed.

3.02 PRE-JOB CONFERENCE

A. A meeting shall be held, prior to any work being performed, to review this and other Project Specifications. AIDEA, Contractor, Shipyard personnel, and Manufacturer's Representative should be invited to attend.

B. The Contractor shall be responsible for scheduling the pre-job conference meeting.

C. Any proposed deviations from this Specification must be brought to the attention of the Owner at or before the pre-job conference.

3.03 SURFACE PREPARATION

A. Contractor must follow SSPC Guide 6: Guide for containing surface preparation debris generated during paint removal operations.

B. Remove and blank inlet manifold valves and outlet manifold valves on the pontoon deck, <u>contractor must hook up Fire protection to the working deck on top of the wing wall.</u>

C. Assure all blast protections are in place to prevent damage to property, surrounding properties, and/or blast/paint doesn't enter the environment or waterways.

D. Prior to abrasive blasting verify that the surface is free of chloride contamination less than 90micor semens per square meter.

E. Inspect all surfaces for existing damage or imperfections that may contribute to premature coating failure. Damage and imperfections may include dents, gouges, scrapes, pits, anomalous weld issues, etc.

F. Remove all sharp edges, protuberances, or weld spatter via soft pack grinding or sanding.

G. Verify that the substrate surface temperature meets the minimum 40° F and 5° F above the dew point (measured per ASTM E337) requirements prior to commencing abrasive blasting. These environmental conditions shall be held throughout the surface preparation and primer application.

H. Abrasively blast all areas in accordance with SSPC SP 10, *Near White Metal Blast Cleaning*.

I. Remove dust and spent abrasive from the surface by using oil-free pressurized air, brushing, or vacuum cleaning.

J. Do not prepare more surface area than can be recoated within a single work shift. Prevent rusting and contamination of prepared surfaces. Any areas prepared but not recoated in a shift or areas where rusting or contamination occur shall be re-blasted to meet the requirements of SSPC SP 10.

K. Abrasive blasting shall require the following:

1. Do not use wet, contaminated or used abrasive material.

2. Examine the abrasive for cleanliness and proper grade size. Remove a handful of abrasive at the start of each shift, place in clean water, and evaluate for clay, oil, or other contaminants. Abrasive blast material containing clay, oil, or other contaminants shall be rejected.

3. Determine the cleanliness of blasting air and pressure developed at the nozzle in accordance with ASTM D4285 at the start of each shift. DO NOT use contaminated air for abrasive blasting activities.

5. Achieve a surface anchor-pattern profile of not less than 3.0 mils. Determine surface anchor-pattern profile with Testex Press-O-Film in accordance with NACE RP0287-2002.

6. Comparatively define the degree of surface preparation using SSPC VIS 1.

3.04 APPLICATION

A. Verify the ambient and surface temperatures meet the minimum product requirements.

B. Verify surface is sufficiently dry, per manufacturer requirements, prior to coating. Re-blast as necessary to maintain surface prep requirements.

C. Mix coating in accordance with manufacturer's instructions.

D. Prior to spraying, verify that the compressed air source is clean (free of oil and moisture) using a blotter test. Perform a blotter test at least once per shift. Air cleanliness shall be in accordance with ASTM D4285. DO NOT use contaminated air for coating application.

E. Apply a stripe coat of primer to the bare steel surfaces using a brush, roller, or spray to all sharp edges, corroded areas, bolts, studs, welds, projections, or any other surface where coating has a tendency to break down. Ensure the stripe coat is worked in to all depressions using a brush or roller.

F. Apply coating in accordance with the applicable sections of SSPC PA 1, this Specification, and the manufacturer's current instructions. DD#2 Pontoon Deck External Surfaces primer and may be sprayed using airless or conventional spray equipment.

G. Use of a plural component airless sprayer is required for the application of the top coat for the DD#2 Pontoon Deck External Surfaces system. Top coat must be applied within 48 hours of primer coat. Mix and heat per the following requirements and the manufacturers published instructions.

1. Include 5% Acetone as thinner to Part A before mixing (1-quart acetone for 5 gallons of Part A)

2. Mix Ratio: 7.2:1.0, Part A to Part B.

3. Heat to 130-150 degree F.

H. Apply coating materials in uniform layers of 50% overlapping strokes. Continuously check WFT to ensure correct application. Use contrasting colors for each coat (primer vs intermediate vs. finish) for verification of complete coverage.

I. For all areas of the DD#2 deck requiring a non-skid finish broadcast 36 grit dry washed aluminum oxide into wet finish coat, while coating material is tacky, to light broadcast level of non-skid.

J. Blast clean and recoat any excessive coating thickness that results in mud cracking, fisheyes, pores, or blistering of the cured coating.

Verification of coating repairs.

K. After surface preparation work, inspect surfaces to receive coatings and repair all defects prior to applying coatings.

L. Measure the DFT after each coat and the total DFT for the entire coating system in accordance with SSPC-PA 2. Calibrate gages using NIST, Certified Coating Thickness Standards for Nonmagnetic Coating on Steel.

M. Surface preparation and coating application are subject to inspection by the Inspector/QC Personnel. Remove any materials that have been determined by the Inspector to be improperly applied or excessively damaged and replace to the satisfaction of the Project Representative. This also applies to materials that have been excessively damaged by cleaning procedures.

N. After the finish coat has cured completely, inspect the coating visually. Inspect for holidays using holiday detection equipment appropriate for the final DFT. Mark all repair areas with a non-grease, non-wax chloride-free marker and repair per Section 3.06 of this Specification.

O. The responsibility of the Inspector/QC Personnel is to approve or disapprove Work according to this Specification. The inspector shall immediately bring any deviations from this specification to the attention of the Project Representative. The inspector does not have authority to direct work.

3.06 COATING REPAIRS

A. Repair all holidays and uncured coatings per manufacturer’s instructions.

END OF
SECTION

SECTION 01 12 19
CONTRACTOR'S CERTIFICATION OF SUBCONTRACTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparing, submitting and accepting subcontracts.

1.02 RELATED REQUIREMENTS

A. Section 00 10 00 - Instructions to Bidders

B. Section 00 43 00 - Subcontractor List

C. Section 00 70 00 - General Conditions: Subcontractor Certification and Approval

D. Section 00 80 00 – Supplementary Conditions: Subcontract Provisions

E. Section 01 33 00 - Submittals: Submittal Procedures

1.03 PREPARATION OF CERTIFICATION

A. Certification Forms: Use forms provided by AUTHORITY

B. CONTRACTOR shall prepare certification form and submit to the AUTHORITY prior to the start of work. Where required, attach additional information to the certification form.

C. Substitute certification forms will not be considered.

1.04 SUBMITTAL OF CERTIFICATION

A. The CONTRACTOR shall submit certification forms for all subcontractors for review and approval by the AUTHORITY.

1.05 CONSIDERATION OF CERTIFICATION

A. Following receipt of submitted subcontractor certification forms, the AUTHORITY will review for the following, at minimum:

1. Completeness of forms and attachments
2. Proper execution (signatures) of forms and attachments

B. Incomplete or improperly executed subcontractor certification forms will be returned to the CONTRACTOR for revision and resubmittal.

B. CONTRACTOR shall remove its subcontractor from the project site until its subcontractor certification form is submitted, reviewed, and approved.

C. The AUTHORITY will not process payments for work performed by a non-certified subcontractor.

1.06 ACKNOWLEDGMENT OF CERTIFICATION

A. Submittals which have been examined by the AUTHORITY and are determined to be complete and properly executed shall be acknowledged as such by the Project Engineer's signature.

PART 2 - PRODUCTS **Not Used**

PART 3 - EXECUTION **Not Used**

END OF SECTION

ALASKA INDUSTRIAL DEVELOPMENT EXPORT AUTHORITY	SUBCONTRACTOR CERTIFICATION	01 12 19A

Note: The Contractor shall provide this form for <u>ALL</u> subcontractors working on this project. This form is applicable to all projects, including Small Procurement Contracts, and must be completed in full.

PROJECT: Ketchikan Shipyard CeramKote Installation PROJ. #: 20066

PRIME CONTRACTOR: _____

Pursuant to the Contract Documents, we hereby stipulate the following concerning the award of Work to the last Subcontractor on the following list:

1. First Tier Subcontractor: _____ DBE? **Yes**☐ **No**☐

   Second Tier: _____ DBE? **Yes**☐ **No**☐

   Third Tier: _____ DBE? **Yes**☐ **No**☐

   Fourth Tier: _____ DBE? **Yes**☐ **No**☐

2. Date of Subcontract: _____

3. Amount of Subcontract: $ _____

4. Scope of Work: _____

   _____

5. Are the following documents kept on file by both the Contractor and the Subcontractor (check the appropriate answer)?

   Contract Minimum Wage Schedule **Yes**☐ **No**☐

6. Does the Subcontract contain provisions for prompt payment, release of retainage, and interest on late payment and retainage conforming to AS 36.90.210?

   Yes☐ **No**☐

7. Does the Subcontract specifically bind the Subcontractor to the applicable terms and conditions of the Contract Documents for the benefit of the Department and does it contain waiver provisions and termination provisions as required by the Contract Documents?

   Yes☐ **No**☐

8. a. Does the Subcontractor have adequate insurance coverages as specified in the Contract Documents?

   Yes☐ **No**☐

   If not, does the Contractor stipulate that the insurance limits of the Subcontractor are acceptable to the Contractor and that he has notified his insurance carrier of the reduced insurance limits?

   Yes☐ **No**☐

   b. Does the evidence of insurance certify that the policies described thereon comply with all aspects of the insurance requirements for this project?

   Yes☐ **No**☐

PROJECT: Ketchikan Shipyard Medium Voltage Loop **PROJ. #:** 19014

Subcontractor Name: _____

c. Does the evidence of insurance list the Department as an "Additional Insured" or "Certificate Holder"?

Yes☐ **No**☐

d. Does the evidence of insurance commit to providing 30 day written notice of cancellation or reduction of any coverage?

Yes☐ **No**☐

e. Insurance Expiration dates:

Comprehensive or Commercial General Liability: _____

Automobile: _____ Workers' Compensation: _____

(Other): _____

9. Copies of the following professional certifications, licenses, and registrations are attached (circle all that apply):

Business License (mandatory)
Contractor License (mandatory)
Land Surveyor's License
Electrical Administrator's License (mandatory for electrical subs)
Mechanical Administrator's License (mandatory for mechanical subs)
Engineer/Architect
Other: _____

10. Exceptions to any of the above are explained as follows: _____

_____

CERTIFICATION (to be completed and signed by PRIME CONTRACTOR): I certify all the above to be true and correct.

Signature: _____

Printed Name: _____

Company: _____

Date: _____

AUTHORITY'S APPROVAL/DISAPPROVAL

The subject subcontract is **APPROVED**. Nothing in this approval should be construed as relieving the Prime Contractor of the responsibility for complete performance of the work or as a waiver of any right of the Approval to reject defective work.

Signature: _____ Date: _____
Project Engineer

The subject subcontract is **NOT APPROVED** for the following reasons:

_____

_____

Signature: _____ Date: _____
Project Engineer

SECTION 01 26 63
CHANGE PROCEDURES

PART 1 - GENERAL

1.01 RELATED REQUIREMENTS

A. Section 00 31 20 - Bid Schedule

B. Section 00 51 00 – Construction Contract

C. Section 00 70 00 - General Conditions

D. Section 00 80 00 - Supplementary Conditions: Modifications to General Conditions Section 00 70 00

E. Section 01 29 73 - Schedule of Values

F. Section 01 29 76 – Application for Payment

G. Section 01 32 00 – Work Schedules and Reports

H. Section 01 73 00 – Execution Requirements: Project Record Documents

1.02 SUBMITTALS

A. Submit the name of the individual authorized to accept changes, and to be responsible for informing others in CONTRACTOR's employ of changes in the Work.

B. Submit with each price proposal a complete, detailed, itemized cost breakdown defining all impacts on Contract Price and Contract Time, in sufficient detail to fully explain the basis for the proposal.

C. All change forms shall be provided by the AUTHORITY.

1.03 CHANGE AUTHORIZATION

A. In accordance with Section 00 70 00 - General Conditions, Part 9 Changes, the AUTHORITY may authorize changes to the Work. The AUTHORITY may authorize changes in one of the following ways:

1. Directive (Section 00 70 00, Article 9.3)
2. Change Order (CO) (Section 00 70 00, Article 9.4)
3. Acceptance of Shop Drawing variations, which have been identified by CONTRACTOR. (Section 00 70 00, Article 9.5)
4. Interim Work Authorization (IWA) (Section 00 70 00, Article 9.10)
5. Contingency Authorization (for CM/GC contracts only) (Section 00 70 00, Paragraph 13.0.3 (b) (2))

1.04 CHANGE PROCEDURES

A. The AUTHORITY may initiate change to the contract by issuing to the CONTRACTOR a Request for Proposal (RFP) document. The RFP may include:

1. Change narrative.
2. Supplementary revised drawings, specifications, additional details, or sketches.
3. Other information as deemed appropriate.

B. The CONTRACTOR shall request a change to the contract by submitting to the AUTHORITY a written Change Notice on a form provided by the AUTHORITY. The AUTHORITY may respond by rejecting it, or with a RFP to initiate contract change. The CONTRACTOR'S Change Notice shall include, at minimum:

1. A description of the proposed change with a statement of the justification of the change.
2. Statement of the effect of the change on Contract Price and Contract Time.
3. The information required in Section 00 70 00 - General Conditions, Part 15 Claims for Adjustments and Disputes.

C. Upon receipt of a Request for Proposal (RFP) from the AUTHORITY, the CONTRACTOR shall respond with a price proposal. The CONTRACTOR shall make every effort to return its price proposal in response to the RFP within the time frame requested by the AUTHORITY, but in no event later than 14 calendar days from date the RFP is issued. For work to be performed after the execution of a Change Order or Contingency Authorization, the basis of pricing shall be estimated. For work performed prior to the execution of a Change Order or Contingency Authorization, the pricing shall be based upon documentation of actual incurred costs. The price proposal shall include:

1. A complete, detailed, itemized price breakdown.
2. For the prime contractor and subcontractors, detailed documentation of costs for direct costs, labor, equipment, consultants, sub-contractor markups, overhead and profit, and other items set forth in General Conditions Section 00 70 00, Part 10.
3. Other information as required by the AUTHORITY.

D. Upon receipt of pricing response to a RFP, the AUTHORITY may execute a change to the contract. The issuance of an RFP or the receipt of pricing response to an RFP shall not obligate the AUTHORITY to execute a change to the contract.

1.05 DIRECTIVES

A. The AUTHORITY may issue Directives as per Section 00 70 00 – General Conditions, Article 9.3.

1.06 INTERIM WORK AUTHORIZATIONS (IWA)

A. The AUTHORITY may issue Interim Work Authorizations in accordance with Section 00 70 00 – General Conditions, Article 9.10.

B. IWAs may be issued to authorize the commencement of additional work in advance of the execution of a Change Order or Contingency Authorization.

C. Work authorized by IWA shall be converted to a negotiated Change Order. except that, for CM/GC contracts only, the work authorized by an IWA may be converted to a Contingency Authorization provided it does not result in an extension of Contract Time.

D. The price on the IWA form shall be an estimated limit not to be exceeded by the CONTRACTOR without prior amendment of the IWA by the AUTHORITY. The AUTHORITY shall not be obligated to compensate the CONTRACTOR for costs in excess of the amount on the IWA.

E. Upon the execution of an IWA, the CONTRACTOR is authorized to begin the specified work. The CONTRACTOR shall track its costs using Cost of Work procedures. The CONTRACTOR shall use the AUTHORITY's Cost of the Work form and shall submit the data to the AUTHORITY at the close of each work day. A separate Cost of Work form is required for each IWA.

1.07 CHANGE ORDER

A. Any change in Contract Time, Contract Price, or associated responsibility within the general scope of the Contract, shall be made by Change Order.

B. The CONTRACTOR shall use forms furnished by the AUTHORITY for Change Orders.

1.08 CONTINGENCY AUTHORIZATIONS (CM/GC Contracts Only)

A. Not used.

B. This provision for Contingency Authorizations shall apply only to Construction Manager/General Contractor (CM/GC) construction contracts.

C. The use of Construction Contingency and CONTRACTOR'S Contingency components of the Guaranteed Maximum Price (GMP) of CM/GC construction contracts shall occur only with the execution of a Contingency Authorization (CA) form provided by the AUTHORITY.

D. Contingency Authorizations shall be used only to effect change of scope within the general scope of the Contract, and to provide associated monetary compensation from contingency components of the GMP, provided such change will not result in an extension of the Contract Time.

E. Contingency Authorizations shall not be used to extend the Contract Time. The CONTRACTOR shall follow Change Order procedures for the consideration of any change of scope that may result in an associated extension of the Contract Time.

F. With the execution of a Contingency Authorization, the CONTRACTOR agrees to waive any claim to any time impact associated with the Work set forth in the Contingency Authorization.

G. A Contingency Authorization shall be used to establish the use of the following contingencies:

1. Construction Contingency components of the GMP per Section 00 70 00 – General Conditions, Paragraph 13.0.3.b.2.i. On the Contingency Authorization form, the AUTHORITY shall sign as the issuer, and the CONTRACTOR shall sign with its acknowledgement.
2. CONTRACTOR'S Contingency component of the GMP per Section 00 70 00 – General Conditions, Paragraph 13.0.3.b.2.ii, The CONTRACTOR shall execute the Contingency Authorization form as the issuer, and the AUTHORITY may sign with its acknowledgement.

1.09 CHANGE PRICING AND TIME ANALYSIS

A. Unless specified elsewhere, Section 00 70 00 - General Conditions, Part 10 shall be applied to the negotiation of all changes to the scope of the contract.

1. Unit Price, when unit prices are contained in the Contract.
2. Mutually acceptable Lump Sum Price, including overhead and profit.
3. Cost of the Work

B. UNIT PRICE CHANGE - For unit price CHANGE PROCEDURES, prices shall be determined by multiplying the contractual unit price(s) by the estimated quantities of Work associated with changed scope. Payment will be based on the actual installed quantities. Document actual installed quantities and submit information requested by the AUTHORITY on a daily basis for its approval and certification. Refer to Section 00 70 00 - General Conditions, Part 10 for additional requirements.

C. LUMP SUM PRICE CHANGE - The CONTRACTOR and the AUTHORITY shall negotiate an equitable price (and time adjustment if appropriate) in good faith. If negotiations do not result in a mutually acceptable lump sum price, the AUTHORITY may, at its discretion, direct the CONTRACTOR to perform the work under Cost of the Work Change Order.

D. COST OF THE WORK CHANGE – The CONTRACTOR shall document Cost of the Work on forms acceptable to the AUTHORITY, and shall submit documented costs to the DEPARTMENT daily for verification and certification. Cost of the Work pricing proposals shall be supported by invoices for substantiation of purchase and rental costs and with additional data as may be requested by AUTHORITY.

E. Time Analysis for CHANGE ORDER PROCEDURES shall be performed as described in Section 01 32 00 – Work Schedules and Reports.

F. The AUTHORITY shall have the right to audit all records in possession of CONTRACTOR relating to activities covered by CONTRACTOR's pricing of Contract CHANGE ORDER PROCEDURES, including Cost of the Work pricing, as set forth in Section 00 70 00 - General Conditions. If CONTRACTOR is a joint venture, the right of AUTHORITY shall apply collaterally to the same extent to the records of joint venture sponsor, and of each individual joint venture member.

