Draft For Comment

Mr. Danny Mislenkov
President
ShoreMet LLC.
3478 Marble Hill Rd.
Nabb, IN 47147

Dear Mr. Mislenkov:

Re: FOO6/F019 Wastewater Treatment Sludge,
Exemption from Classification as a Solid Waste

Your request for a recycling exemption from classification as a solid waste for wastewater treatment sludge was received by this office on July 27, 2010. This letter grants that exemption subject to the conditions specified below.

The solid waste at issue in this matter is metal bearing wastewater treatment sludge from electroplating and conversion coating of aluminum operations which, absent an exemption, would be regulated as a listed hazardous waste (FOO6 or F019) under Indiana's Hazardous Waste Rules.

Briefly summarizing, your facility located at 3478 Marble Hill Rd., Nabb, Indiana, will receive metal bearing (copper, nickel, tin, and precious metals) secondary materials. ShoreMet LLC will process the materials to produce a dry material of guaranteed metal content (Metal Concentrate) which will be sold to smelters.

In addition to processing metal bearing secondary materials that are already excluded, or partially excluded (characteristic sludges and precious metal waste for example) from the hazardous waste regulation by rule, this exemption will allow your facility to except the listed hazardous waste sludges designated as F006 and F019 without a storage permit, provided the conditions specified below are met.

Non- hazardous metal bearing sludges may also be accepted and handled and processed in the same manner. Should your facility undertake any other solid or hazardous waste management activities they would be subject to any applicable rules and permit requirements.

The F006 and F019 sludge addressed by this exemption is generated from the treatment of wastewaters from electroplating and chemical conversion coating of aluminum. During treatment, valuable metals are recovered from the wastewater and end up in the sludge. This sludge is then partially dewatered by the generator(supplier customer). ShorMet LLC., will blend incoming materials and dry the material.. This will produce a Metal Concentrate of guaranteed content, that can be used directly as a raw material by smelters.

When wastewater contains recoverable metals, their removal from the water and the partial dewatering of the sludge is considered to constitute not only wastewater treatment, but also the first step in the process of reclamation of the metals. At this point the sludge needs only final drying to be suitable for direct feed into a smelter for reclamation of the metals.

Indiana's hazardous waste rules 329 IAC 3.1 adopt by reference the federal standards at 40 CFR 261 for classification of a material as a solid and hazardous waste. The standards, criteria, and procedures for exemption from classification as a solid waste at 40 CFR 260.30 through 40 CFR 260.33 are adopted at 329 IAC 3.1-5-4.

Materials which have been reclaimed but must be reclaimed further before the materials are fully recovered may be granted an exemption from the hazardous waste rules if they meet the criteria at 40 CFR 260.31(c). To qualify for the exemption the material resulting from the initial reclamation step must be commodity-like even though it is not yet fully reclaimed. The determination is based on the following factors:

1. The degree of processing the material has undergone and the degree of further processing required;
2. The value of the material after it has been reclaimed;
3. The degree to which the reclaimed material is like an analogus raw material;
4. The extent to which the end market is guaranteed;
5. The extent the reclaimed material is handled to minimize loss; and
6. Other relevant factors.

Staff have reviewed your petition in accordance with the above criteria. Additional information regarding the design and operation of your facility was obtained during the site visit on September 22, 2010 by Mr. David Berrey and Mr. Bruce Kizer of this office. You indicated that all storage of incoming and outgoing materials would be stored inside your facility at Nabb. You also indicated that you would not have any need to speculative accumulate any material as the term is defined at 40 CFR 261.1(8). As requested during the site visit, additional information regarding facility layout, secondary containment, sealers, and material profile sheets was submitted by e-mail on October 7, 2010. This additional information was taken into account in establishing the conditions of this exemption.

The production of Metal Concentrate of guaranteed metal content for reclamation by smelters in an activity that has been previously encouraged and approved by Indiana, other states and the U.S. EPA. In reviewing your petition we have considered the information in your petition, and available information regarding the benefits and use of metal concentrates produced from secondary materials.

Based upon the above, it has been determined that your use of the above referenced wastewater treatment sludges as described, meet the exemption criteria.