1.10 FORM EXECUTION

A. Contract forms issued under this section shall be effective the date the AUTHORITY's authorized person signs the form.

B. For Change Orders, CONTRACTOR signature will indicate acceptance of the terms or acknowledgment of order, depending on box checked. Acknowledgment of Change Order does not substitute for notification requirements of Section 00 70 00 - General Conditions, Article 15.1.

1.11 PAYMENT

A. The CONTRACTOR shall promptly revise its Schedule of Values and Application for Payment forms to record each authorized Change Order and each authorized Contingency Authorization as a separate line item. For Change Orders, adjust the Contract Price as shown on the Change Order.

B. The CONTRACTOR shall promptly revise and resubmit its progress schedules to reflect any change in Contract Time, including adjustments for other items of Work affected by the change.

C. Payment for contract changes shall be made only following the execution of Change Orders or Contingency Authorizations and the inclusion of these change documents by reference on the Application for Payment form.

D. Payment shall not be made for Work authorized via Interim Work Authorization.

PART 2 – PRODUCTS **Not Used**

PART 3 – EXECUTION **Not Used**

END OF SECTION

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SECTION 01 29 76
APPLICATION FOR PAYMENT

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of Application for Payment.

1.02 RELATED REQUIREMENTS

A. Section 00 31 20 – Bid Schedule

B. Section 00 70 00 - General Conditions

C. Section 00 80 00 – Supplementary Conditions

D. Section 01 11 13 – Summary of Work

E. Section 01 26 63 – Change Order Procedures

F. Section 01 31 13 – Job Site Administration

G. Section 01 32 00 – Work Schedules and Reports

H. Section 01 33 00 –Submittal Procedures

I. Section 01 29 73 - Schedule of Values

J. Section 01 45 00 – Quality Control

K. Section 01 45 29 – Testing Laboratory Services

L. Section 01 51 00 – Construction Facilities

M. Section 01 52 13 – Field Offices and Sheds

N. Section 01 71 13 – Mobilization

O. Section 01 77 00 - Contract Closeout Procedures

P. Section 01 78 39 – Project Record Documents

1.03 FORMAT

A. Submit Application for Payment on form approved by the AUTHORITY.

1.04 PREPARATION OF APPLICATIONS

A. Type required information on Application for Payment form acceptable to the AUTHORITY.

B. Execute certification by original signature of authorized officer upon each copy of the Application for Payment.

C. Show breakdown of costs for each item of the Work on accepted Schedule of Values as specified in Section 01 29 73 – Schedule of Values.

D. List each authorized Change Order as an extension on continuation sheet, listing Change Order number and dollar amount as for an original item of Work.

E. Submit Stored Materials Worksheet with every Application for Payment requesting payment for stored materials. Show only direct costs of materials and freight. Submit documentation in accordance with Section 00 70 00 – General Conditions, Article 13.5 Stored Materials and Equipment, for materials shown in column titled “New Material This Pay Request Period.”

1.05 SUBMITTAL PROCEDURES

A. Submit two originals of each Application for Payment at one-month intervals. Each document shall bear original signature of authorized executive.

B. Submit with AUTHORITY-approved transmittal letter bearing AUTHORITY’s project number.

1.06 SUBSTANTIATING DATA

A. When AUTHORITY requires substantiating information, submit all requested data justifying line item amounts in question.

B. Provide one copy of data with cover letter for each copy of Application for Payment. Show Application for Payment number and date, and line item by number and description.

1.07 SUBMITTALS WITH APPLICATION FOR PAYMENT

A. Submit the following for review sufficiently in advance of Application for Payment to allow detailed review by AUTHORITY and resolution of differences.

1. Schedule of Values with updated percentages of completion as required by Section 01 29 73 – Schedule of Values.

B. Submit the following with each Application for Payment.

1. Updated construction schedule as required by Section 01 32 00 – Work Schedules and Reports.
2. Updated Project Record Documents as required by Section 01 78 39 – Project Record Documents.
3. Letter certifying that all Project Record Documents, including as-built drawings and submittals are current.

1.08 ADDITIONAL REQUIREMENTS FOR FIRST APPLICATION FOR PAYMENT

A. The first Application for Payment will be processed after the Resident Engineer has received all of the following:

1. Superintendent Data (Section 00 70 00 – General Conditions, Article 6.2)
2. Progress Schedule (Section 00 70 00 – General Conditions, Paragraph 6.6.1, & Section 01 32 00 – Work Schedules and Reports)
3. Schedule of Values (Section 00700 – General Conditions, Paragraph 6.6.2, & Section 01 29 73 – Schedule of Values)
4. Submittal Schedule (Section 00 70 00 – General Conditions, Paragraph 6.6.2)
5. Safety Representative Designation (Section 00 70 00 – General Conditions, Article 6.18)
6. Building Permits (Section 00 70 00 – General Conditions, Article 7.2)
7. Name of Individual Authorized to Accept Changes (Section 01 26 63 – Change Order Procedures)
8. CONTRACTOR's Management Team (Section 01 31 13 – Job Site Administration)
9. CONTRACTOR Quality Control Program and Plan (Section 01 45 00 – Quality Control)
10. National Bureau of Standards Inspection Report (Section 01 45 29 – Testing Laboratory Services)
11. Freeze Protection Plan (Section 01 51 00 – Construction Facilities)
12. Construction Site Layout Plan (Section 01 71 13 – Mobilization and Demobilization)
13. Traffic Control Plan and Haul Routes (Section 01 11 13 – Summary of Work)
14. Pre-Construction Property and Structure Assessments (Section 01 51 00 – Construction Facilities)
15. Temporary Facilities Plan. (Section 01 52 13 – Field Offices and Sheds)

PART 2 - PRODUCTS **Not Used**

PART 3 - EXECUTION **Not Used**

END OF SECTION

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SECTION 01 31 14
WORK COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Work coordination, and coordination with work of other contracts.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 – General Conditions

B. Section 01 11 13 – Summary of Work

C. Section 01 31 13 – Job Site Administration

D. Section 01 72 00 – Utilities Coordination

E. Section 01 73 29 – Cutting and Patching

1.03 REQUIREMENTS

A. Coordinate work of various sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed by AUTHORITY or under separate contracts.

B. Verify that characteristics of elements of interrelated operating equipment are compatible; coordinate work of various sections that have interdependent responsibilities for installing connection to, and placing such equipment in service.

C. Coordinate space requirements and installation of electrical, mechanical, and other special work, which are indicated diagrammatically on the Contract Drawings. Follow routing shown for ducts, conduits, pipes etc., as closely as practicable; make runs parallel with lines of buildings and roads. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

D. Conceal ducts, wiring, and pipes in finished areas unless otherwise indicated. Coordinate locations of fixtures and outlets with finish elements.

E. Whenever the Work of a Subcontractor is dependent upon the Work of other Subcontractors, contractors, or utility company contractors installing utilities under contract with the AUTHORITY, then the CONTRACTOR shall require the Subcontractor to:

1. Coordinate its Work with the dependent work.
2. Provide dependent data and requirements.
3. Supply and install items to be built into dependent work of others.
4. Make provisions for dependent work of others.

5. Examine dependent drawings, specifications and submittals.
6. Examine previously placed dependent work.
7. Check and verify dependent dimensions of previously placed work.
8. Notify CONTRACTOR of previously placed dependent work or dependent dimensions, which are unsatisfactory or will prevent a satisfactory installation of its Work.
9. Not proceed with its Work until the unsatisfactory dependent conditions have been corrected.
10. CONTRACTOR shall require subcontractors to participate in coordination meetings as required by the AUTHORITY.

PART 2 – PRODUCTS **Not Used**

PART 3 – EXECUTION **Not Used**

END OF SECTION

SECTION 01 42 19
REFERENCE STANDARDS

PART 1 - GENERAL

1.01 RELATED SECTIONS

A. Section 00 70 00 - General Conditions

1.02 QUALITY ASSURANCE

A. For Products or workmanship specified by association, trade, or other technical standards: comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard by date of issue current on date of bid advertisement, unless otherwise stated in the Contract Documents.

C. Provide copies of standards through the submittal process when required by the Contract Documents. Maintain a copy of each reference standard on site during construction.

D. Should specified reference standards conflict with Contract Documents, request clarification from the AUTHORITY before proceeding. Local code requirements, where more stringent than referenced standards, shall govern.

E. Neither the contractual relationship, duties, and responsibilities of the parties to the Contract, nor those of the Architect/Engineer, shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 - PRODUCTS **Not Used**

PART 3 - EXECUTION **Not Used**

END OF SECTION

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SECTION 01 45 23
AUTHORITY INSPECTION SERVICES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Testing and inspection services provided by the AUTHORITY.

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 - General Conditions

B. Section 00 70 00 - General Conditions: Article 13, Substantial Completion, Final Inspection.

C. Section 01 45 00 - Quality Control

D. Section 01 45 29 - Testing Laboratory Services

E. Section 01 73 00 - Execution Requirements

F. Individual Specifications Sections: Inspections and tests required, and standards for testing.

1.03 REFERENCES

A. International Building Code

B. Special Inspection Program as approved by Authority Having Jurisdiction (AHJ)

C. IEEE National Electric Safety Code (NESC)

1.04 DESCRIPTION

A. In accordance with the International Building Code and IEEE National Electrical Safety Code and NFPA 70 National Electrical Code, the AUTHORITY will provide Special Inspection Services. These services are in addition to those inspection and testing services provided by the CONTRACTOR under Section 01 45 00 – Quality Control and Section 01 45 29 – Testing Laboratory Services and AHJ permit inspections.

B. The CONTRACTOR is responsible for requesting Special Inspection Services from the AUTHORITY for the following work activities:

1. Soil compaction: Special Inspector to monitor the soils compaction process and review soils compaction testing data provided by the CONTRACTOR.
2. Asphalt: Special Inspector to monitor placement of asphalt and review asphalt testing data provided by the CONTRACTOR.
3. Concrete and concrete reinforcement: Special Inspector to monitor placement of concrete reinforcing steel, review concrete sampling and testing data provided by the CONTRACTOR, perform other related inspections as required by the IBC.
4. Other special inspections and activities required by the NESC, NFPA 70 and Authority Having Jurisdiction (AHJ)

1.05 REQUEST AND PAYMENT

A. The CONTRACTOR shall request services provided by the AUTHORITY to perform specified inspection and testing.

B. Inspection by the AUTHORITY or its agents shall in no way relieve CONTRACTOR of obligation to perform Work in accordance with requirements of Contract Documents

1.06 CONTRACTOR SUBMITTALS

A. The CONTRACTOR shall coordinate with the AUTHORITY to provide adequate advance notice to enable the AUTHORITY'S special inspector(s) to be present when necessary.

B. A Materials Placement Schedule shall also be submitted each Thursday for the work scheduled for the following week, if requested by the AUTHORITY. This schedule shall include the date and time each material, required to have materials testing or inspection, is scheduled for placement or observation. A schedule of material deliveries to the site of materials stored for incorporation into work items, which require Special Inspection, may also be required upon notification from the Authority.

C. The CONTRACTOR shall provide a minimum of 8 hours written notification counting only working hours and working days of a change in the Special Inspection schedule of time and/or date. Submit written notification, which provides the Project name and location, CONTRACTOR's name, and phone number, inspection cancelled, time changed or added, and reason for the change. Failure to provide this notification will result in a reduction of the Contract value for extra costs incurred by the AUTHORITY.

D. A CONTRACTOR request for re inspection of previous Work shall include the AUTHORITY's prior report, listing of deficiencies, and remedies provided since prior inspection.

1.07 AUTHORITY RESPONSIBILITIES

A. Review schedules and request for inspections as submitted by CONTRACTOR for timeliness and conformance.

B. Provide qualified personnel at site after due notice; cooperate with CONTRACTOR in performance of services.

C. Perform specified inspection, inventorying, and testing of products in accordance with specified standards.

D. Promptly notify CONTRACTOR of observed irregularities or non-conformance of Work or products.

E. Perform additional inspections and re-tests required by the Contract Documents.

F. When applicable provide to the CONTRACTOR a written description of the AUTHORITY's costs attributed to the inspection.

1.08 AUTHORITY REPORTS

A. After each inspection or test, the AUTHORITY will promptly submit one copy of inspection report to the CONTRACTOR. The report will include: date issued, project title, AUTHORITY project number, name of inspector(s), date and time of inspection, identification of product and Specifications section, location in the Project, type of inspection or test, results of inspection or tests, and conformance with Contract Documents. When requested in writing by the CONTRACTOR, the AUTHORITY will interpret the results.

1.09 LIMITS ON AUTHORITY RESULTING FROM INSPECTIONS

A. The AUTHORITY may not release, revoke, alter, or enlarge on requirements of the Contract Documents through the issuance of an inspection report.

B. The AUTHORITY may not approve or accept any portion of the Work through the issuance of an inspection report.

C. The AUTHORITY may not assume any duties of the CONTRACTOR through the issuance of an inspection report.

D. The AUTHORITY inspection report shall not constitute a stop work order.

1.10 CONTRACTOR RESPONSIBILITIES

A. Pre-construction Inspection Meeting. The CONTRACTOR shall arrange a meeting of all parties involved with Special Inspection, Inspection, and testing to be conducted by the Authority Having Jurisdiction (AHJ), to review all inspection requirements, particularly those involving Special Inspection.

B. Special Inspection Notification: The CONTRACTOR shall notify the AUTHORITY 72 hours in advance of each required special inspection. The CONTRACTOR is responsible for notifying the AUTHORITY in a timely manner regarding individual inspections for items listed in the Specifications and as noted in the Special Inspection Program approved by the AHJ. Adequate notice shall also be provided so that the Special Inspector has time to become familiar with the project.

C. Inspector access to approved plans: The CONTRACTOR shall be responsible for providing the Special Inspector access to or copies of approved plans at the job site.

D. Availability of Test Reports: The CONTRACTOR shall make copies of all test reports that are pertinent to the responsibilities of the Special Inspector available to that individual.

E. Access to Areas of Work: The CONTRACTOR shall provide adequate, safe means for the Special Inspector to access the areas to be inspected.

F. Retention of Special Inspection Records: The CONTRACTOR shall be responsible for retaining at the job site copies of all special Inspection records submitted by the Special Inspector and copies of test reports, material ticket, etc. These records shall be available for review by the AHJ upon request.

G. Cooperate with AUTHORITY personnel, and provide access to work and to manufacturer's facilities.

H. Provide incidental labor and facilities to provide safe access to work to be inspected, to obtain and furnish incidental supplies at the site or at source of products to be inspected, to facilitate tests and inspections, and for storage and curing of test samples when appropriate.

I. Notify the AUTHORITY as required above in CONTRACTOR Submittals for operations requiring inspection, special inspection and testing services.

J. Pay costs of AUTHORITY furnished services for all re-inspections as required by Contract Documents.

PART 2 - PRODUCTS **Not Used**

PART 3 – EXECUTION **Not Used**

END OF SECTION

SECTION 01 51 00
CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requirements for furnishing and maintaining construction facilities during the project.

1.02 RELATED REQUIREMENTS

A. Section 01 11 13 – Summary of Work

B. Section 01 29 76 – Application for Payment

C. Section 01 52 13 – Field Offices and Sheds

D. Section 01 71 13 – Mobilization and Demobilization

E. Section 01 71 23 – Field Engineering

F. Section 01 73 00 – Execution Requirements

1.03 TEMPORARY ELECTRICITY

A. Unless specified elsewhere, the CONTRACTOR shall make its own provisions for temporary electrical service.

B. Provide lighting for construction operations.

1.04 TEMPORARY HEAT

A. Provide and pay for heat devices, insulated enclosure, tenting, and heat as required to maintain specified conditions for construction operations, to protect materials and finishes from damage due to temperature or humidity.

1.05 TEMPORARY LAYDOWN AREA

A. The Contractor will have an area for staging materials and construction staging onsite. Area will be coordinated with the Operator.

1.06 NOT USED

1.07 TEMPORARY SANITARY FACILITIES

A. Unless specified elsewhere, onsite reasonable use of toilet facilities is authorized.

1.08 TEMPORARY TELEPHONE SERVICE

A. Unless specified elsewhere, provide, maintain and pay for telephone service to the CONTRACTOR field offices.

1.09 BARRIERS

A. Provide as required to prevent entry to construction areas and to protect adjacent properties from damage from construction operations

B. Maintain lights of such size and location each night between the hours of sunset and sunrise upon all obstructions resulting from work which may endanger or obstruct vehicle traffic, and be responsible for all damages to persons and property resulting from failure to maintain lights. Designate personnel to replace or relight markers or barricades and provide the AUTHORITY with their names and telephone numbers for use in summoning them as necessary.

1.10 NOT USED

1.11 ENCLOSURES

A. Provide adequate weather protection to any temporary building or enclosure penetrations until final weather tight installation is provided.

1.12 NOT USED

1.13 PROTECTION OF INSTALLED WORK

A. Protect installed Work and provide special protection where specified in individual specification sections.

B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to prevent damage.

C. Not Used

1.14 SECURITY

A. Provide security and facilities to protect Work from unauthorized entry, vandalism, or theft.

1.15 REMOVAL OF UTILITIES AND FACILITIES

A. Remove CONSTRUCTION FACILITIES, equipment (including temporary boiler stack), facilities, and materials, prior to Substantial Completion inspection.

B. Remove underground installations to a minimum depth of 3 feet below finish grades. Grade site as indicated.

C. Clean and repair damage caused by installation or use of temporary work.

D. Restore permanent facilities used during construction to specified condition.

1.16 SHORING AND BRACING

A. The CONTRACTOR is responsible for designing and providing shoring and bracing permit required to accomplish the work. This includes shoring adjacent facilities, shoring for excavation work, and shoring and bracing for installation of concrete, masonry, and steel.

B. The CONTRACTOR's shoring and bracing for protecting existing facilities, for stabilizing excavations, for supporting elevated slabs, and for resisting loads that could result in damage to existing construction or injury to workers, shall be designed by an Alaska registered civil engineer.

C. Provide a sealed and signed copy of shoring and bracing calculations and drawings to the AUTHORITY for informational purposes only. The submission of calculations to the AUTHORITY shall not transfer responsibility for the design of shoring and bracing to the AUTHORITY. Rather, the AUTHORITY will receive the calculations to verify they have been done by a registered engineer.

1.17 PRE-CONSTRUCTION PROPERTY AND STRUCTURE ASSESSMENTS

A. The CONTRACTOR shall perform pre-construction condition assessments of adjacent properties and structures to the site.

B. The assessments shall be performed by a qualified company with 5 years of experience performing commercial building condition assessments. Submit qualifications to the AUTHORITY.

C. Assessments shall be provided in written and DVD format.

1.18 COST RESPONSIBILITY

A. Except as otherwise noted, the cost of construction facilities and utilities shall be the responsibility of CONTRACTOR.

PART 2 - PRODUCTS **Not Used**

PART 3 - EXECUTION **Not Used**

END OF SECTION

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SECTION 01 72 00
UTILITIES COORDINATION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Coordination of utilities to be provided by the CONTRACTOR, AUTHORITY, and others, and utility locates.

1.02 RELATED DOCUMENTS

A. Section 00 70 00 – General Conditions

B. Section 01 11 13 – Summary of Work

C. Section 01 31 14 – Work Coordination

D. Related Technical Specification Sections

1.03 UTILITIES PROVIDED BY OTHERS

A. The AUTHORITY will provide permanent utilities listed in this section, to points of demarcation shown in the Contract Documents, under separate agreements with utility companies. The CONTRACTOR shall coordinate with the AUTHORITY to sequence the provision of utilities provided by others with its Work.

B. Utilities to be provided by the AUTHORITY are described below.

1. Electrical Service: AUTHORITY will provide.
2. Water: AUTHORITY will provide.
3. Sewer: AUTHORITY will provide.

C. The CONTRACTOR shall notify the AUTHORITY at least Thirty (30) calendar days before it needs utility companies retained by the AUTHORITY to begin work on the site. Coordinate with the AUTHORITY to enable the utilities to be installed as per the requirements of the CONTRACTOR'S schedule.

D. Not Used

1.04 UTILITIES PROVIDED BY CONTRACTOR

A. The CONTRACTOR shall provide permanent utilities listed in this section as shown in the contract documents.

B. Not Used

PART 2 - PRODUCTS Not Used

PART 3 - EXECUTION

3.01 UTILITY LOCATES

A. The CONTRACTOR shall request field locates from all utilities having facilities in the area a minimum of seven (7) calendar days prior to excavation.

B. The location and elevation of existing utilities shown on the Plans are approximate only. Additional utilities may exist that are not shown on the Plans. Before starting construction, the CONTRACTOR shall request all utility owners to locate their utilities and, at points of possible conflict, the CONTRACTOR shall uncover the located utilities.

C. The CONTRACTOR shall repair any damage caused to utilities by the CONTRACTOR's operations at no cost to the AUTHORITY.

D. The CONTRACTOR shall protect and work around existing underground utilities.

E. Comply with requirements of utility companies when working with, in, or around their utilities.

3.02 NOTIFICATION FOR COORDINATION WITH UTILITY COMPANIES

A. Provide the AUTHORITY and affected utility companies a minimum of thirty (30) calendar days advance written notice of any work requiring coordination with utility companies, or longer notification as required by the utility companies. The utility companies will not be required to work at more than one location at a time, and shall be allowed to complete work at a specific location prior to commencing with work at another specific location.

3.03 STAGING DURING THE WORK

A. Coordinate with utility companies, whether retained by the AUTHORITY or the CONTRACTOR, to allow adequate staging area on-site for utility companies to perform their work.

B. Designate and dedicate area seven calendar days prior to required Utility mobilization. Allow for multiple mobilizations as required to accommodate Contractor schedule.

END OF SECTION

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SECTION 01 77 00
CONTRACT CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Requirements for Substantial Completion

B. Requirements for Final Completion

C. Requirements for Final Payment and Final Acceptance

1.02 RELATED SECTIONS

A. Section 00 70 00 - General Conditions: Substantial Completion, Final Completion, Final Payment, Final Acceptance

B. Section 01 11 13 - Summary of Work: Using Agency occupancy

C. Section 01 33 00 – Submittal Procedures

D. Section 01 29 73 – Schedule of Values

E. Section 01 29 76 – Application for Payment

F. Section 01 31 13 – Job Site Administration

G. Section 01 45 23 – AUTHORITY Inspection Service: CONTRACTOR'S Responsibilities

H. Section 01 71 13 – Mobilization and Demobilization

I. Section 01 73 00 – Execution Requirements: Final cleaning, Project Record Documents, Operation and Maintenance Data, Warranties and Bonds, Spare Parts and Maintenance Materials

J. Section 01 78 39 – Project Record Documents

K. Section 01 91 00 - Commissioning

1.03 SUBSTANTIAL COMPLETION SUBMITTALS

Submit the following prior to requesting the Substantial Completion Inspection:

A. Evidence of Compliance with Requirements of Authority Having Jurisdiction:

1. Certificate of Occupancy
2. Required Certificates of Inspection

3. Other approvals as may be required

B. Project Record Documents

C. Operation and Maintenance Data

D. Spare Parts and Maintenance Materials

E. Warranties and Bonds

F. Keys and Keying Schedule

G. No progress payments will be made for Substantial Completion until all required submittals have been submitted and accepted by the AUTHORITY.

1.04 SUBSTANTIAL COMPLETION

A. In accordance with Section 00 70 00 - General Conditions, Article 13.10 Substantial Completion, the CONTRACTOR shall notify the AUTHORITY in writing that the Work or a portion of the Work which has been specifically identified in the Contract Documents (except for items specifically listed by the CONTRACTOR as incomplete) is substantially complete and request that the AUTHORITY issue a Certificate of Substantial Completion. The AUTHORITY will consider the CONTRACTOR'S request for Substantial Completion only when:

1. Written request for Substantial Completion is provided at least 14 calendar days in advance of the AUTHORITY'S scheduled Substantial Completion inspection date.
2. List of items to be completed or corrected is submitted.
3. All Operation and Maintenance Manuals are submitted and approved by the AUTHORITY.
4. All commissioning requirements have been met.
5. All equipment and systems have been tested, adjusted, balanced and are fully operational.
6. All demonstration and training requirements have been met.
7. All automated and manual controls are fully operational.
8. Operation of all equipment and systems has been demonstrated to AUTHORITY.
9. Certificate of Occupancy is submitted.
10. Certificates of Inspection for required inspections have been submitted.
11. Project Record Documents for the Work or the portion of the Work being accepted are submitted and approved.
12. Spare parts and maintenance materials are turned over to AUTHORITY.
13. All keys are turned over to the AUTHORITY.
14. All warranties and bonds are submitted and approved.
15. Final cleaning has been completed to the satisfaction of the AUTHORITY.

B. When all of the preceding requirements for the consideration of Substantial Completion have been met, the AUTHORITY will conduct a scheduled Substantial Completion inspection with its Architect/Engineers and Using Agency representatives. If upon the completion of the

inspection, the AUTHORITY should find that the Work is not substantially complete, AUTHORITY will promptly notify CONTRACTOR in writing, listing observed deficiencies.

C. The CONTRACTOR shall remedy deficiencies and send a second written notice of Substantial Completion.

D. When the AUTHORITY finds the Work is substantially complete, it will have 14 days to issue a certificate of Substantial Completion with an attached punch list of deficiencies, all in accordance with the provisions of the General Conditions.

E. The CONTRACTOR shall be responsible for scheduling the activities required for Substantial Completion to enable completion within the Contract Time.

1.05 FINAL COMPLETION

A. In accordance with Section 00 70 00 – General Conditions, Article 13.13 Final Completion, when the CONTRACTOR considers that it has completed all the deficiencies listed on the Substantial Completion punch list, and that the Work is otherwise complete, it shall submit written certification that:

1. Contract Documents have been reviewed
2. Work has been completed in accordance with Contract Documents, and deficiencies listed with certificate of Substantial Completion have been corrected
3. Work is complete and ready for final inspection

B. Upon the receipt of the preceding written notice, the AUTHORITY will conduct a Final Completion inspection. If the AUTHORITY should then find the Work to be incomplete, it will promptly notify the CONTRACTOR in writing with a list of observed deficiencies.

C. The CONTRACTOR shall remedy deficiencies and transmit to the AUTHORITY a second certification of Final Completion.

D. When the AUTHORITY determines the Work is complete, all in accordance with the General Conditions article, “Final Completion and Application for Payment”, the CONTRACTOR may make application for Final Payment.

1.06 REINSPECTION FEES

A. In accordance with Section 00 70 00 – General Conditions, Articles 13.10 Substantial Completion and 13.12 Final Inspection, the CONTRACTOR shall pay for all costs incurred by the AUTHORITY for re-inspection.

B. The AUTHORITY may deduct the re-inspection costs from the application for final payment.

1.07 FINAL ACCEPTANCE

A. Following the issuance of Final Completion, and subject to the completion of requirements specified in Section 00 70 00 - General Conditions, Articles 13.14 Final Payment and 13.15 Final Acceptance, the AUTHORITY will review the project files for completeness. The

AUTHORITY may require the CONTRACTOR to submit or re-submit any of the following documents, upon request:

1. Contractor's transmittal letter: O&M Manuals
2. Contractor's transmittal letter: Warranty/Bonds
3. Contractor's transmittal letter: Record Documents
4. Spare parts, maintenance materials receipts
5. Contractor's transmittal letter: keys & keying schedule
6. Contractor's certification of insurance
7. EEO compliance certification (Federally funded projects only)
8. Submittals and miscellaneous registers
9. Original final pay estimate
10. Contractor's release
11. Department of Labor Notice of Completion (NOC)
12. Other documentation as required by the AUTHORITY

B. Statement of Adjustment of Accounts – The AUTHORITY may require the CONTRACTOR to submit a final statement reflecting adjustments to the Contract Price showing:

1. Original Contract Price
2. Previous Change Orders
3. Changes under allowances
4. Changes under Unit Prices
5. Deductions for uncorrected Work
6. Penalties and bonuses
7. Deductions for liquidated damages
8. Deductions for re-inspection fees
9. Other adjustments to Contract Price
10. Total Contract Price as adjusted
11. Previous payments
12. Sum remaining due

C. AUTHORITY will issue a final Change Order reflecting all remaining adjustments to Contract Price not previously made by Change Orders.

D. See Section 01 29 73 - Schedule of Values for minimum value that shall be assigned for Final Acceptance.

E. The CONTRACTOR shall cooperate with the AUTHORITY and shall provide the requested documentation.

F. When the AUTHORITY determines its files are complete, it may make final payment and issue a letter of Final Acceptance.

PART 2 - PRODUCTS **Not Used**

PART 3 - EXECUTION **Not Used**

END OF SECTION

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SECTION 01 78 39
PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Maintenance of Record Documents and Samples

B. Submittal of Record Documents and Samples

1.02 RELATED REQUIREMENTS

A. Section 00 70 00 - General Conditions: Record Documents

B. Section 01 11 13 – Summary of Work: Record survey

C. Section 01 29 76 – Application for Payment

D. Section 01 33 23 – Shop Drawings, Product Data, and Samples

E. Section 01 77 00 – Contract Closeout Procedures

F. Individual Specifications Sections: Manufacturer's certificates and certificates of inspection

1.03 MAINTENANCE OF DOCUMENTS AND SAMPLES

A. In addition to requirements in General Conditions, maintain at the site for AUTHORITY one accurate record copy of:

1. Contract Drawings
2. Specifications
3. Addenda
4. Change Orders and other modifications to the Contract
5. Reviewed Shop Drawings, product data, and samples
6. Survey and field records
7. Field test records
8. Inspection certificates
9. Manufacturer's certificates

B. Prior to Substantial Completion, provide original or legible copies of each item maintained by CONTRACTOR as listed in 01 78 39.1.02.B,C, and D above.

C. Delegate responsibility for management of maintenance of Record Documents to one person on CONTRACTOR's staff as approved in advance by Contracting Officer.

D. Promptly following award of Contract, secure from AUTHORITY, at no cost to the CONTRACTOR, one complete set of all Documents comprising the Contract.

E. Immediately upon receipt of job set described above, identify each Document with title "RECORD DOCUMENTS - JOB SET".

F. Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and secure storage for record documents and samples.

G. Label and file record documents and samples in accordance with section number listings in table of contents of this Project manual. Label each document "PROJECT RECORD" in neat, large, printed letters.

H. Maintain record documents in a clean, dry and legible condition. Do not use record documents for construction purposes.

I. Use all means necessary to maintain job set of Record Documents completely protected from deterioration and from loss and damage until completion of Work and transfer of recorded data to Contracting Officer.

J. Keep record documents and samples available for inspection by AUTHORITY.

K. Upon request by the AUTHORITY and at time of each Application for Payment enable inspection of record documents by the AUTHORITY for review as to completeness.

L. Contracting Officer's approval of current status of Record Documents will be prerequisite to Contracting Officer's approval of requests for progress payments and request for final payment.

1. Prior to submitting each request for progress payment, secure Contracting Officer's approval of Record Documents as currently maintained.
2. Prior to submitting request for Final Payment, obtain Contracting Officer's approval of final Record Documents.

M. Do not use job set for any purpose except entry of new data and for review and copying by Contracting Officer.

1.04 RECORDING

A. Record Drawings to be provided electronically with clouds around deviations from issued for construction (IFC) documents.

B. Thoroughly coordinate all changes within Record Documents, making adequate and proper entries on each Specification Section and each sheet of Drawings and other Documents where such entry is required to properly show change or selection.

C. When a change within Record Documents is referenced to another document, such as a RFI, Shop Drawing or Change Order, attach a copy of the referenced document to the respective Record Drawing or Record Specification where the entry is made.

D. Contract Drawings and Shop Drawings: Legibly mark each item to record actual construction, including:

1. Measured depths of elements of foundation in relation to finish first floor datum. Accurate to the nearest inch.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements. Accurate to the nearest inch.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of construction.
4. Field changes of dimension and detail.
5. Changes made by modifications.
6. Details not on original Contract Drawings.
7. References to related Shop Drawings and modifications
8. Clearly label all changes and show dimensions to establish size and location. All identifications shall be sufficiently descriptive to relate reliably to Specifications.

E. Other Documents: Maintain manufacturer's certifications, inspection certifications, and field test records required by individual Specifications sections.

1.05 SUBMITTALS

A. Upon submittal of the completed Record Documents, make changes in Record Documents as required by the Contracting Officer.

B. Transmit with cover letter in duplicate, listing:

1. Date
2. AUTHORITY's Project title and number
3. CONTRACTOR's name, address, and telephone number
4. Number and title of each record document
5. Signature of CONTRACTOR or authorized representative.

C. Final Record Documents shall include both hard copies and digitally scanned copies in .pdf format (high quality greyscale scans, minimum 200 pixels/inch). Scans shall include front and back of drawings/documents where information occurs on both sides.