Your request is that the exemption takes effect upon acceptance and placement in inside storage at ShoreMet LLC facility in Nabb, Indiana. Acceptance will be based on the incoming material meeting the acceptance criteria specified below.

The conditions specified below are intended to assure that the exemption criteria are met. We have utilized conditions which are similar to variances granted to other similar facilities. After prior discussion with yourself, we have modified the acceptance criteria as that used in a similar variance, rather than the acceptance criteria indicated in your petition. These levels are considered adequate, and we see no reason to impose a different standard on different facilities

IDEM hereby grants an exemption from classification as a solid waste for the F006/F019 wastewater treatment sludge described above. This exemption is granted with the following conditions:

1) If the facts or circumstances presented in support of your request for an exemption (attached) should change, resulting in a failure to meet the criteria specified in 40 CFR 260.31(c), this exemption may be revoked or modified in accordance with IC 4-21.5. This exemption may also be revoked or modified if the conditions contained herein are not met.

2) ShoreMet LLC shall construct, operate, and maintain all of the equipment and facilities associated with incoming F006/F019 sludge unloading, storage, and the reclamation process equipment so as to prevent loss or release to the environment. The material handling areas and bulk storage area's secondary containment shall be maintained with a sealed crack free surface compatible with the materials stored.

3) ShoreMet LLC shall store processed Metal Concentrate only in containers which are closed and maintained in good condition to prevent releases.

4) ShoreMet LLC must take remedial action for any releases of any materials at the facility to the extent necessary to remove any threat to human health or the environment. Cleanup residuals of spills of F006/F019 sludge or processed metal concentrate that cannot be reclaimed must be managed as F006/F019.

5) ShoreMet LLC shall develop and revise as necessary, written procedures for emergency response, spill response, fugitive dust control, and material handling, and facility inspections.

6) ShoreMet LLC must conduct facility inspections. Facility inspections must address facility malfunction, deterioration, and operator errors which may be causing or may lead to releases to the environment. Facility inspections must be conducted a minimum of twice a calendar week. Inspections shall be documented in writing. Records of inspection shall be maintained on-site for three years.

7) ShoreMet LLC shall maintain, revise as necessary, and implement an employee training program regarding the procedures for emergency response, spill response, facility inspections, and material handling. Each employee shall be trained upon hiring, and once within every twelve months thereafter with regards to his or her duties as they pertain to his or her duties regarding the above.

8) ShoreMet LLC shall only accept incoming F006 and F019 sludge that meet the following minimum concentration for the given constituents on a dry basis: Nickle 1.2%, Copper1.5%, Tin 10%.

9) Cyanides must be below the Best Demonstrated Available Treatment Technology (BDAT) of 590 parts per million (ppm). Mercury must be below 0.20 ppm. Radioactivity be non-detect. Beryllium must be below 100 ppm.

10) ShoreMet LLC shall complete a material profile and perform a laboratory analysis of each supplier customer's F006/F019 sludge to determine if it meets the acceptance criteria specified above. ShoreMet LLC, shall reevaluate supplier customer's sludge annually and when a significant change to supplier customer's process changes.

11) ShoreMet LLC shall retain on-site completed material profiles and laboratory analysis data for the duration that the supplier is a customer.

12) ShoreMet LLC will comply with the applicable manifest provisions for receipt of incoming F006/F019 sludge, and manifest discrepancies reports, rejected loads and unmanifested waste reports, at 40 CFR Part 265. All manifest records and reports shall be retained on-site for three years.

13) ShoreMet LLC shall not accept F006/F019 sludge that does not meet acceptance criteria specified above, or that meets material specifications but cannot be reclaimed for any reason.

14) ShoreMet LLC shall return rejected F006/F019 sludge as soon as possible to the supplier customer, or have it transported to a permitted hazardous waste storage, treatment or disposal facility, or to another facility that can legitimately recycle it.

15) ShoreMet LLC shall record and retain, for as long as this exemption is effective, the amounts of F006/F019 sludge received from each supplier customer, amounts of incoming shipments rejected, amounts of Metal Concentrate produced, and amounts of any Metal Concentrate rejected by smelters, and the reasons why. Records of all shipments of exempted sludge must include destination and quantity.

16) ShoreMet LLC shall report the information required in item 15 to IDEM on an annual basis by March 1st. of each year. The first report will be due March 1st 2011. The information requested may be reported in a format of ShoreMet LLC's choice.