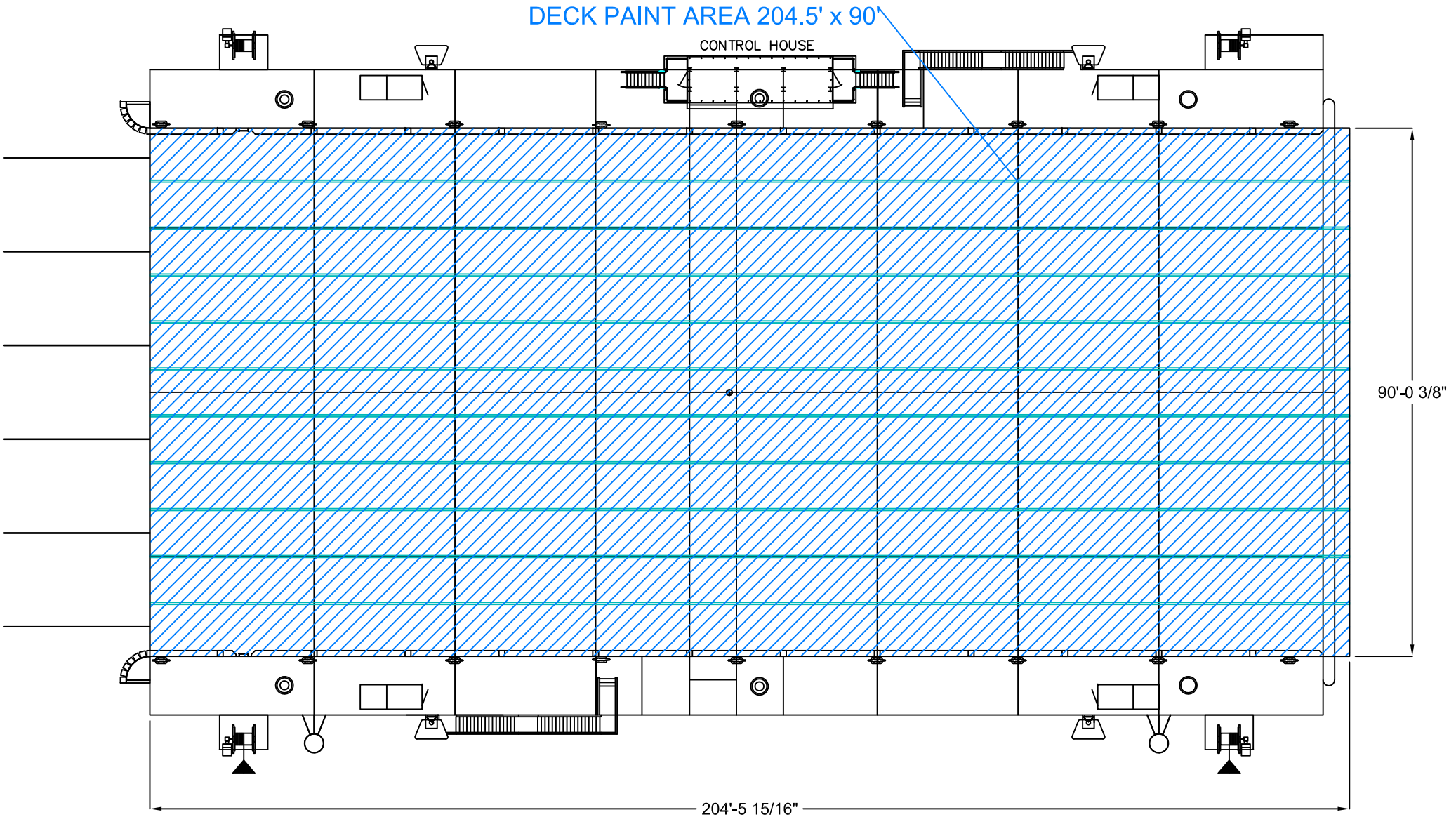
PART 2 – PRODUCTS **Not Used**

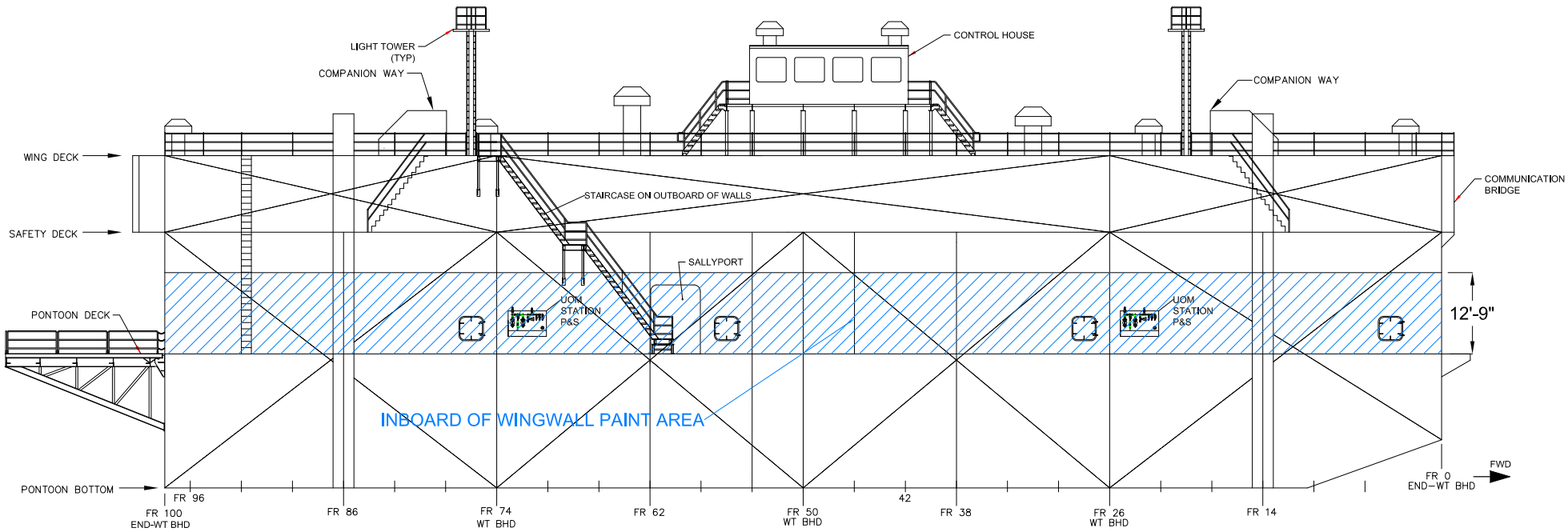
PART 3 - EXECUTION **Not Used**

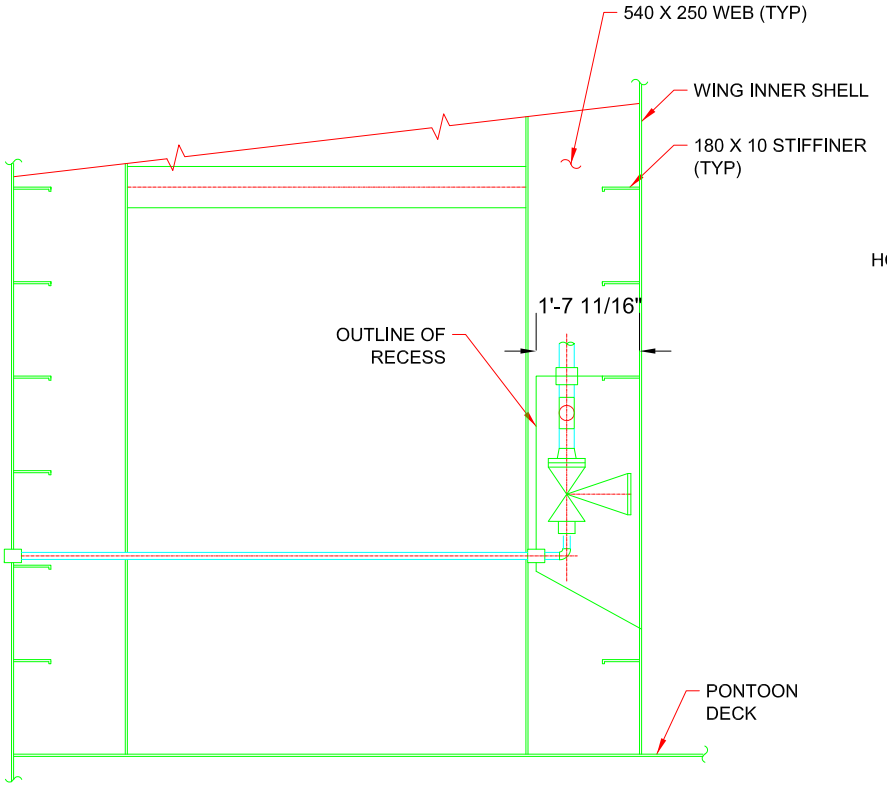
END OF SECTION

Dry Dock #2 Coating Locations

Description	Sand Blast	Prime Coat	Stripe Coat	Top Coat	Non-Skid Finish	Approximate SF	Coverage Limits
Pontoon Deck	SSPC-SP-10 Surface anchor pattern 3.0 mils to 4.0 mils	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote SPG 32-38 mils	20-36 Grit dry-washed aluminum oxide	18610	Entire Pontoon Deck **and up wing walls 1', to include Sally Port Deck**
Deck Fittings	SSPC-SP-10 Surface anchor pattern 3.0 mils to 4.0 mils	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote 54-SST 4-6 Mils	NA	160	Bits/Cleats and non-detachable handrails
Forward Apron	SSPC-SP-10 Surface anchor pattern 3.0 mils to 4.0 mils	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote SPG 32-38 mils	20-36 Grit dry-washed aluminum oxide	950	Include rain catchment trough, extending outward 4' beyond pontoon, All interior of trough, including stiffners, grating ledges, under deck.
Port & Starboard Wingwalls	SSPC-SP-10 Surface anchor pattern 3.0 mils to 4.0 mils	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote 54-SST 4-6 Mils	NA	5000	Up to 12'-9" above deck to include all clips, ballast tank hatches, UOM inserts, inlet inset and pad eyes.
Port & Starboard Sally Port	SSPC-SP-10 Surface anchor pattern 3.0 mils to 4.0 mils	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote 54-SST 4-6 Mils	NA	775	Vertical and overhead - deck to overhead.
Valves, Manifolds, Spool Pieces, Removable Handrail, and Roller Sheaves	Shop Blast	Ceram Kote 54-SST 4-6 Mils	54-SSTT to be brushed / Rolled into welds, backs of angles, back side of piping and hard to coat areas	Ceram Kote 54-SST 4-6 Mils	NA	455	Do not blast bronze 2.5" bronze ball valve.
						25950	

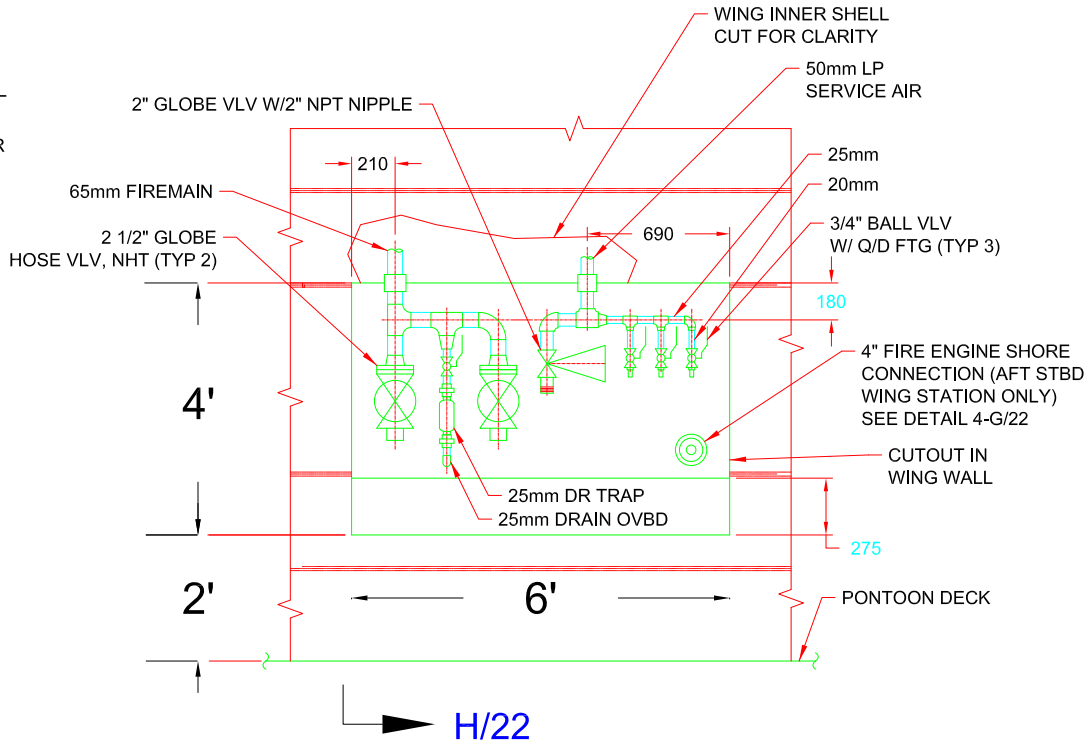

DECK PAINT AREA 204.5' x 90'
CONTROL HOUSE
90'-0 3/8"
204'-5 15/16"


LIGHT TOWER (TYP)
COMPANION WAY
CONTROL HOUSE
COMPANION WAY
WING DECK
SAFETY DECK
PONTOON DECK
PONTOON BOTTOM
STAIRCASE ON OUTBOARD OF WALLS
SALLYPORT
UOM STATION P&S
UOM STATION P&S
COMMUNICATION BRIDGE
12'-9"
INBOARD OF WINGWALL PAINT AREA
FWD
FR 100 END-WT BHD
FR 96
FR 86
FR 74 WT BHD
FR 62
FR 50 WT BHD
42
FR 38
FR 26 WT BHD
FR 14
FR 0 END-WT BHD



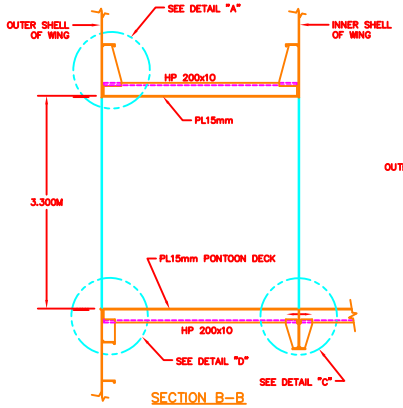
SECTION 9-H/22

TYPICAL FIRE STATION ARRANGEMENT



ELEVATION 13-H/22

LKG OUTBOARD
TYPICAL PONTOON DK FIRE STATION ARRANGEMENT



SECTION B–B
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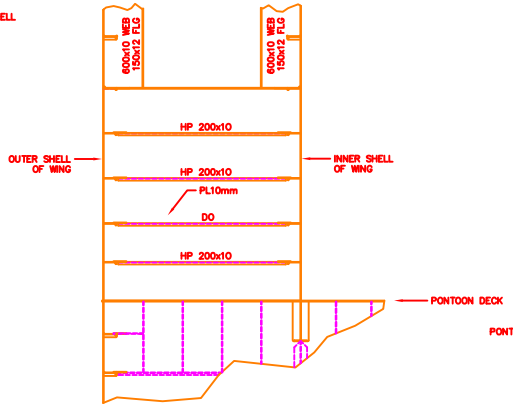
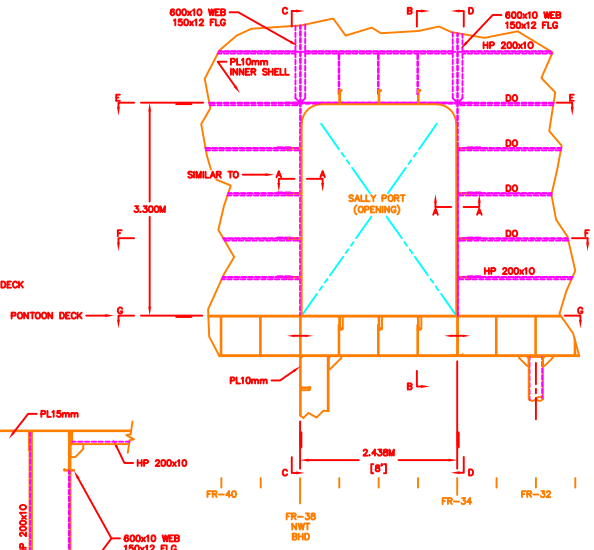
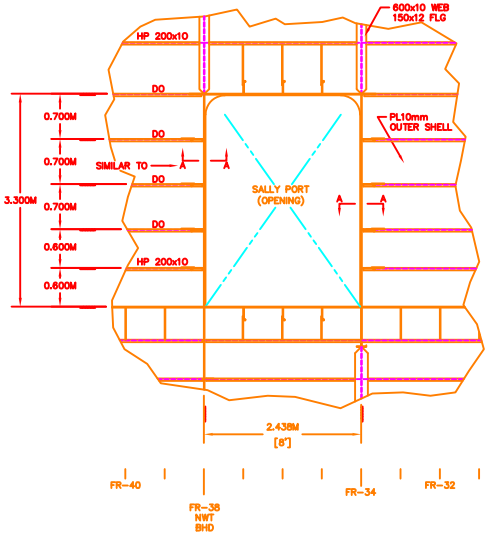


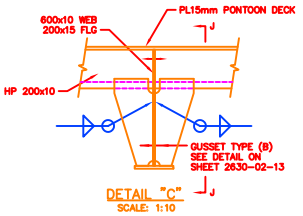
SECTION C–C @ FR–38
SCALE: 1:30



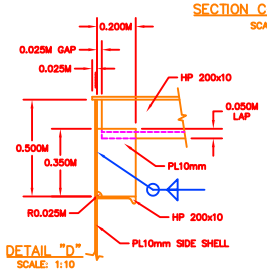
ELEVATION @ LONGITUDINAL FRAME G
(SALLY PORT INNER WING WALL)
SCALE: 1:30



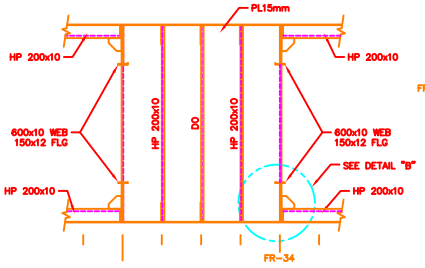
ELEVATION @ LONGITUDINAL FRAME H
(SALLY PORT OUTER WING WALL)
SCALE: 1:30



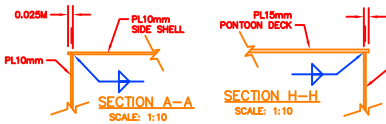
DETAIL "C"
SCALE: 1:10



DETAIL "D"
SCALE: 1:10

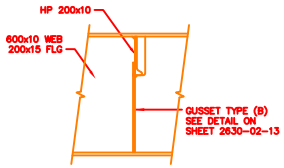


SECTION F–F
SCALE: 1:30

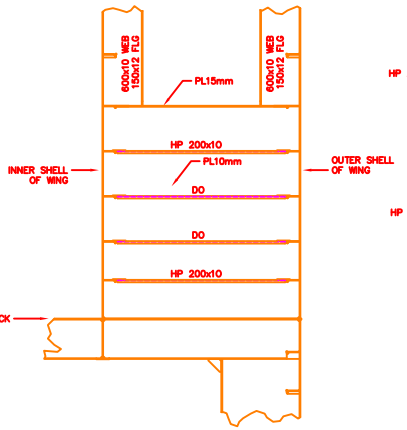


SECTION A–A
SCALE: 1:10

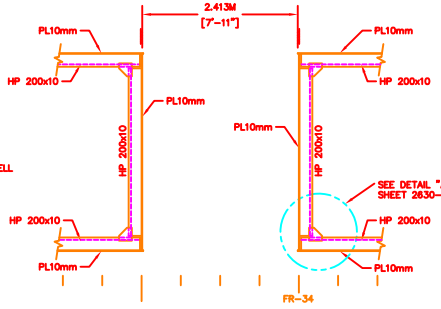
SECTION H–H
SCALE: 1:10



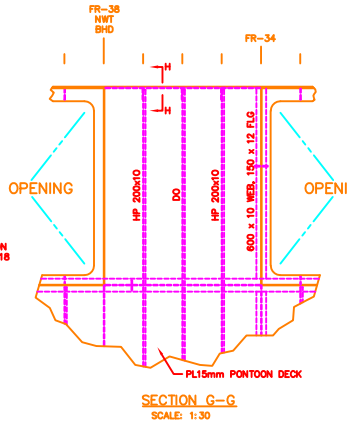
SECTION J–J
SCALE: 1:10



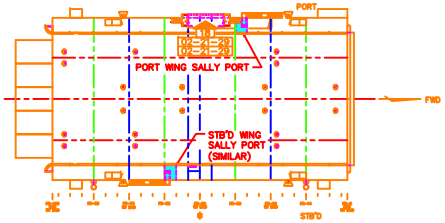
SECTION D–D @ FR–34
SCALE: 1:30



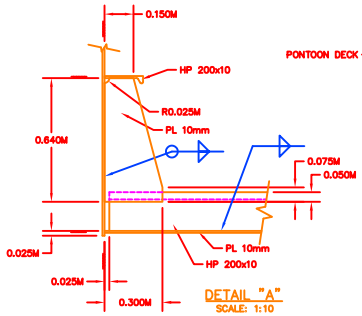
SECTION F–F
SCALE: 1:30



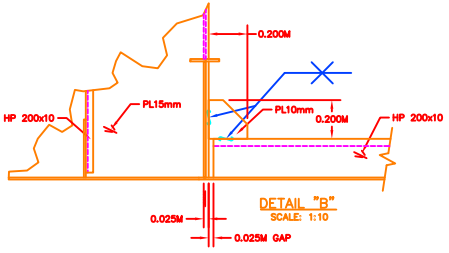
SECTION G–G
SCALE: 1:30



KEY PLAN VIEW OF DRY DOCK
SCALE: N.T.S.