17) Storage of Metal Concentrate at receiving facilities (smelters) must be conducted in an environmentally sound manner and may not involve storage on the land. Storage must be conducted in accordance with all applicable federal, state, or local requirements.

18) ShoreMet LLC shall maintain records of all contractual arrangements with smelters.

19) ShoreMet LLC shall maintain appropriate documentation to assure that

completion of reclamation by the smelter does occur.

20) If receiving facility is located outside of the United States, a one time notice shall be provided to the receiving country in accordance with applicable export requirements in 40 CFR 262 and 263.

21) This approval is effective within Indiana. The regulatory status of the Metal Concentrate outside Indiana is dependent upon the statutes, regulations, or policies of the state they are within. Compliance with any applicable requirements is the responsibility of ShoreMet LLC. Nothing in this approval should be construed as a relief from those requirements. Nothing in this approval should be construed of as relieving ShoreMet LLC from compliance with any applicable requirements under Indiana's solid or hazardous waste rules for waste not covered by this exemption.

22) This exemption will take effect when the F006/F019 sludge meeting acceptance criteria is placed into storage, inside the building in containers, or inside storage bunkers. Placement in inside storage must occur within 72 hours of unloading from the transport vehicle.

23) Storage of processed Metal Concentrate must be inside the facility at Nabb, Indiana.

24) Processed or unprocessed secondary materials must not be "accumulated speculatively" as the term is defined at 40 CFR 261.2(8).

25) This exemption will expire five (5) years from the effective date. If ShoreMet LLC wishes to renew this exemption, a renewal application must be submitted at least one hundred eighty days (180) days before the expiration date of this exemption. A later date may be approved if requested before the renewal submittal date. The renew application must describe how the exemption criteria and conditions of this exemption are and will continue to be met.

In the event that this exemption expires prior to a final action by IDEM to renew, or modify and reissue, ShoreMet LLC may continue to operate in accordance with the terms and conditions of the expired exemption until a new exemption is issued or denied.

Pursuant to IC 4-21.5, this approval takes effect fifteen days from your receipt of this letter unless a petition for review and a petition for stay of effectiveness are filed as described below. If a petition for review and a petition for stay of effectiveness are filed, any part of the approval for which a petition for stay has been filed will take effect at the expiration of an additional fifteen (15) day period, unless or until an Administrative Law Judge stays the decision in whole or part.

If you wish to challenge this decision, IC 4.21.5-3-7 requires that you file a petition for administrative review, in writing, not later than fifteen (15) days after receipt of this letter. Your petition must be submitted to the:

Office of Environmental Adjudication
Government Center North, Room 501
100North Senate Avenue,
Indianapolis, IN 46204-2241,

Send a copy to the Commissioner, Indiana Department of Environmental Management, 100 N. Senate Avenue, Indianapolis, IN 46206.

The petition for administrative review shall contain the following information:

(1) The name and address of each person filing the petition.
(2) Identification of the interest of each petitioner in the subject of the petition.
(3) Statement demonstrating that the petitioner is:
  (A) a person to whom the order is directed;
  (B) aggrieved or adversely affected by the order; or
  (C) entitled to review under any law.
(4) Statement with particularity the legal issues proposed for consideration in the proceedings and in a case involving an appeal of a permit:
  (A) identification of environmental concerns or technical deficiencies related to the action of the commissioner which is the subject of the petition; and
  (B) identification of permit terms and conditions that the petitioner contends would be appropriate to comply with the law applicable to the contested permit.

The petition for administrative review should also contain the following information:

(1) Identification of any persons represented by the person making the request pursuant to IC 4-21.5-3-15.
(2) Statement identifying the person against whom administrative review is sought.
(3) A copy of the notice of the commissioner's action issued by the department of environmental management which is the basis of the petition for administrative review.
(4) Statement indicating the identification of petitioner's attorney or other representative.

In order to assist Department staff in tracking appeals, we request that you submit a copy of your petition to Mr. Dave Berrey, Office of Land Quality, at 100 N. Senate Ave., P.O. Box 6015, Indianapolis, Indiana 46204-2241.

Pursuant to IC 4-21.5-3-5(d), the Office of Environmental Adjudication (OEA) will provide the petitioner or any person requesting notice with notice of prehearing conferences, preliminary hearings, hearing stays or orders disposing of the petition for review if a written request for such notice is submitted to the Office of Environmental Adjudication at the above address. If you have procedural or scheduling questions regarding you petition, you may contact OEA at 317-232-8591. Questions regarding the technical aspects of this decision should be directed to Mr. Dave Berrey by calling (317)234-6949.

If you should have questions regarding this matter, please contact Mr. Dave Berrey of this Department at (317)234-6949.

Sincerely,

Bruce H Palin
Assistant Commissioner
Office of Land Quality

DWB

SHOREMET LLC.

Dave Berry
Division of Land Quality
IDEM
2525 N. Shadeland Ave.
Indianapolis, IN

3801 Enterprise Ave.
Valparaiso IN, 46383

3478 Marble Hill Rd.
Nabo IN, 47147

July 22, 2010

Mr. Dave Berry

Attached you will find our official request for a Variance pursuant to hazardous waste rule 329 IAC 3.1. . We feel confident that we have met all the criteria. As you may be aware the members here at ShoreMet have vast experience within this industry.

We trust that you will grant ShoreMet this variance based on the conditions found within, and look forward to your reply. If there are any questions or concerns that may arise please feel free to contact us at your earliest connivance.

Sincerely,

Danny Mislenkov

President

ShoreMet LLC.

SHOREMET LLC.

Dave Berry
Division of Land Quality
IDEM
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Sincerely,

Danny Mislenkov

President

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July 26, 2010

Executive Summary

ShoreMet is a business located in Valparaiso, IN., with an operation in Nabb, IN that receives and processes metal bearing sludges and other related materials from industrial sources through thermal unit(s) to concentrate commodity metals and produce a product that is economically attractive to refineries and smelters as a metals source in lieu of mined ores. Specific metals in consideration have enjoyed significant increases in commodity market value over the last several years, including copper and nickel, as well as precious metals. ShoreMet is proposing to receive and process certain metal bearing sludges designated as RCRA hazardous waste F006 under a variance from regulation as a hazardous waste. These materials will be handled as a commodity-like material rather than as a waste. The facility will handle, manage, and store them in such a manner so as to prevent loss or exposure to the environment. The materials will be processed by ShoreMet and offered to refiners and smelters as a product that has significant added value for a metals recovery source over raw sludges as they are produced by industrial generators, and in most cases offers environmental and energy usage advantages to smelters over similar mined ores, yet pose no greater risks than management of similar non-regulated materials. This process and proposed variance will result in material management that encourages generators to manage these materials in a manner that minimizes waste generation, and encourages resource conservation and recovery as a preferable alternative to disposal. Commodity value and scarcity of the subject metals encourages a sustainable market for the products produced by ShoreMet, reduces the amount of ore that must be mined, and reduces energy consumption, transportation costs and disposal of hazardous wastes.

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Background

Under 40 CFR 260.30(c), facilities may petition EPA to exclude from the definition of solid waste material that has been reclaimed but must be reclaimed further before recovery is complete. Indiana has incorporated this provision by reference in its hazardous waste rules at 329 IAC 3.1 and the Indiana Department of Environmental Management (IDEM) has been delegated the authority to grant these exemptions in lieu of EPA.

To qualify for the exclusion, the material resulting from initial reclamation must be commodity-like (even though it is not yet a commercial product, and has to be reclaimed further). Petitioners must provide sufficient information to IDEM to allow the Agency to make a determination that the material is not a solid waste, pursuant to criteria set forth at 40 CFR 260.31(c).

Sludges generated by electroplating operations are sometimes rich in metals, and are generally classified as listed hazardous wastes. These sludges may be of interest to primary smelters for metals extraction. Metal rich sludges which have been recovered from electroplating wastewaters and dried are considered a partially reclaimed material. Absent an exemption being granted, the partially reclaimed material is fully regulated as hazardous waste, must be managed as hazardous waste, and off-site shipments must be accompanied by a hazardous waste manifest.