DETAIL "A"
SCALE: 1:10



DETAIL "B"
SCALE: 1:10

EDA AWARD No. 07-01-05278

AIDEA/AEA

OWNER
TRYCK NYMAN HAYES
ANCHORAGE, ALASKA

PROJECT
2,500 LONG TON FDD
WITH TRANSFER CAPABILITY

PROJECT NO. 2630-D	DATE 03/31/2004	DRAWING UNITS MM
DESIGNED M. PROCTER	SCALE AS NOTED	
DRAWN R. HEGER	DRAWING NO. 2630-02-21-29	SIZE E-30 x 42
CHECKED J. BELMORE	DESIGN NO. 750	LOCATION 281.26

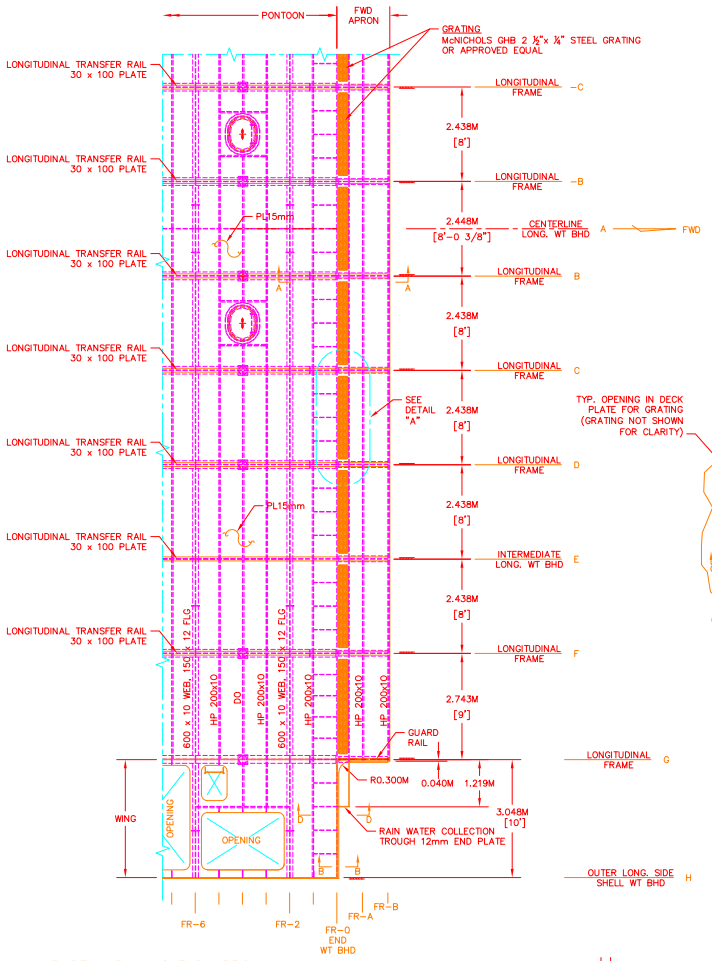
LIST OF MATERIALS

No. REQ.	PART NO.	DESCRIPTION	REMARKS

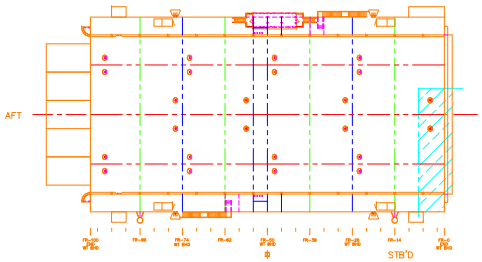
HEGER DRY DOCK, Inc.
DRY DOCK ENGINEERS
13 WATER STREET
HOLLISTON, MA 01746
(508) 429-1800

TITLE
SALLY PORT DETAILS

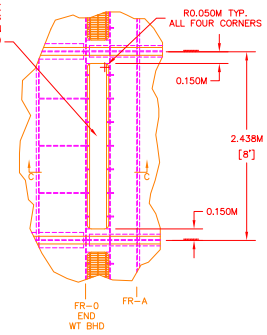
DRAWING NO. 2630-02-21-29 | SHEET 21 OF 29 | ISSUE A



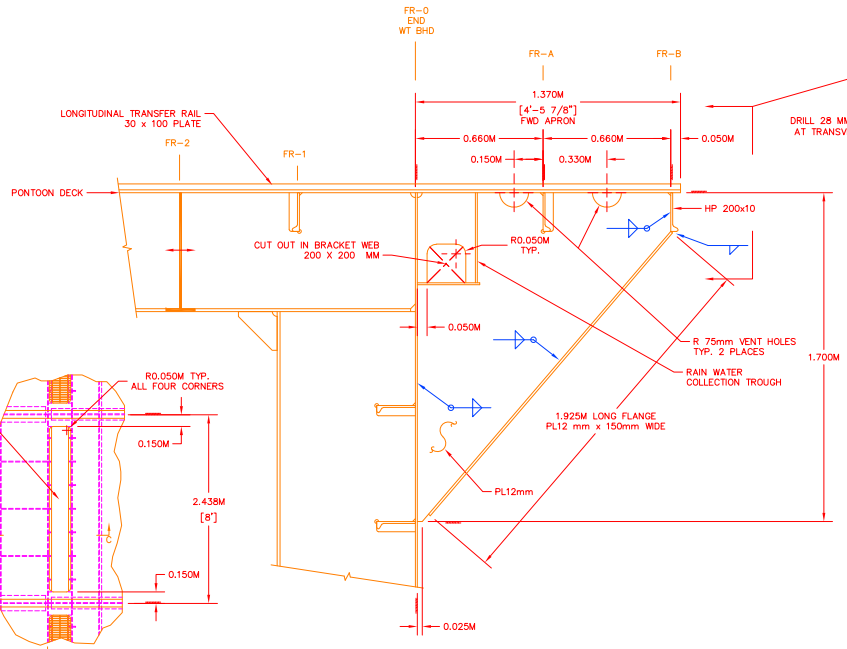
PARTIAL PLAN @ FWD APRON
SCALE: 1:50



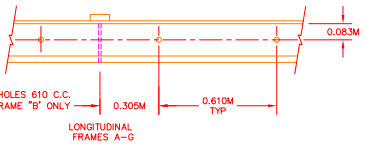
KEY PLAN VIEW OF DRY DOCK
SCALE: N.T.S.

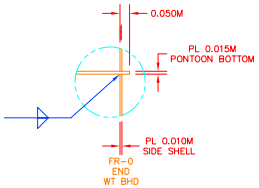


DETAIL "A"
SCALE 1 : 25

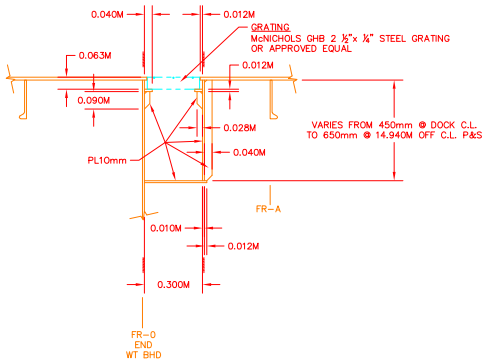


SECTION A–A @ LONGITUDINAL FRAME "B"
LONGITUDINAL FRAMES C, D, F AND
INTERMEDIATE LONGITUDINAL WT BHD E SIMILAR
SCALE 1 : 10

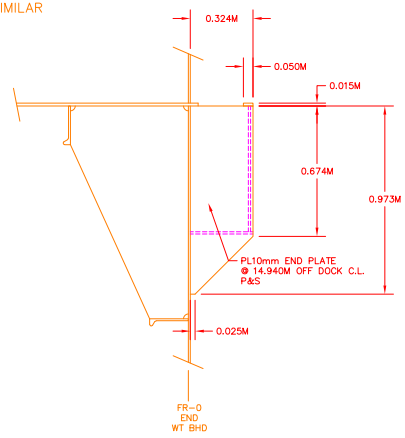




SECTION B–B
SCALE 1 : 10



SECTION C–C
SCALE 1 : 10



SECTION D–D
SCALE 1 : 10

EDA AWARD No. 07-01-05278

REVISIONS			
REV.	ZONE	DESCRIPTION	DATE:

No. REQ.	PART No.	DESCRIPTION	REMARKS

LIST OF MATERIALS

CLIENT: TRYCK NYMAN HAYES
ANCHORAGE, ALASKA

PROJECT: 2,500 LONG TON FDD
WITH TRANSFER CAPABILITY

HEGER DRY DOCK, Inc.
DRY DOCK ENGINEERS
13 WATER STREET
HOLLISTON, MA 01746
(508) 429-1800

TITLE: HULL STRUCTURE
FWD APRON @ TRANSVERSE
END WT BHD FRAME 0

PROJECT No.	DATE	DRAWING DATE
2630-D	03/25/2005	MM
DESIGNED: R. HEGER	SCALE: AS NOTED	DRAWING No.: 2630-02-27-29
SUPERVISED: R. HEGER	DATE FILED: 2630-02-27-29	SIZE: E-30 x 42
DRAWN: J. BELMORE	DRGSCALE: 1250	LTSCALE: 468.76

SHEET 27 OF 29 ISSUE C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10FT
5FT
0FT

CERAMIC PARTICLE LOADING

The CeRam-Kote 54® SST coating technology, **ceramic particle loading**, results from our unique ability developed over thirty years and the trial of hundreds of formulas. Ceramic particle loading is the addition of a complex series of ceramic particles into a polymer which causes the polymer to out-perform its basic chemistry.

CERAM-KOTE 54 ® SST

The *FLEXIBLE* Ceramic

In addition to improving the chemical performance of polymers, ceramic particle loading significantly enhances the dynamic mechanical performance of the polymer.

Total performance characteristics of CeRam-Kote 54® SST are significantly better than liquid epoxy, fusion-bond epoxy and other high performance coating systems.

ENCAPSULATING CERAMIC SHELL

CeRam-Kote 54® SST protects by binding ceramic particles to a unique polymer, thus creating an **encapsulating ceramic shell**. Each ceramic particle is resin coated and becomes tightly packed in the cured film.

The **compact density** of the cured film of CeRam-Kote 54® SST yields dynamic intangible benefits such as:

- **high surface lubricity** producing a lower drag coefficient on a variety of surfaces, and
- extraordinary **sliding abrasion** resistance providing protection against the forces of erosion/corrosion and abrasion.

TOUGH BARRIER COATING

CeRam-Kote 54® SST's **direct-to-substrate** one-coat, two-pass system translates to increased production efficiency and significantly reduced down-time, essential in industry today.

CeRam-Kote 54® SST is formulated for atmospheric corrosion service as well as for immersion service in very harsh environments.

CeRam-Kote 54® SST currently protects expensive and critical equipment in industries serving Oil and Gas, Offshore, Marine, Petrochemical and Industrial Markets with proven documented results. Applications have expanded into the Food and Beverage, Paper and Pulp, Wastewater Treatment, Electrical Power, Transportation and Mining Industries.

Extremely high adhesion to virtually any substrate (including marginally prepared substrates making this product an excellent surface tolerant coating) combined with extraordinary mechanical properties, make CeRam-Kote 54® SST a superior protective coating where high abrasion and severe corrosion problems exist.

PHYSICAL PROPERTIES – TEST DATA	
Adhesion (ASTM D4541, elcometer pull-off)	**>3,000 psi (20.68 MPa)***
Abrasion Resistance (ASTM D 4060, Tabor Test 1,000 cycles, CS 17 wheel, 1kg))	**30 milligrams loss****
Surface Roughness (Profilometer value)	**20 Ra**
Flexibility (ASTM D 522)	**15% elongation**
Impact Resistance - Direct (ASTM D 2794)	**40 inch-pounds**
Salt Spray (ISO 7253)	**6,000 hours**
Cathodic Disbondment (CAN/CSAZ245.20-10, 23°C, 28 days (Pass = 20 mm)	**8 mm Disbondment**
Chemical Testing (ASTM G 20 – modified to 30 days at 75°F/23.9°C) HCL in H_20: pH of 2.9 HF in H_20: pH of 2.9 H_2SO_4 in H20: pH of 2.1 NaCl (10%) + H_2SO_4: pH of 2.9 NaCl (10%) in H_20	 **No Change** **No Change** **No Change** **No Change** **No Change**
VOC (Volatile Organic Compounds)	**1.63 lb/gal (196 g/lit)** (calculated value)

Note: More detailed information is available in the Summary Test Data or is available upon request.

**Adhesion test values for normal production can vary up to 35%.*
***Abrasion test values for normal production has a max acceptable value of 75 mg loss.*

CERAM-KOTE COATINGS INCORPORATED • P.O. BOX 2119 • BIG SPRING, TEXAS 79721 • 432-263-8497 • 800-346-4299
www.ceram-kote.com • E-mail: info@ceram-kote.com

CERAM-KOTE SPG

THE *SPRAYABLE* GROUT

- **100% Solids**
- **High Build Corrosion Barrier**
- **Ceramic Polymer Technology**
- **Encapsulating Ceramic Shell**
- **Non-shrinking Surface after Application**
- **Ideal for High Abrasion, Erosion and Corrosion Environments**
- **No VOCs**
- **Solvent-free Specially Formulated to Repair Pitted Metal and Concrete**
- **Great for New Applications (i.e., storage tanks, pipelines)**
- **Outstanding Adhesion to Virtually All Substrates**
- **Speed of Application**
- **Can be Applied 40 mils thick in One Pass**
- **Superior Turnaround Time**
- **Outstanding Field Results**
- **Excellent Test Results (i.e., Cathodic Disbondment 100 Times Better than Conventional Fusion Bonded Epoxy Coatings)**

Ceram-Kote Coatings, Inc. • P.O. Box 2119. • Big Spring, Texas USA 79721
1-432-263-8497 • FAX 1-432-263-5269
www.ceram-kote.com • e-mail: info@ceram-kote.com

Safety Data Sheet

* * * Section 1 - Product and Company Identification * * *

Material Name: CERAM-KOTE 54 SST Part A

Manufacturer Information

CERAM-KOTE COATINGS INCORPORATED
1800 Industrial Drive
Big Spring, TX 79720

Phone: 432-263-8497

Emergency # ChemTel +1 (800) 255-3924

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Flammable Liquids - Category 2
Skin Corrosion/Irritation - Category 2
Eye Damage/Irritation - Category 2
Skin Sensitization - Category 1
Specific Target Organ Toxicity (Single Exposure) - Category 3
Aquatic Toxicity Chronic - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Highly flammable liquid and vapour.
Causes skin irritation.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause respiratory irritation, drowsiness or dizziness.
Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. - No smoking
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ventilating/lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.

Wear protective gloves/eye protection/face protection.
Wash thoroughly after handling.
Avoid breathing mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Use only outdoors or in a well-ventilated area.

Response
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
In case of fire: Use foam, carbon dioxide, or dry chemical for extinction.
Avoid release to the environment.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal
Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
1344-28-1	Aluminum oxide	30-60
25068-38-6	Bisphenol A-epichlorohydrin polymer	6-20
14807-96-6	Talc	5-15
78-93-3	Methyl ethyl ketone	4-7
28064-14-4	Phenol, polymer with formaldehyde, glycidyl ether	1-8
41638-13-5	Oxirane, 2,2'-[oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bis-	2-6
67762-90-7	Fumed silica	2-5
108-10-1	Methyl isobutyl ketone	2-5

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes
Flush with running water for at least 15 minutes. Seek medical attention.

First Aid: Skin
Wash with flowing water. Remove contaminated clothing and launder before re-wearing. If irritation persists, seek medical attention.

First Aid: Ingestion
DO NOT induce vomiting. Seek medical attention.

First Aid: Inhalation
Remove individual to fresh air. If breathing is difficult, administer oxygen and obtain medical aid.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Highly flammable liquid and vapour. Prevent smoking, open flame, static and other electrical sparking. Excessive heat may cause lids of containers to pop open from excessive vapour pressure.

Hazardous Combustion Products

Primary combustion products are carbon monoxide, carbon dioxide, and low molecular weight hydrocarbons. Other undetermined compounds could be released in small quantities.

Extinguishing Media

Use foam, carbon dioxide, or dry chemical.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Treat as a flammable liquid type fire. In a sustained fire wear self-contained breathing apparatus and full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop the flow of material, if this is without risk.

Materials and Methods for Clean-Up

Land Spill: Prevent material from entering sewers or waterways. Remove all ignition sources. Ventilate area. Absorb with inert materials (e.g. vermiculite or sand) and place in a closed container for proper disposal. Wash spill area well with trisodium phosphate and water.

Water Spill: Material is mostly insoluble. The material will sink. Notify local environmental, health and wildlife authorities, and water intake operators. Contain with booms and minimize spread on water. Disperse any remaining residue to reduce aquatic harm.

Air Release: Spills of this material may release volatile organic compounds into the air. Spills should be cleaned or covered to prevent volatilization.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Wear appropriate protective equipment and clothing during clean-up.

Environmental Precautions

Avoid release to the environment.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid breathing vapors or mists of this product. Ground/bond container and receiving equipment. Use non-sparking tools.

Storage Procedures

Keep away from heat and ignition sources.

Incompatibilities

Avoid organic peroxides and oxidizers.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Substance Exposure Limits

Aluminum oxide (215-691-6)

Austria:	10 mg/m3 STEL [KZW] (alveolar dust, respirable fraction, smoke, 2 X 60 min) 5 mg/m3 TWA [TMW] (alveolar dust, respirable fraction, smoke)
Belgium:	1 mg/m3 TWA (as Al)
Denmark:	5 mg/m3 TWA (total, as Al); 2 mg/m3 TWA (respirable, as Al)
France:	10 mg/m3 TWA [VME]
Germany:	4 mg/m3 TWA MAK (dust, inhalable fraction); 1.5 mg/m3 TWA MAK (dust, respirable fraction)
Greece:	10 mg/m3 TWA (inhalable fraction); 5 mg/m3 TWA (respirable fraction)
Portugal:	10 mg/m3 TWA [VLE-MP] (particulate matter containing no Asbestos and < 1% Crystalline silica)
Spain:	10 mg/m3 TWA [VLA-ED]
Sweden:	5 mg/m3 LLV (total dust, as Al); 2 mg/m3 LLV (respirable dust, as Al)

Talc (238-877-9)

ACGIH:	2 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)
Austria:	2 mg/m3 TWA [TMW] (Asbestos-free fibers, respirable fraction)
Belgium:	2 mg/m3 TWA
Denmark:	0.3 fiber/cm3 TWA (containing fibers)
Finland:	0.5 fiber/cm3 TWA (fiber)
Greece:	10 mg/m3 TWA (inhalable fraction); 2 mg/m3 TWA (respirable fraction)
Ireland:	10 mg/m3 TWA (total inhalable dust); 0.8 mg/m3 TWA (respirable dust)
Netherlands:	0.25 mg/m3 TWA
Portugal:	2 mg/m3 TWA [VLE-MP] (respirable fraction, particulate matter containing no Asbestos and < 1% Crystalline silica)
Spain:	2 mg/m3 TWA [VLA-ED] (this value is for the particulate matter that is free from Asbestos and contains less than 1% of Crystalline silica, respirable fraction)
Sweden:	2 mg/m3 LLV (total dust); 1 mg/m3 LLV (respirable dust)

Methyl ethyl ketone (201-159-0)

ACGIH:	300 ppm STEL 200 ppm TWA
Austria:	200 ppm STEL [KZW] (4 X 30 min); 590 mg/m3 STEL [KZW] (4 X 30 min) 100 ppm TWA [TMW]; 295 mg/m3 TWA [TMW] skin notation
Belgium:	300 ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA
Denmark:	50 ppm TWA; 145 mg/m3 TWA Potential for cutaneous absorption
Finland:	100 ppm STEL; 300 mg/m3 STEL Potential for cutaneous absorption
France:	300 ppm STEL [VLCT] (restrictive limit); 900 mg/m3 STEL [VLCT] (restrictive limit) 200 ppm TWA [VME] (restrictive limit); 600 mg/m3 TWA [VME] (restrictive limit)
Germany:	200 ppm TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1); 600 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, exposure factor 1) 5 mg/L Medium: urine Time: end of shift Parameter: 2-Butanone 200 ppm TWA MAK; 600 mg/m3 TWA MAK 200 ppm Peak; 600 mg/m3 Peak
Greece:	300 ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA
Ireland:	300 ppm STEL; 900 mg/m3 STEL 200 ppm TWA; 600 mg/m3 TWA Potential for cutaneous absorption
Italy:	200 ppm TWA; 600 mg/m3 TWA
Netherlands:	900 mg/m3 STEL 590 mg/m3 TWA skin notation
Portugal:	200 ppm TWA [VLE-MP]
Spain:	300 ppm STEL [VLA-EC]; 900 mg/m3 STEL [VLA-EC] 200 ppm TWA [VLA-ED] (indicative limit value); 600 mg/m3 TWA [VLA-ED] (indicative limit value)
Sweden:	50 ppm LLV; 150 mg/m3 LLV 100 ppm STV; 300 mg/m3 STV

Methyl isobutyl ketone (203-550-1)

ACGIH:	75 ppm STEL
	20 ppm TWA
Austria:	50 ppm STEL [KZW] (4 X 15 min); 208 mg/m3 STEL [KZW] (4 X 15 min)
	20 ppm TWA [TMW]; 83 mg/m3 TWA [TMW]
	skin notation
Belgium:	50 ppm STEL; 208 mg/m3 STEL
	20 ppm TWA; 83 mg/m3 TWA
Denmark:	20 ppm TWA; 83 mg/m3 TWA
	Potential for cutaneous absorption
Finland:	50 ppm STEL; 210 mg/m3 STEL
	20 ppm TWA; 80 mg/m3 TWA
France:	50 ppm STEL [VLCT]; 208 mg/m3 STEL [VLCT]
	20 ppm TWA [VME] (restrictive limit); 83 mg/m3 TWA [VME] (restrictive limit)
Germany:	20 ppm TWA AGW (exposure factor 2); 83 mg/m3 TWA AGW (exposure factor 2)
	3.5 mg/L Medium: urine Time: end of shift Parameter: 4-Methylpentan-2-one
	20 ppm TWA MAK; 83 mg/m3 TWA MAK
	40 ppm Peak; 166 mg/m3 Peak
Greece:	100 ppm STEL; 410 mg/m3 STEL
	100 ppm TWA; 410 mg/m3 TWA
Ireland:	50 ppm STEL; 208 mg/m3 STEL
	20 ppm TWA; 83 mg/m3 TWA
	Potential for cutaneous absorption
Italy:	20 ppm TWA; 83 mg/m3 TWA
Netherlands:	208 mg/m3 STEL
	104 mg/m3 TWA
Portugal:	50 ppm TWA [VLE-MP]
Spain:	50 ppm STEL [VLA-EC]; 208 mg/m3 STEL [VLA-EC]
	20 ppm TWA [VLA-ED] (indicative limit value); 83 mg/m3 TWA [VLA-ED] (indicative limit value)
Sweden:	25 ppm LLV; 100 mg/m3 LLV
	50 ppm STV; 200 mg/m3 STV

Engineering Measures

General dilution ventilation and/or exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

Personal Protective Equipment: Respiratory

If irritation occurs, or if the TLV or PEL is exceeded, use a NIOSH approved air purifying respirator with organic vapor cartridges or canisters, or supplied air respirators.

Personal Protective Equipment: Hands

Use chemical resistant gloves such as neoprene or natural rubber gloves.

Personal Protective Equipment: Eyes

Chemical protective goggles.

Personal Protective Equipment: Skin and Body

Loose fitting long sleeved shirt and long pants are recommended.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Translucent	**Odor:**	Aromatic
Physical State:	Liquid	**pH:**	Slight Acidic
Vapor Pressure:	ND	**Vapor Density:**	3.2 (Air=1)
Boiling Point:	116°C (241°F)	**Melting Point:**	ND
Solubility (H2O):	Insoluble	**Specific Gravity:**	ND
Evaporation Rate:	ND	**VOC:**	1.76 lb/gal (210.92 g/l) less water
Viscosity:	1200 to 2000 cP	**Bulk Density:**	13 lb/gal (5.9 kg)
Octanol/H2O Coeff.:	ND	**Flash Point:**	17.8°C (64°F) when catalyzed
Flash Point Method:	ND	**Upper Flammability Limit (UFL):**	8.0
Lower Flammability Limit (LFL):	1.2	**Burning Rate:**	ND
Auto Ignition:	399°C (750°F)		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Product may undergo hazardous polymerization.

Conditions to Avoid

Avoid excessive heat, contamination and prolonged storage above 70°F (21.1°C).

Incompatible Products

Avoid organic peroxides and oxidizers.

Hazardous Decomposition Products

May form: carbon dioxide, carbon monoxide, and low molecular weight hydrocarbons.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Aluminum oxide (1344-28-1)
Oral LD50 Rat >5000 mg/kg

Bisphenol A-epichlorohydrin polymer (25068-38-6)
Oral LD50 Rat 11400 mg/kg

Methyl ethyl ketone (78-93-3)
Inhalation LC50 Mouse 32 g/m3 4 h; Oral LD50 Rat 2737 mg/kg; Dermal LD50 Rabbit 6480 mg/kg

Methyl isobutyl ketone (108-10-1)
Inhalation LC50 Rat 8.2 mg/L 4 h; Oral LD50 Rat 2080 mg/kg; Dermal LD50 Rabbit >16000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

May cause dryness, cracking and possible dermatitis with prolonged or repeated contact.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Direct eye contance may cause immediate irritation with redness, burning, tearing and blurred vision.

Potential Health Effects: Ingestion

May cause mouth, throat and gastrointestinal irritation, nausea, vomiting, and diarrhea if ingested.

Potential Health Effects: Inhalation

May cause respiratory irritation.

Respiratory Organs Sensitization/Skin Sensitization

May cause an allergic skin reaction.

Generative Cell Mutagenicity

Product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

Product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

Talc (14807-96-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (containing no asbestos fibers)

IARC: Monograph 93 [2010] (inhaled); Supplement 7 [1987]; Monograph 42 [1987] (Group 3 (not classifiable))

Methyl isobutyl ketone (108-10-1)

ACGIH: A3 - Confirmed Animal Carcinogen with Unknown Relevance to Humans

IARC: Monograph 101 [2012] (Group 2B (possibly carcinogenic to humans))

Reproductive Toxicity

Product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation and possible central nervous system effects including headaches, nausea, vomiting, dizziness, drowsiness, loss of coordination, impaired judgment, and general weakness. In lab animals, overexposure by inhalation to MIBK has been reported to cause liver and kidney abnormalities, and lung and brain damage.

Specified Target Organ General Toxicity: Repeated Exposure

Product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Harmful to aquatic life with long lasting effects.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Talc (14807-96-6)

Test & Species	Conditions

96 Hr LC50 Brachydanio rerio	>100 g/L [semi-static]

Methyl ethyl ketone (78-93-3)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	3130 - 3320 mg/L [flow-through]	
48 Hr EC50 Daphnia magna	>520 mg/L	
48 Hr EC50 Daphnia magna	5091 mg/L	
48 Hr EC50 Daphnia magna	4025 - 6440 mg/L [Static]	

Methyl isobutyl ketone (108-10-1)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	496 - 514 mg/L [flow-through]	
96 Hr EC50 Pseudokirchneriella subcapitata	400 mg/L	
48 Hr EC50 Daphnia magna	170 mg/L	

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

ADR Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

IATA Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

ICAO Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

IMDG Information

Shipping Name: Resin Solution
UN #: 1866 **Hazard Class:** 3 **Packing Group:** III

* * * Section 15 - Regulatory Information * * *

EU MARKING AND LABELLING:

Symbol(s):

F Xi

Risk Phrases:

R11 Highly flammable.
R36/38 Irritating to eyes and skin.

Substance Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Aluminum oxide 1344-28-1	215-691-6	EINECS	DSL	Yes
Bisphenol A-epichlorohydrin polymer 25068-38-6	500-033-5	No	DSL	Yes
Talc 14807-96-6	238-877-9	EINECS	DSL	Yes
Methyl ethyl ketone 78-93-3	201-159-0	EINECS	DSL	Yes
Phenol, polymer with formaldehyde, glycidyl ether 28064-14-4	-	No	DSL	Yes
Oxirane, 2,2'-[oxybis[(methyl-2,1-ethanediyl)oxymethylene]]bis- 41638-13-5	-	No	DSL	Yes
Fumed silica 67762-90-7	-	No	DSL	Yes
Methyl isobutyl ketone 108-10-1	203-550-1	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

Available on request.

End of Sheet

Safety Data Sheet

* * * Section 1 - Product and Company Identification * * *

Material Name: CERAM-KOTE 54 SST Part B

Manufacturer Information

CERAM-KOTE COATINGS INCORPORATED
1800 Industrial Drive
Big Spring, TX 79720

Phone: 432-263-8497

Emergency # ChemTel: +1 (800) 255-3924 Contract #: MIS1807449
Outside the USA: 1-813-248-0585 For Australia: 1-300-954-583 527-3887
For Brazil: 0-800-591-6042, China: 400-120-0751, India: 000-800-100-4086, Mexico: 800-099-0731

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Acute Toxicity Oral - Category 4
Acute Toxicity Inhalation - Category 4
Skin Corrosion/Irritation - Category 1B
Skin Sensitization - Category 1
Toxic to Reproduction - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Harmful if swallowed.
Harmful if inhaled.
Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
Suspected of damaging fertility or the unborn child.
May cause respiratory irritation.

Precautionary Statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Do not breathe mist/vapours/spray.
Contaminated work clothing should not be allowed out of the workplace.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/eye protection/face protection.

Response

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: get medical advice/attention.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: get medical advice/attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
IF SWALLOWED: Rinse mouth. Do not induce vomiting.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
100-51-6	Benzyl alcohol	13-30
2855-13-2	Isophorone diamine	7-13
1477-55-0	m-Xylene-α,α'-diamine	3-7
80-05-7	Bisphenol A	3-7
109-55-7	N,N-Dimethyl-1,3-propanediamine	1-3
90-72-2	2,4,6-Tri(dimethylaminomethyl)phenol	1-3
69-72-7	Salicylic acid	1-3

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Check for and remove any contact lenses. Immediately flush with running water for at least 15 minutes. Seek immediate medical attention.

First Aid: Skin

Immediately flush skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes and launder before re-wearing. Seek immediate medical attention.

First Aid: Ingestion

Rinse mouth with water. DO NOT induce vomiting unless directed by medical personnel. Never give anything by mouth to an unconscious person. Seek immediate medical attention.

First Aid: Inhalation

Remove individual to fresh air. If breathing is difficult, administer oxygen and obtain medical aid.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
Combustible liquid. Keep away from heat and ignition sources.

Hazardous Combustion Products

Oxides of carbon and nitrogen.

Extinguishing Media

Use foam, carbon dioxide, or dry chemical.

Unsuitable Extinguishing Media

Do not use water jet.

Fire Fighting Equipment/Instructions

Firefighters should wear self-contained breathing apparatus and full protective gear.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop the flow of material, if this is without risk.

Materials and Methods for Clean-Up

Prevent material from entering sewers or waterways. Remove all ignition sources. Ventilate area. Absorb with inert materials (e.g. vermiculite or sand) and place in a closed container for proper disposal.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Wear appropriate protective equipment and clothing during clean-up.

Environmental Precautions

Avoid release to the environment.

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with skin and eyes. Wash thoroughly after handling. Do not breathe vapors or mists of this product. Use with adequate ventilation. Ground/bond container and receiving equipment. Use non-sparking tools.

Storage Procedures

Keep away from heat and ignition sources. Store in the original container protected from direct sunlight in a dry, cool and well-ventilated area. Store between 2-40°C (35.6-104°F).

Incompatibilities

Strong acids, bases and oxidizing agents.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Substance Exposure Limits

Bisphenol A (80-05-7)		
EU	IOELV TWA (mg/m³)	10 mg/m³
Austria	MAK (mg/m³)	5 mg/m³
Austria	MAK Short time value (mg/m³)	5 mg/m³
Austria	OEL - Ceilings (mg/m³)	5 mg/m³
Belgium	Limit value (mg/m³)	10 mg/m³
Bulgaria	OEL TWA (mg/m³)	10 mg/m³
Cyprus	OEL TWA (mg/m³)	10 mg/m³

Bisphenol A (80-05-7)		
Czech Republic	Expoziční limity (PEL) (mg/m³)	2 mg/m³
Denmark	Grænseværdie (langvarig) (mg/m³)	3 mg/m³
Estonia	OEL TWA (mg/m³)	10 mg/m³
Finland	HTP-arvo (8h) (mg/m³)	5 mg/m³
France	VME (mg/m³)	10 mg/m³
Germany	TRGS 900 Occupational exposure limit value (mg/m³)	5 mg/m³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed)
Gibraltar	OEL TWA (mg/m³)	10 mg/m³
Greece	OEL TWA (mg/m³)	10 mg/m³
Hungary	AK-érték	10 mg/m³
Lithuania	IPRV (mg/m³)	10 mg/m³
Luxembourg	OEL TWA (mg/m³)	10 mg/m³
Malta	OEL TWA (mg/m³)	10 mg/m³
The Netherlands	MAC TGG 8H (mg/m³)	10 mg/m³ (respirable)
Poland	NDS (mg/m³)	5 mg/m³
Poland	NDSCh (mg/m³)	10 mg/m³
Romania	OEL TWA (mg/m³)	10 mg/m³
Slovenia	OEL TWA (mg/m³)	5 mg/m³
Slovenia	OEL STEL (mg/m³)	5 mg/m³
Spain	VLA-ED (mg/m³)	10 mg/m³ (indicative limit value)
United Kingdom	WEL TWA (mg/m³)	10 mg/m³
United Kingdom	WEL STEL (mg/m³)	30 mg/m³
Norway	Gjennomsnittsverdier (AN) (mg/m³)	10 mg/m³ (inhalable)
Norway	Gjennomsnittsverdier (Korttidsverdi) (mg/m3)	20 mg/m³ (inhalable)
Switzerland	VME (mg/m³)	5 mg/m³
Switzerland	VLE (mg/m³)	5 mg/m³

Benzyl alcohol (100-51-6)		
Bulgaria	OEL TWA (mg/m³)	5.0 mg/m³
Czech Republic	Expoziční limity (PEL) (mg/m³)	40 mg/m³
Finland	HTP-arvo (8h) (mg/m³)	45 mg/m³
Finland	HTP-arvo (8h) (ppm)	10 ppm
Latvia	OEL TWA (mg/m³)	5 mg/m³
Lithuania	IPRV (mg/m³)	5 mg/m³
Poland	NDS (mg/m³)	240 mg/m³

1,3-Benzenedimethanamine (1477-55-0)		
Austria	MAK (mg/m³)	0.1 mg/m³
Austria	MAK Short time value (mg/m³)	0.1 mg/m³

1,3-Benzenedimethanamine (1477-55-0)		
Austria	OEL - Ceilings (mg/m³)	0.1 mg/m³
Denmark	Grænseværdie (kortvarig) (mg/m³)	0.1 mg/m³
Denmark	Grænseværdie (kortvarig) (ppm)	0.02 ppm
Finland	HTP-arvo (15 min)	0.1 mg/m³
Finland	OEL Ceiling (mg/m³)	0.1 mg/m³
France	VLE (mg/m³)	0.1 mg/m³
Portugal	OEL - Ceilings (mg/m³)	0.1 mg/m³
Slovenia	OEL TWA (mg/m³)	0.1 mg/m³
Norway	Gjennomsnittsverdier (Takverdi) (mg/m³)	0.1 mg/m³
Switzerland	VME (mg/m³)	0.1 mg/m³
Canada (Quebec)	PLAFOND (mg/m³)	0.1 mg/m³
USA - ACGIH	ACGIH Ceiling (mg/m³)	0.1 mg/m³
USA - NIOSH	NIOSH REL (ceiling) (mg/m³)	0.1 mg/m³

Engineering Measures

General dilution ventilation and/or exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

Personal Protective Equipment: Respiratory

If irritation occurs, or if the TLV or PEL is exceeded, use a NIOSH approved air purifying respirator with organic vapor cartridges or canisters, or supplied air respirators.

Personal Protective Equipment: Hands

Use chemical resistant gloves such as neoprene or natural rubber gloves.

Personal Protective Equipment: Eyes

Chemical protective goggles.

Personal Protective Equipment: Skin and Body

Wear appropriate working clothes.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Brown	**Odor:**	ND
Physical State:	Liquid	**pH:**	11
Vapor Pressure:	ND	**Vapor Density:**	ND
Boiling Point:	135°C (275°F)	**Melting Point:**	ND
Solubility (H2O):	Partially soluble	**Specific Gravity:**	ND
Evaporation Rate:	ND	**VOC:**	ND
Viscosity:	450 to 1400 cP	**Bulk Density:**	1.03 g/cm3 (20°C (68°F))
Octanol/H2O Coeff.:	ND	**Flash Point:**	85.5°C (185.9°F)
Flash Point Method:	ND	**Upper Flammability Limit (UFL):**	ND
Lower Flammability Limit (LFL):	ND	**Burning Rate:**	ND
Auto Ignition:	ND		

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Will not occur.

Conditions to Avoid

Avoid sources of ignition. Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible Products

Strong acids, bases, and oxidizing agents.

Hazardous Decomposition Products

Oxides of carbon and nitrogen.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Benzyl alcohol (100-51-6)
Inhalation LC50 Rat 8.8 mg/L 4 h; Oral LD50 Rat 1230 mg/kg; Dermal LD50 Rabbit 2000 mg/kg

Isophorone diamine (2855-13-2)
Oral LD50 Rat 1030 mg/kg

m-Xylene-α,α'-diamine (1477-55-0)
Inhalation LC50 Rat 700 ppm 1 h; Oral LD50 Rat 930 mg/kg; Dermal LD50 Rabbit 2000 mg/kg

Bisphenol A (80-05-7)
Oral LD50 Rat 3200 mg/kg; Dermal LD50 Rabbit 3000 mg/kg

Salicylic acid (69-72-7)
Inhalation LC50 Rat >0.9 mg/L 1 h; Oral LD50 Rat 891 mg/kg; Dermal LD50 Rat >2 g/kg

N,N-Dimethyl-1,3-propanediamine (109-55-7)
Inhalation LC50 Rat >4.31 mg/L 4 h; Oral LD50 Rat 922 mg/kg; Dermal LD50 Rabbit 600 µL/kg

2,4,6-Tri(dimethylaminomethyl)phenol (90-72-2)
Oral LD50 Rat 1000 mg/kg; Dermal LD50 Rat 1280 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Corrosive to the skin. Causes burns. Toxic in contact with skin.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Corrosive to the eyes. Causes burns.

Potential Health Effects: Ingestion

Harmful if swallowed. May cause burns to mouth, throat and stomach.

Potential Health Effects: Inhalation

May cause respiratory irritation.

Respiratory Organs Sensitization/Skin Sensitization

May cause an allergic skin reaction.

Generative Cell Mutagenicity

Product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

Product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

Suspected of damaging fertility or the unborn child.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation.

Specified Target Organ General Toxicity: Repeated Exposure

Product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Aspiration of material into the lungs can cause chemical pneumonitis which can be fatal.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

None

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Benzyl alcohol (100-51-6)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	460 mg/L [static]	
96 Hr LC50 Lepomis macrochirus	10 mg/L [static]	
3 Hr EC50 Anabaena variabilis	35 mg/L	
48 Hr EC50 water flea	23 mg/L	

Isophorone diamine (2855-13-2)

Test & Species		Conditions
96 Hr LC50 Leuciscus idus	110 mg/L [semi-static]	
72 Hr EC50 Desmodesmus subspicatus	37 mg/L	
24 Hr EC50 Daphnia magna	42 mg/L	
48 Hr EC50 Daphnia magna	14.6 - 21.5 mg/L [semi-static]	

Bisphenol A (80-05-7)

Test & Species	Conditions

96 Hr LC50 Pimephales promelas	3.6 - 5.4 mg/L [flow-through]
96 Hr LC50 Pimephales promelas	4.0 - 5.5 mg/L [static]
96 Hr LC50 Oncorhynchus mykiss	4 mg/L
96 Hr LC50 Brachydanio rerio	9.9 mg/L [static]
96 Hr EC50 Pseudokirchneriella subcapitata	2.5 mg/L
48 Hr EC50 Daphnia magna	10.2 mg/L
48 Hr EC50 Daphnia magna	3.9 mg/L
48 Hr EC50 Daphnia magna	9.2 - 11.4 mg/L [Static]

Salicylic acid (69-72-7)

Test & Species		Conditions
48 Hr LC50 Leuciscus idus	90 mg/L [static]	
24 Hr EC50 Daphnia magna	105 mg/L	
48 Hr EC50 Daphnia magna	870 mg/L [Static]	

N,N-Dimethyl-1,3-propanediamine (109-55-7)

Test & Species		Conditions
96 Hr LC50 Leuciscus idus	122 mg/L [static]	
72 Hr EC50 Desmodesmus subspicatus	56.2 mg/L	
96 Hr EC50 Desmodesmus subspicatus	57.5 mg/L	
48 Hr EC50 Daphnia magna	59.5 mg/L	

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

ADR Information

Shipping Name: Amines, Liquid, Corrosive, n.o.s. (Isophorone Diamine, M-Xylene Diamine)
UN #: 2735 **Hazard Class:** 8 **Packing Group:** II

IATA Information

Shipping Name: Amines, Liquid, Corrosive, n.o.s. (Isophorone Diamine, M-Xylene Diamine)
UN #: 2735 **Hazard Class:** 8 **Packing Group:** II

ICAO Information

Shipping Name: Amines, Liquid, Corrosive, n.o.s. (Isophorone Diamine, M-Xylene Diamine)
UN #: 2735 **Hazard Class:** 8 **Packing Group:** II

IMDG Information

Shipping Name: Amines, Liquid, Corrosive, n.o.s. (Isophorone Diamine, M-Xylene Diamine)
UN #: 2735 **Hazard Class:** 8 **Packing Group:** II

* * * Section 15 - Regulatory Information * * *

EU MARKING AND LABELLING:

Symbol(s):

C

Risk Phrases:

R34 Causes burns.
R22 Harmful if swallowed.
R43 May cause sensitization by skin contact.
R62 Possible risk of impaired fertility.