IDEM has issued guidance pertaining to the metal-bearing sludges listed as hazardous wastes. Common examples would be F006,F007 and F019. Sludges that are hazardous only because they exhibit a characteristic of hazardous waste that are reclaimed are currently excluded from classification as solid waste pursuant to 40 CFR 261.2(c)(3). Therefore, sludges designated as hazardous wastes D004 through D011 that are reclaimed are not solid wastes, therefore they cannot be a hazardous waste.

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40 CFR 260.30 provides that IDEM may grant a variance from the classification of solid waste, on a case-by-case basis, for materials that have been reclaimed but must be reclaimed further before recovery is completed. Such a variance generally is contingent upon the material resulting from the initial reclamation being ``commodity-like." If a variance is finalized, the partially reclaimed metal-bearing sludges that are shipped to smelters may travel without a hazardous waste manifest and will not be subject to any RCRA controls other than the conditions of the variance.

Summary of the Petition and Applicability

ShoreMet is seeking a variance from regulation as hazardous waste for metal bearing sludges classified as F006,F007,F019 listed wastes that are managed through ShoreMet's process to produce a concentrated metal bearing product that will be sold to smelters or refineries for further recovery. ShoreMet will purchase these materials, and manage them as valuable commodities to prevent loss, degradation of value, or release to the environment while storing and processing into products for sale. The sludges will be processed in a thermal recovery unit (dryer) that will blend, dewater and/or destroy organic substances (e.g. flocculants). This will concentrate the metals of economic interest and produce a uniform product that is amenable for direct use by metal smelters and refiners. This process adds value to raw sludges that would otherwise have little or no economic value. Metal bearing products produced by the ShoreMet process to meet customer specifications are attractive to refiners and smelters as they are higher grade (higher metal concentration)than many common ores. Higher grade raw materials offer several benefits to smelters, including but not limited to, reduced energy usage, lower costs to remove impurities,, and the production of a smaller quantity of waste by-products than from lower grade ores. ShoreMet has already received indications of interest in its

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products from smelters. The ShoreMet process for converting metal bearing sludges to valuable products meets the conditions for issuance of a variance, consistent with similar variances already issued by IDEM, and will demonstrate in this petition that its process it meets the criteria for granting the requested variance.

A hazardous secondary material being reclaimed provides a **useful contribution** if it contributes valuable ingredients to a product or intermediate; or replaces a catalyst or carrier in a recycling process; or is the source of a valuable constituent recovered in a recycling process; or is recovered or regenerated by the recycling process; or is used as an effective substitute for a commercial product.

A product or intermediate is **valuable** if it is: sold to a third party; or used by a recycler or the generator as an effective substitute for a commercial product or as an ingredient or intermediate in an industrial process to make a product.

In considering recycling/reclamation **legitimacy**, the generator and the recycler should manage such materials as a valuable commodity, and at a minimum, in a manner consistent with the management of an analogous raw material to prevent losses and to control potential contamination as a result of accumulating the material prior to processing.

Containing the conditionally excluded secondary material sludge, e.g. in Gaylord boxes, roll-offs, supersacks or other containers prior to recovery demonstrates management as a commodity by preventing loss. It is superior to land based storage practices, often used for ores, in preventing contamination o of land or storm water. Furthermore, the materials reclaimed by the ShoreMet process are packaged and managed as a product for sale to smelters and refiners. Processing the incoming materials to generate products results in significant reduction in transportation costs, environmental emissions, energy consumption, and waste during the production of metals.

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Evaluation of the Petition Exclusion Criteria and Processes

40 CFR 260.31(c) specifies five criteria for evaluating whether a specific material qualifies for a ``partially reclaimed material" variance from the definition of solid waste. In addition, 40 CFR 260.31(c)(6) allows IDEM to consider ``other relevant factors" when determining whether or not to grant a requested variance for materials that have been reclaimed, but must be reclaimed further.

In the following discussion, ShoreMet identifies factors relevant to the five criteria to be considered in the petition for variance from regulation as a hazardous waste. ShoreMet's believes that the product produced for sale to smelters and refiners meets the applicable criteria for "partially reclaimed material".