Substance Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Benzyl alcohol 100-51-6	202-859-9	EINECS	DSL	Yes
Isophorone diamine 2855-13-2	220-666-8	EINECS	DSL	Yes
m-Xylene-α,α'-diamine 1477-55-0	216-032-5	EINECS	DSL	Yes
Bisphenol A 80-05-7	201-245-8	EINECS	DSL	Yes
Salicylic acid 69-72-7	200-712-3	EINECS	DSL	Yes
N,N-Dimethyl-1,3-propanediamine 109-55-7	203-680-9	EINECS	DSL	Yes
2,4,6-Tri(dimethylaminomethyl)phenol 90-72-2	202-013-9	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

Available on request.

End of Sheet

PRODUCT DATA SHEET: CERAM-KOTE® 54 SST

Description:
CeRam-Kote® 54 SST is a ceramic polymer coating that has excellent resistance to water, hydrocarbons, and corrosive gases. It can also be used as a primer over marginally prepared substrates and rusty steel surfaces. It is tolerant of moist/damp surfaces and suitable for use in USDA inspected facilities.

CeRam-Kote® 54 SST is used as a maintenance coating to protect steel structures in industrial facilities, bridges, tank exteriors, marine weathering, offshore, oil tanks, piping, roofs, water towers and other exposures. CeRam-Kote® 54 SST has good chemical resistance to splash/spillage, fumes and immersion in neutral, fresh and salt water. Contact your CeRam-Kote® representative for specific information.

Recommended Uses:

- Storage tanks
- Industrial facilities
- Bridges
- Concrete floors
- Tank exteriors
- Offshore platforms
- Oil tanks
- Marine vessels (hulls* / deck)
- Piping
- Roofs
- Water towers

TECHNICAL DATA

Finish:	Semi-gloss	
Colors:	Select colors available (white, tan, gray are stock). Other colors upon request.	
Volume Solids:	80% +/- 2% (calculated value)	
Weight Solids:	90% +/- 2%	
VOC:	<197 g/l : 1.64 lb/gal (calculated value)	
Dry Film Thickness:	10 – 15 mils (250 – 375 microns)	
Coats:	1 or 2	
Theoretical Coverage:	130 ft^2/gal / 3 m^2/l (at 10 mils / 250 microns)	
Abrasion Resistance:	20 mg loss (ASTM D4060, CS17 wheel, 1000 cycles, 1 kg load)	
Adhesion:	3,000 psi (ASTM D4541)	
Direct Impact Resistance:	40 in. lbs. (ASTM D2794)	
Salt Fog Resistance:	2,000 hrs, no blistering, cracking, softening, or delaminating (ASTM B117)	
Temperature resistance:	Minimal prep: Continuous (dry) = 200°F / 93°C Continuous (immersion) = 100°F / 38°C	Recommended prep (NACE-2): Continuous (dry) = 250°F / 121°C Continuous (immersion) = 150°F / 65°C
Water resistance:	Excellent	
Corrosion resistance:	Excellent	
Solvent resistance:	Excellent	
Chemical resistance:	Very good	Contact distributor for specific information

Performance dependent on level of preparation

CERAM-KOTE® COATINGS, INCORPORATED • P.O. BOX 2119 • BIG SPRING, TEXAS 79721
432-263-8497 • 800-346-4299 • 432-263-5269 FAX • www.ceram-kote.com • e-mail: freecom@ceram-kote.com

Surface Preparation: Coating performance is proportional to the degree of surface preparation. Abrasive cleaning is the most effective and economical method; however, if this form of preparation is impossible or impractical, CeRam-Kote® 54 SST is accomodating of marginally prepared and slightly moist, damp, or oil-contaminated surfaces. The acceptability of CeRam-Kote® 54 SST over surfaces in contaminated environments should be evaluated by preparing and coating a test patch area. The test patch area should use the same surface preparation and application method intended for the total project. Allow the test patch to dry a minimum of 7 days before evaluating adhesion. If adhesion is poor, the surface will need to be cleaned of contaminant before coating. Always remove fallout, dirt, loose rust, and peeling paint. Damp or oil contaminated surfaces should always be brushed, rolled or spray and backroll applied, working the paint film into contamination.

Iron & Steel – Remove all loose rust, dirt, moisture, grease and soluble salts from surface. Power-tool clean (SSPC-SP3) or hand-tool clean (SSPC-SP2). For more severe environments, dry abrasive blast (SSPC-SP7). Water blasting is also acceptable to SSPC-D-Vis-WJ-3-H. For immersion service, dry abrasive blast SSPC-SP10 and achieve a 2-mil (50 micron) anchor profile. Prime any bare steel within 8 hours or before flash rusting occurs.

Aluminum – Remove all oil, grease, dirt, oxide, soluble salts, and other foreign material by solvent cleaning per SSPC-SP1. Power-tool clean (SSPC-SP3) or hand-tool clean (SSPC-SP2). For more severe environments, dry abrasive blast (SSPC-SP7). Water blasting is also acceptable to SSPC-D-Vis-WJ-3-H. For immersion service, dry abrasive blast SSPC-SP10 and achieve a 2-mil (50 micron) anchor profile. Prime any bare steel within 8 hours or before flash rusting occurs.

Galvanized Steel – Allow to weather a minimum of six months prior to coating. Remove all oil, grease, dirt, oxide, soluble salts, and other foreign material by solvent cleaning per SSPC-SP1 (recommended solvent is VM&P Naptha). When weathering is not possible or the surface has been treated with chromates or silicates, first solvent clean per SSPC-SP1 and apply a test patch. Allow CeRam-Kote® 54 SST to dry at least one week before testing adhesion. If adhesion is poor, brush blasting per SSPC-SP7 is necessary to remove these treatments.

Mixing: CeRam-Kote® 54 SST contains a high loading of ceramic particles which must be placed into full suspension with the polymer resin prior to application. CeRam-Kote® 54 SST is packaged in two cans, Part A (resin and ceramics) and Part B (curing agent). Shake Part A (coating) with a Cyclone air-powered shaker or mix Part A with a paddle mixer until all ceramic particles are suspended in the resin. Time required to place ceramics into suspension varies according to temperature and length of material storage time. At 72°F (22.2°C), generally a four (4) to six (6) minute shake will place the ceramic particles into suspension. **Regardless of time needed, shake all ceramic material into suspension prior to proceeding.** Failure to properly mix will keep CeRam-Kote® 54 SST from performing or curing properly. Check the can to assure all solids are in suspension prior to proceeding to the mixing step.

Combine Part A (coating) and Part B (curing agent) and ***stir*** until both parts are thoroughly mixed. Shaking can cause excessive heat to build up, thus causing curing problems. Stirring time is temperature dependent, but it should take only three (3) to four (4) minutes to thoroughly mix the components. No induction time is needed before application.

Mix Ratio: **4:1 by volume - calculated**
7:1 by weight

Pot Life & Shelf Life: Pot life for CeRam-Kote® 54 SST at 72°F (22.2°C) is two (2) hours. Colder temperatures will increase the pot life and warmer temperatures will decrease the pot life. Keep cans out of direct sunlight to prevent heat buildup. Preferred storage/usage is a dry enclosed area under 85°F (29°C) /used within two (2) years.

Thinning: Adjust viscosity with small amounts MEK, Acetone, Toluene, or Xylene. Maximum recommendation is 15%.

Application:

Recommended application equipment (equivalent equipment may be substituted):

Airless Spray:
Pressure = 2,800 – 3,000 psi
Hose = 3/8" ID
Tip = 0.021" to 0.027"
Filter = 30 mesh
Reduction = as needed up to 10% by volume

Conventional Spray:
Gun = Binks 2001 or similar
Fluid Nozzle = 68 (2.8 mm orifice size)
Air Nozzle = 68PB
Atomization Pressure = 40 psi
Fluid Pressure = 30 psi
Reduction = as needed up to 15% by volume

Brush:
Natural bristle
Reduction = Not recommended

Roller:
Cover = ½" lambs wool
Reduction = Not recommended

Damp or oil contaminated surfaces should always be brushed, rolled or spray and backroll applied, working the paint film into contamination.

All other surfaces - spray apply for best results using conventional, airless, or cup gun. **The air source must be dry.** The compressed air source should be outfitted with air dryers as needed to supply moisture-free air. After thoroughly mixing CeRam-Kote® 54 SST, strain it with a standard paint strainer and pour CeRam-Kote® 54 SST into the spray equipment.

Performance Tips: Stripe coat all crevices, welds and sharp angles to prevent early failure in these areas. When using spray application, use a 50% overlap with each pass of the gun to avoid holidays, bare areas, and pinholes. Whenever possible, cross spray at a right angle. Spreading rates are calculated on volume solids and do not include an application loss factor due to surface profile, roughness or porosity of the surface, skill and technique of the applicator, method of application, various surface irregularities, material lost during mixing, spillage, overthinning, climatic conditions and excessive film build. Excessive reduction of material can affect film build, appearance, and adhesion. In order to avoid blockage of spray equipment, clean equipment before use or before periods of extended downtime with CeRam-Kote® Thinner 1 or CeRam-Kote® Thinner 3. Do not apply the material beyond recommended pot life. Do not mix previously catalyzed material with new.

Climate:

For Maximum Performance: Use CeRam-Kote® 54 SST only if the substrate temperature and ambient air temperature is above 40°F (4.4°C). No coating should be permitted when substrate is wet from rain or dew, when surfaces are less than 5°F (3°C) above the dew point and holding or when relative humidity is greater than 85%.

Repairs:

If application of the coating is less than seventy-two (72) hours old and has not been exposed to contamination, repair by wiping with CeRam-Kote® Thinner 1 or CeRam-Kote® Thinner 3 and then re-apply CeRam-Kote® 54 SST. If contaminated or more than 72 hours old, first sand with appropriate grit sandpaper, then repeat repair process.

Cleanup:

Purge and clean spray equipment within thirty (30) minutes of the final spray. Flush equipment with CeRam-Kote® Thinner 1 or CeRam-Kote® Thinner 3 until solvent sprays clear. Disassemble and clean equipment to manufacturer's recommendations. Material left in spray equipment will solidify and damage equipment. Use precautionary measure applicable to any catalyzed material.

Safety:

See individual product label for safety and health data. A Material Safety Data Sheet is available upon request.

4/6/17

Safety Data Sheet

* * * Section 1 - Product and Company Identification * * *

Material Name: PART-A CeRam-Kote SPG (Base)

Manufacturer Information

CERAM-KOTE COATINGS INCORPORATED
1800 Industrial Drive
Big Spring, TX 79720

Phone: 432-263-8497
Emergency # ChemTel: +1 (800) 255-3924 Contract #: MIS1807449
Outside the USA: 1-813-248-0585 For Australia: 1-300-954-583
For Brazil: 0-800-591-6042, China: 400-120-0751, India: 000-800-100-4086, Mexico: 800-099-0731

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Skin Corrosion/Irritation - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Warning

Hazard Statements

Causes skin irritation.
May cause respiratory irritation.

Precautionary Statements

Prevention

Wash thoroughly after handling.
Wear protective gloves.
Avoid breathing mist/vapours/spray.
Use only outdoors or in a well-ventilated area.

Response

IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
14807-96-6	Talc	40-45
28064-14-4	Phenol, polymer with formaldehyde, glycidyl ether	30-40
1344-28-1	Aluminum oxide	10-15

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Flush with running water for at least 15 minutes. Seek medical attention.

First Aid: Skin

Wash with flowing water. Remove contaminated clothing and launder before re-wearing. If irritation persists, seek medical attention.

First Aid: Ingestion

DO NOT induce vomiting. Seek medical attention.

First Aid: Inhalation

If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.

No special fire hazards are known to be associated with this product.

Hazardous Combustion Products

May form: carbon dioxide and carbon monoxide, various hydrocarbons.

Extinguishing Media

Use water fog, carbon dioxide, or dry chemical. Water or foam may cause frothing which can be violent and possibly endanger the life of the firefighter. Water may be used to keep fire-exposed containers cool until fire is out.

Unsuitable Extinguishing Media

None.

Fire Fighting Equipment/Instructions

Wear a self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode with appropriate turn-out gear and chemical resistant personal protective equipment. Refer to the personal protective equipment section of this SDS.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Stop the flow of material, if this is without risk.

Materials and Methods for Clean-Up

Small Spill: Absorb paste on vermiculite, floor absorbent or other absorbent material. Large Spill: Persons not wearing protective equipment should be excluded from area of spill until clean-up has been completed. Stop spill at source, dike area of spill to prevent spreading, pump liquid to salvage tank.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

Wear appropriate protective equipment and clothing during clean-up.

Environmental Precautions

None

Prevention of Secondary Hazards

None

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Avoid contact with skin and eyes. Wash thoroughly after handling. Avoid breathing vapors or mists of this product.

Storage Procedures

No special storage necessary.

Incompatibilities

Strong oxidizing agents.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Talc (238-877-9)

ACGIH:	2 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)
Austria:	2 mg/m3 TWA [TMW] (Asbestos-free fibers, respirable fraction)
Belgium:	2 mg/m3 TWA
Denmark:	0.3 fiber/cm3 TWA
Finland:	0.5 fiber/cm3 TWA (fiber); 5 mg/m3 TWA (granular)
Greece:	10 mg/m3 TWA (inhalable fraction); 2 mg/m3 TWA (respirable fraction)
Ireland:	10 mg/m3 TWA (total inhalable dust); 0.8 mg/m3 TWA (respirable dust)
Netherlands:	0.25 mg/m3 TWA
Portugal:	2 mg/m3 TWA [VLE-MP] (respirable fraction, particulate matter containing no Asbestos and < 1% Crystalline silica)
Spain:	2 mg/m3 TWA [VLA-ED] (this value is for the particulated matter that is free from Asbestos and contains less than 1% of Crystalline silica, respirable fraction)
Sweden:	2 mg/m3 LLV (total dust); 1 mg/m3 LLV (respirable dust)

Aluminum oxide (215-691-6)

Austria:	10 mg/m3 STEL [KZW] (alveolar dust, respirable fraction, smoke, 2 X 60 min) 5 mg/m3 TWA [TMW] (alveolar dust, respirable fraction, smoke)
Belgium:	1 mg/m3 TWA (as Al)
Denmark:	5 mg/m3 TWA (total, as Al); 2 mg/m3 TWA (respirable, as Al)
France:	10 mg/m3 TWA [VME]
Germany:	4 mg/m3 TWA MAK (dust, inhalable fraction); 1.5 mg/m3 TWA MAK (dust, respirable fraction)
Greece:	10 mg/m3 TWA (inhalable fraction); 5 mg/m3 TWA (respirable fraction)
Portugal:	10 mg/m3 TWA [VLE-MP] (particulate matter containing no Asbestos and < 1% Crystalline silica)
Spain:	10 mg/m3 TWA [VLA-ED]
Sweden:	5 mg/m3 LLV (total dust, as Al); 2 mg/m3 LLV (respirable dust, as Al)

Engineering Measures

General dilution ventilation and/or exhaust ventilation should be provided as necessary to maintain exposures below regulatory limits.

Personal Protective Equipment: Respiratory

If irritation occurs, or if the TLV or PEL is exceeded, use a NIOSH approved air purifying respirator with organic vapor cartridges or canisters, or supplied air respirators.

Personal Protective Equipment: Hands

Use chemical resistant gloves such as neoprene or natural rubber gloves.

Personal Protective Equipment: Eyes

Chemical protective goggles.

Personal Protective Equipment: Skin and Body

Loose fitting long sleeved shirt and long pants are recommended.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Paste	**Odor:**	Aromatic
Physical State:	Solid	**pH:**	Slight Acidic
Vapor Pressure:	ND	**Vapor Density:**	>1 (Air=1)
Boiling Point:	ND	**Melting Point:**	ND
Solubility (H2O):	Insoluble	**Specific Gravity:**	ND
Evaporation Rate:	ND	**VOC:**	ND
Bulk Density:	1.68	**Octanol/H2O Coeff.:**	ND
Flash Point:	>93.3°C (200°F)	**Flash Point Method:**	ND
Upper Flammability Limit (UFL):	ND	**Lower Flammability Limit (LFL):**	ND
Burning Rate:	ND	**Auto Ignition:**	ND

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Product will not undergo hazardous polymerization.

Conditions to Avoid

None.

Incompatible Products

Strong oxidizing agents.

Hazardous Decomposition Products

May form: carbon dioxide, carbon monoxide, and aldehydes.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Aluminum oxide (1344-28-1)

Oral LD50 Rat >5000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Exposure causes skin irritation. Symptoms may include: allergic skin reaction.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Exposure may cause mild eye irritation. Symptoms may include stinging, tearing, and redness.

Potential Health Effects: Ingestion

Single dose oral toxicity is low. Swallowing small amounts during normal handling is not likely to cause harmful effects; swallowing large amounts may be harmful.

Potential Health Effects: Inhalation

Exposure to vapor or mist is possible. May cause respiratory irritation.

Respiratory Organs Sensitization/Skin Sensitization

Not a sensitization hazard.

Generative Cell Mutagenicity

Product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

Product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

Talc (14807-96-6)

ACGIH: A4 - Not Classifiable as a Human Carcinogen (containing no asbestos fibers)

IARC: Monograph 93 [2010] (inhaled); Supplement 7 [1987]; Monograph 42 [1987] (Group 3 (not classifiable))

Reproductive Toxicity

Product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation.

Specified Target Organ General Toxicity: Repeated Exposure

Product is not reported to have any specific target organ toxicity repeat exposure effects.

Aspiration Respiratory Organs Hazard

Not an aspiration hazard.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

Product is not reported to have any ecotoxicity effects.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Talc (14807-96-6)

Test & Species		Conditions
96 Hr LC50 Brachydanio rerio	>100 g/L [semi-static]	

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

IATA Information

Shipping Name: Not Regulated

ICAO Information

Shipping Name: Not Regulated

IMDG Information

Shipping Name: Not Regulated

* * * Section 15 - Regulatory Information * * *

Regulatory Information

EU MARKING AND LABELLING:

Symbol(s):

None

Risk Phrases:

None

Substance Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Talc 14807-96-6	238-877-9	EINECS	DSL	Yes
Phenol, polymer with formaldehyde, glycidyl ether 28064-14-4	-	No	DSL	Yes
Aluminum oxide 1344-28-1	215-691-6	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

Available on request.

End of Sheet

Safety Data Sheet

* * * Section 1 - Product and Company Identification * * *

Material Name: PART-B CeRam-Kote SPG (Curing Agent)

Manufacturer Information

CERAM-KOTE COATINGS INCORPORATED
1800 Industrial Drive
Big Spring, TX 79720

Phone: 432-263-8497
Emergency # ChemTel: +1 (800) 255-3924 Contract #: MIS1807449
Outside the USA: 1-813-248-0585 For Australia: 1-300-954-583

For Brazil: 0-800-591-6042, China: 400-120-0751, India: 000-800-100-4086, Mexico: 800-099-0731

* * * Section 2 - Hazards Identification * * *

GHS Classification:

Acute Toxicity Dermal - Category 4
Acute Toxicity Inhalation - Category 2 Skin
Corrosion/Irritation - Category 1B
Skin Sensitization - Category 1
Toxic to Reproduction - Category 2
Specific Target Organ Toxicity (Single Exposure) - Category 3

GHS LABEL ELEMENTS

Symbol(s)

Signal Word

Danger

Hazard Statements

Harmful in contact with skin.
Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of damaging fertility. May cause respiratory irritation.

Precautionary Statements

Prevention

Wear protective gloves/protective clothing/eye protection/face protection. Do not breathe vapours.
Use only outdoors or in a well-ventilated area. Wear respiratory protection.
Wash thoroughly after handling.
Contaminated work clothing should not be allowed out of the workplace. Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood. Use only outdoors or in a well-ventilated area.

Response

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.

Storage

Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 3 - Composition / Information on Ingredients * * *

CAS #	Component	Percent
111-40-0	Diethylenetriamine	30-60
80-05-7	Bisphenol A	13-30

* * * Section 4 - First Aid Measures * * *

First Aid: Eyes

Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician.

First Aid: Skin

Get medical attention immediately. Call a poison center or physician. Wash with plenty of soap and water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. Wash clothing before reuse. Clean shoes thoroughly before reuse.

First Aid: Ingestion

Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

First Aid: Inhalation

Get medical attention immediately. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

Protection of First-Aiders

No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

* * * Section 5 - Fire Fighting Measures * * *

General Fire Hazards

See Section 9 for Flammability Properties.
In a fire or if heated, a pressure increase will occur and the container may burst.

Hazardous Combustion Products

Decomposition products may include the following materials: carbon dioxide, carbon monoxide and nitrogen oxides.

Extinguishing Media

Use an extinguishing agent suitable for the surrounding fire.

Unsuitable Extinguishing Media

None

Fire Fighting Equipment/Instructions

Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

* * * Section 6 - Accidental Release Measures * * *

Recovery and Neutralization

Attempt to reclaim the free product, if this is possible.

Materials and Methods for Clean-Up

Small spill: Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill: Stop leak if without risk. Move containers from spill area. Approach the release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as spilled product.

Emergency Measures

Isolate area. Keep unnecessary personnel away.

Personal Precautions and Protective Equipment

No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Do not breathe vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Environmental Precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Prevention of Secondary Hazards

None.

* * * Section 7 - Handling and Storage * * *

Handling Procedures

Put on appropriate personal protective equipment (see Section 8). Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapour or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Storage Procedures

Store between the following temperatures: 2 to 40°C (35.6 to 104°F). Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials see section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Incompatibilities

Strong acids, strong bases, strong oxidising agents.

* * * Section 8 - Exposure Controls / Personal Protection * * *

Component Exposure Limits

Diethylenetriamine (203-865-4)

ACGIH:	1 ppm TWA
	Skin - potential significant contribution to overall exposure by the cutaneous route
Austria:	1 ppm TWA [TMW]; 4 mg/m3 TWA [TMW]
Belgium:	1 ppm TWA; 4.3 mg/m3 TWA
	Skin
Denmark:	1 ppm TWA; 4 mg/m3 TWA
	Potential for cutaneous absorption
Finland:	3 ppm STEL; 13 mg/m3 STEL 1 ppm
	TWA; 4.3 mg/m3 TWA
	Potential for cutaneous absorption
France:	1 ppm TWA [VME]; 4 mg/m3 TWA [VME]
Greece:	1 ppm TWA; 4 mg/m3 TWA 1 ppm
Ireland:	TWA; 4 mg/m3 TWA
	Potential for cutaneous absorption
Portugal:	1 ppm TWA [VLE-MP]
Spain:	1 ppm TWA [VLA-ED]; 4.3 mg/m3 TWA [VLA-ED]
	skin - potential for cutaneous exposure
	sensitizer
Sweden:	1 ppm LLV; 4.5 mg/m3 LLV 2 ppm
	STV; 10 mg/m3 STV

Bisphenol A (201-245-8)

Austria:	5 mg/m3 STEL [KZW] (inhalable fraction)
	5 mg/m3 TWA [TMW] (inhalable fraction)
	Sensitizer
Belgium:	10 mg/m3 TWA
Denmark:	3 mg/m3 TWA (particulate matter)
France:	10 mg/m3 TWA [VME] (inhalable particulates)
Germany:	5 mg/m3 TWA AGW (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed, inhalable fraction, exposure factor 1)
	5 mg/m3 TWA MAK (inhalable fraction)
	5 mg/m3 Peak (inhalable fraction)
Netherlands:	10 mg/m3 TWA (respirable)
Spain:	10 mg/m3 TWA [VLA-ED] (indicative limit value)

Engineering Measures

Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal Protective Equipment: Respiratory

In case of inadequate ventilation wear respiratory protection. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Personal Protective Equipment: Hands

Use gloves approved to relevant standards e.g. EN 374 (Europe), F739 (US). Suitability and durability of a glove is dependent on usage, e.g. frequency and duration of contact, chemical resistance of glove material and dexterity. Always seek advice from glove suppliers.

Personal Protective Equipment: Eyes

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts.

Personal Protective Equipment: Skin and Body

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

* * * Section 9 - Physical & Chemical Properties * * *

Appearance:	Yellow, clear	**Odor:**	Amine-like
Physical State:	Liquid	**pH:**	11 (Conc. % w/w): 50%
Vapor Pressure:	0.1 kPA (20°C)	**Vapor Density:**	Not Available
Boiling Point:	>200°C	**Melting Point:**	Not Available
Solubility (H2O):	Partially soluble	**Specific Gravity:**	Not Available
Evaporation Rate:	Not Available	**VOC:**	Not Available
Viscosity:	Dynamic: 3400-5000 mPas @25°C	**Octanol/H2O Coeff.:**	Not Available
Flash Point:	110°C	**Flash Point Method:**	PMCC
Upper Flammability Limit (UFL):	Not Available	**Lower Flammability Limit (LFL):**	Not Available
Burning Rate:	Not Available	**Auto Ignition:**	Not Available

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability

This is a stable material.

Hazardous Reaction Potential

Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to Avoid

No specific data.

Incompatible Products

Strong acids, strong bases, strong oxidising agents.

Hazardous Decomposition Products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity

Component Analysis - LD50/LC50

Diethylenetriamine (111-40-0)

Oral LD50 Rat 819 mg/kg; Dermal LD50 Rabbit 672 mg/kg

Bisphenol A (80-05-7)

Oral LD50 Rat 3200 mg/kg; Dermal LD50 Rabbit 3000 mg/kg

Potential Health Effects: Skin Corrosion Property/Stimulativeness

Causes severe burns. Harmful in contact with skin.

Potential Health Effects: Eye Critical Damage/ Stimulativeness

Causes serious eye damage.

Potential Health Effects: Ingestion

May cause burns to mouth, throat and stomach.

Potential Health Effects: Inhalation

May cause respiratory irritation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.

Respiratory Organs Sensitization/Skin Sensitization

May cause an allergic skin reaction.

Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

Carcinogenicity

A: General Product Information

This product is not reported to have any carcinogenic effects.

B: Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

Specified Target Organ General Toxicity: Single Exposure

May cause respiratory irritation.

Specified Target Organ General Toxicity: Repeated Exposure

This product is not reported to have any specific target organ toxicity repeated exposure effects.

Aspiration Respiratory Organs Hazard

Not an aspiration hazard.

* * * Section 12 - Ecological Information * * *

Ecotoxicity

A: General Product Information

This product is not reported to have any ecotoxicity effects.

B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Diethylenetriamine (111-40-0)

Test & Species		Conditions
96 Hr LC50 Leuciscus idus	430 mg/L [semi-static]	
96 Hr LC50 Poecilia reticulata	248 mg/L [static]	
96 Hr LC50 Poecilia reticulata	1014 mg/L [semi-static]	
72 Hr EC50 Pseudokirchneriella subcapitata	1164 mg/L	
96 Hr EC50 Pseudokirchneriella subcapitata	345.6 mg/L	
96 Hr EC50 Desmodesmus subspicatus	592 mg/L	
24 Hr EC50 Daphnia magna	37 mg/L	
48 Hr EC50 Daphnia magna	16 mg/L	

Bisphenol A (80-05-7)

Test & Species		Conditions
96 Hr LC50 Pimephales promelas	3.6-5.4 mg/L [flow-through]	
96 Hr LC50 Pimephales promelas	4.0-5.5 mg/L [static]	
96 Hr LC50 Oncorhynchus mykiss	4 mg/L	
96 Hr LC50 Brachydanio rerio	9.9 mg/L [static]	
96 Hr EC50 Pseudokirchneriella subcapitata	2.5 mg/L	
48 Hr EC50 Daphnia magna	10.2 mg/L	
48 Hr EC50 Daphnia magna	3.9 mg/L	
48 Hr EC50 Daphnia magna	9.2 - 11.4 mg/L [Static]	

Persistence/Degradability

No information available for the product.

Bioaccumulation

No information available for the product.

Mobility in Soil

No information available for the product.

* * * Section 13 - Disposal Considerations * * *

Waste Disposal Instructions

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

Disposal of Contaminated Containers or Packaging

Dispose of contents/container in accordance with local/regional/national/international regulations.

* * * Section 14 - Transportation Information * * *

IATA Information

Shipping Name: Diethylenetriamine
UN #: 2079 **Hazard Class:** 8 **Packing Group:** II

ICAO Information

Shipping Name: Diethylenetriamine
UN #: 2079 **Hazard Class:** 8 **Packing Group:** II

IMDG Information

Shipping Name: Diethylenetriamine
UN #: 2079 **Hazard Class:** 8 **Packing Group:** II

Safety Data Sheet

* * * Section 15 - Regulatory Information * * *

Regulatory Information

EU MARKING AND LABELLING:

Symbol(s):

C

Risk Phrases:

R34 Causes burns.
R21/22 Harmful in contact with skin and if swallowed. R43 May cause sensitization by skin contact. R62 Possible risk of impaired fertility.

Substance Analysis - Inventory

Component/CAS	EC #	EEC	CAN	TSCA
Diethylenetriamine 111-40-0	203-865-4	EINECS	DSL	Yes
Bisphenol A 80-05-7	201-245-8	EINECS	DSL	Yes

* * * Section 16 - Other Information * * *

Key/Legend

ACGIH = American Conference of Governmental Industrial Hygienists; ADG = Australian Code for the Transport of Dangerous Goods by Road and Rail; ADR/RID = European Agreement of Dangerous Goods by Road/Rail; AS = Standards Australia; DFG = Deutsche Forschungsgemeinschaft; DOT = Department of Transportation; DSL = Domestic Substances List; EEC = European Economic Community; EINECS = European Inventory of Existing Commercial Chemical Substances; ELINCS = European List of Notified Chemical Substances; EU = European Union; HMIS = Hazardous Materials Identification System; IARC = International Agency for Research on Cancer; IMO = International Maritime Organization; IATA = International Air Transport Association; MAK = Maximum Concentration Value in the Workplace; NDSL = Non-Domestic Substances List; NFPA = National Fire Protection Association; NOHSC = National Occupational Health & Safety Commission; NTP = National Toxicology Program; STEL = Short-term Exposure Limit; TDG = Transportation of Dangerous Goods; TLV = Threshold Limit Value; TSCA = Toxic Substances Control Act; TWA = Time Weighted Average

Literature References

Available on request.

End of Sheet

PRODUCT DATA SHEET: CERAM-KOTE SPG

Description: CeRam-Kote SPG is a technically advanced ceramic polymer material designed to be a high-build corrosion barrier as well as use for patching severe pitting in steel, spalling and cracks in concrete floors and walls where corrosion and chemical attack are problems. CeRam-Kote SPG may be applied in thickness of 15 mils (375 microns) to 3/4“ (750 mils, 19 mm) thick. CeRam-Kote SPG is 100% solids by volume and provides a non-shrinking surface after application. CeRam-Kote SPG is ideal for high abrasion, erosion, and corrosion environments in both critical and non-critical areas.

CeRam-Kote SPG reduces labor costs through its quick application versus other high build products. Designed as a one-coat application, CeRam-Kote SPG may be used as a stand-alone system or in conjunction with other Ceram-Kote coating materials. CeRam-Kote SPG is available in grey or black.

Suggested Uses:

- Tanks and Processing Vessels
- External Pipeline Protection
- Cooling Tower Concrete Walls and Floors
- Pontoon Deck (Floating Dry Docks)
- Pump Impellers
- Pitted Steel Surfaces
- Dredge Equipment
- Ship Decks
- Tile Sealer
- Ship Hulls

TECHNICAL DATA

Number of Coats:	One
Volume Solids:	100% (calculated value)
Salt-Fog Resistance:	Over 10,000 hours with no blisters / undercreep (ASTM B-117 – ongoing)
Adhesion:	2700 psi (18.61 MPa) (ASTM 4541)
Abrasion Resistance:	36 mg loss using a CS-17 wheel and 1 kg load (ASTM D4060)
Direct Impact Resistance:	48 inch-pounds at 25-30 mils (ASTM D2794)
Compressive Strength:	16,000 psi (110.2 MPa) (ASTM D695)
Tensile Strength:	6200 psi (42.8 MPa) – 25-30 mils at 73°F (23°C)(ASTM C307)
Flexibility:	1% elongation at 37°F (NACE RP0394-94)
Porosity:	25-30 mils - Cross Section Porosity Rating: 1 (pass) (NACE RP0394-94)
Minimum/Maximum Dry Thickness:	CeRam-Kote SPG may be applied at a minimum thickness of 15 mils (375 microns to a maximum thickness of 750 mils (19mm or 3/4 inch).
Coverage:	Theoretical coverage is 25 sq. ft. (2.3 sq. meters) per gallon at 63 mils (1/16” or 1.6 mm) and 2 sq. ft. (0.1858 sq. meters) per gallon at 750 mils (3/4” or 19mm).
Cure Time:	CeRam-Kote SPG should cure out in one to three (1-3) hours depending on the temperature and applied thickness.
Color:	Part A is gray or black. Part B is amber.
Surface Preparation:	Proper surface preparation is critical to the long-term performance of the product. Optimum preparation will provide a surface free of oil, grease and salt/chloride contamination with an anchor profile of 3-4 mils (75-100 microns). This is normally achieved by abrasive blasting to a NACE-1 (SSPC-SP5, Swedish Sa-3) white metal finish and no less than a NACE-2 (SSPC-SP10, Swedish Sa-2½) near-white metal cleanliness. Grinding to a rough finish and solvent wash is acceptable, but a subsequent lowering of adhesion will result.

Mixing:

IF brush, roll, trowel, or rake: Mixing and application should be accomplished at air temperatures between 40°-100°F (4.4°-37.8°C). Each kit has been packaged with the proper mix ratio of 7:1 by volume. For longest working pot life, remove Part A (gray) from can and place on a mixing board and add Part B. Using a metal or plastic trowel, mix the two components together until no streaks exist and a consistent gray color is achieved. Spread the mix into a thin layer and use accordingly. If mix is left in a mass, an exothermic reaction will take place, drastically reducing pot life.
IF spray applied: Spray Application can be applied using airless equipment with at least 60:1 pump size. Spray applications require the addition of 5% to 10% solvent to Part A for proper spray atomization. Add solvent to Part A before adding Part B. Heated plural component application is recommended. For heated plural component applications, add solvent to Part A only. Contact Ceram-Kote Technical Support for further information.

Mixing Ratio:

One (1) part Component B to seven (7) parts Component A by volume.
One (1) part Component B to eleven (11) parts Component A by weight.

Shelf Life:

Keep cans out of direct sunlight to prevent heat buildup. It is recommended that CeRam-Kote SPG be used within two (2) years of delivery.

Application:

Application may be accomplished at a minimum temperature of 40°F (4.4°C). A maximum surface temperature of 140°F (60°C). If troweling material, press the material into the surface profile to completely wet out the substrate. On a flat surface, CeRam-Kote SPG may be applied at a minimum of 15 mils (375 microns) to a maximum of 750 mils (19 mm or 3/4 inch) thickness in a single application provided runs or sags do not occur. On vertical surfaces, avoid sliding, runs or sags by applying thin, multiple layers to achieve the desired thickness of 15 mils (375 microns) up to a total thickness of 750 mils (19 mm or 3/4 inch). Contact Ceram-Kote technical support for more information. The material may be smoothed using a variety of methods similar to concrete surface finishing.

If application will be done by spray, use at least a 60:1 airless pump. Spray applications require the addition of 5% to 10% solvent to Part A for proper spray atomization. Add solvent to Part A before adding Part B. Heated plural component application is recommended. For heated plural component applications, add solvent to Part A only. Contact Ceram-Kote Technical Support for further information.

Plural Component Equipment Information:

a. Hose, tank heat for A and B, and block heaters: 130° F to 150°F
b. Hose length (whip hose): 25-ft
c. Hose pressure: 3,000 to 3,500 psi.
d. Inlet Pump Pressure: 80 to 100 psi.
e. Minimum 60:1 airless pump
f. Tip Size: 0.025”
g. Option: addition of 5% solvent (MEK) is acceptable to Part A only

CeRam-Kote SPG may be machined with grinders or other hand tools if necessary after curing to produce the desired surface prior to applying CeRam-Kote 54® as a topcoat. CeRam-Kote SPG may be topcoated as soon as it is dry to the touch which, depending on temperature is one to three (1-3) hours. CeRam-Kote SPG and CeRam-Kote 54® may be placed into service within twenty-four (24) hours for foot traffic if cured at 70°F (21.1°C) depending on service environment. Service time for light vehicle traffic or immersion service is forty-eight (48) hours. Heavy vehicle traffic or equivalent has a service time of 5 days. Lower temperatures require longer cure times and higher temperatures require shorter cure times.

Climate:

Use CeRam-Kote SPG only if the substrate temperature and ambient air temperature are above 40°F (4.4°C). No coating should be permitted when the substrate is wet from rain or dew, when surfaces are less than five degrees Fahrenheit (three degrees Celsius) above the dew point and holding or when relative humidity is greater than 85%. Moisture will inhibit the catalyst reaction and CeRam-Kote SPG will not cure or perform properly.

Repairs:

CeRam-Kote SPG must be abraded prior to repair. Call Ceram-Kote Technical Support for repair recommendations.

Packaging: CeRam-Kote SPG is packaged in one quart or one gallon kits. Each kit consists of a gallon or quart can of Part A (Base) and a container of Part B (Curing Agent).

Cleanup: Use MEK to clean tools immediately after application. If CeRam-Kote SPG is allowed to cure on tools, it must be abraded off.

Safety: Safe storage, handling and use dictate that adequate health and safety precautions be observed with this product. User is specifically directed to consult the current Material Safety Data Sheet for this product as well as precautions contained on product labeling. CeRam-Kote SPG should be stored below 95°F (35°C) and kept out of direct sunlight.

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