Description of the Process and Degree of Processing

The first evaluation criterion (40 CFR 260.31(c)(1)) is the degree of processing a material has undergone and the degree of further processing that is required for the material to be rendered ``commodity-like." Materials that have undergone substantial processing to reclaim valuable or recyclable materials (but still must undergo a degree of further processing) generally satisfy this criterion. Materials that are still substantially ``waste-like" and that need a significant degree of further processing or ``treatment" to be rendered ``commodity-like" do not satisfy the evaluation criterion.

The sludges that ShoreMet will process under the proposed variance contain 50-80% water, which makes them unsuitable for use as raw materials in a smelting process. Smelters convert metal oxides into metals using high temperature furnaces. The addition of raw materials that contain sig-

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nificant amounts of water would result in a steam explosion in these furnaces. Materials that contain water must therefore be dried before they are added to the smelting furnace.

ShoreMet's drying/blending process will be used to produce a dry reclaimed product having metals concentration and value that is comparable to, or greater than, corresponding ores that are currently used as raw materials by smelters. The ShoreMet process also blends and concentrates metals of economic value and produces a material with consistent properties that can be used directly as a raw material by smelters. By producing a uniform product of high metals concentration that can be used directly in a smelter, ShoreMet is providing a material that is attractive to smelters as a feed material. Since smelters are not able to process sludges without preprocessing, ShoreMet is also recycling materials that would otherwise have to be land disposed.

Processing equipment would consist of; 1) rotary unit(s),- custom designed and built rotary dryer(s) with the ability to heat material directly and indirectly and, 2) stationary ovens were materials are placed in trays, manufactured by (confidential) and equipped with afterburners. In addition, ancillary equipment will be required to process acceptable feed stock such as, mobile material handling, analytical and testing equipment, and appropriate PPE.

The second evaluation criterion (Sec. 260.31(c)(2)) requires an evaluation of the economic value of the material that has been reclaimed, but must be further reclaimed. This criterion is also useful in determining whether a material is indeed ``commodity-like." To satisfy this criterion, petitioners must demonstrate that the initial reclamation process increases or contributes to the value of the material and that there is a market for the reclaimed material. Petitioners generally can demonstrate that this factor is met by providing sales information, including quantities of the material

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sold, additional demand for the material (if any), and the price paid for the material by purchasers.

There is a well established market for ShoreMet's products. Pre-processed metal bearing sludges have been used for nearly 30 years as smelter feeds, and several smelters purchase these materials daily. The value of ShoreMet's products is based on the concentrations of specific metals they contain relative to the smelter's specification, the consistency of the metal content, and the physical characteristics of the material.

Comparison to Analogous Raw Materials and Similar Feed stocks

The third evaluation criterion (40 CFR 260.31(c)(3)) is the degree to which the reclaimed material is like an analogous raw material. Petitioners must demonstrate that the partially reclaimed material is similar to an analogous raw material or feedstock for which the material may be substituted in a production or reclamation process. In addition, the petitioner should demonstrate that the partially reclaimed material does not contain significant concentrations of hazardous constituents not found in an analogous raw material and that do not contribute to the value of the partially reclaimed material when used for its intended purpose.

Feedstock sludges for the ShoreMet reclamation process will consist primarily of industrial metal plating sludges classified as F006 by virtue of the generating process, as well as similar materials, some of which may exhibit a hazardous waste characteristic. In order to ensure that materials coming to the facility have legitimate economic value, similar to the ores, ShoreMet's Operation Plan will require that sludges have a minimum commodity metal concentration of 4% dry weight for base metals and a gross metal value of at least $0.50 per dry pound for precious metals.. This level has been chosen as the minimal acceptable criteria and is approximately double the concentration of similar metals found in natural ores.

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The metals to be reclaimed at the ShoreMet facility are high-value commodity metals such as copper, nickel and tin, as well as precious metals including gold, silver and palladium. All materials would be screened upon receipt and required to meet the established minimum metals content in order to be accepted at the facility. The concentrations of other, unwanted constituents are expected to be less than those found in naturally occurring ores.

Specifications for feedstock:

Copper and/or Nickel >4% (dry weight basis).

Cyanide <590 ppm.

Mercury <1 ppm.

Beryllium <1 ppm.

Radioactive Not detect.

Chrome (+6) <5 ppm.

And any others that may be imposed by our customer specifications.

Demonstration of an End Market Guarantee

Under the fourth evaluation criterion (40 CFR 260.31(c)(4)),petitioners must demonstrate that an end market for the partially reclaimed material is guaranteed. Petitioners must demonstrate that there is a secure demand and long-term market for the partially reclaimed material and that the chance of large quantities of the material being stockpiled due to insufficient demand is unlikely. If a petitioner cannot demonstrate that the material enjoys a consistent level of demand, with reasonable expectations for the same or greater level of demand once a variance is granted, there may be risk of the material being stockpiled or stored for a significant period of time in containers or other storage units that do not have to meet RCRA Subtitle C storage standards. Such situations may pose significant risks to human health or the environment.

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Metals are very high volume commodities. The volume of copper, nickel and tin sold is more than 5o,ooo,ooo tons per year. ShoreMet's product will contain higher concentrations of metals than typical ores that are currently used to produce these metals, and it will have a higher value to the smelters. Furthermore, other companies in other states have been converting listed hazardous wastes containing these metals into feed stocks for smelters successfully for nearly 30 years. ShoreMet will only procure sludges to produce products which it can sell. ShoreMet will not stockpile any feed stocks or products if markets are not available for the corresponding products. Sludges processed by ShoreMet will be used to produce products that will be sold promptly to smelters.

Management of the Material to Minimize Losses

The fifth evaluation criterion (40 CFR 260.31(c)(5)) concerns the extent to which the partially reclaimed material is handled to minimize loss. Petitioners must demonstrate that the material is handled as if it was a valuable commodity and in a manner that is protective of human health and the environment.

All feedstock sludges will be transported and received in containers. Once deliveries have been screened and accepted, the feed stocks will be stored inside a building in containers and or storage bunker(s). When they are processed, the materials will be transferred directly to the processing unit(s), when processing is complete, the products will be removed from the processing unit(s) and placed directly into containers. All feedstock containers will be labeled and the labels will identify the generator and the shipment. All product containers will be labeled and the labels will identify the product and the lot number. Product containers will also be marked with the appropriate DOT shipping information prior to shipment.

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ShoreMet will act as a "designated facility" for generators sending materials to the facility for processing. The facility will not engage in nor act as a hazardous waste treatment or disposal facility. ShoreMet proposes to receive incoming feed stocks on a Hazardous Waste Manifest (HWM). Requests that the material be excluded from regulation as a Hazardous Waste by specific variance upon acceptance by ShoreMet for use to produce a partially reclaimed product. ShoreMet will comply with the applicable manifest provisions of 40 CFR Parts 262, 263 and Part 265 for termination of manifests and discrepancy reports. The facility will maintain an EPA ID number to act as a designated facility for these purposes.

Consideration of Other Factors Relevant to Granting the Petition

There are two other factors that ShoreMet considers to be relevant to this petition:

- The beneficial reclamation of metals as an alternative to disposal
- The avoidance and of cost and environmental impact of mining ore to produce the equivalent weight of metals.

Beneficial Reclamation of Metals

By recycling F006 sludges to produce copper, nickel and tin, ShoreMet will be returning valuable resources to commerce. This serves the resource conservation and recovery, waste minimization, and environmental protection objectives of RCRA. ShoreMet's processing activities will not cause any incremental risk or harm to human health or the environment. In fact, it provides a sound recycling alternative for materials that would otherwise be buried in a landfill.

Avoidance of Mining

By processing meal bearing sludges to produce a product that will be used to produce metals, the environmental impact and cost of mining

ores, the use of fossil fuels, and the attendant generation of greenhouse gases will also be reduced, and the destruction of habitat and watershed deterioration will be avoided.

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ShoreMet LLC

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219-390-3336 x120

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219-390-3336

Material Profile Data

☐ **New Profile** ☐ **Recertification**

Material Profile Data No.: _____ Material No. _____

Generator Name _____ Customer Name (billing) _____
Address _____ Address _____
City _____ State _____ Country _____ Zip _____ City _____ State _____ Country _____ Zip _____
Generator EPA ID No. _____ Contact Name _____ email _____
Generator No. _____ Generator State No. _____ Phone _____ fax _____

NACIS (SIC) Code _____ _____ _____ Source _____ Origin _____ Form _____ System Type _____

Material Name _____
Process Generating Material _____
Shipping Name _____
Hazard Class _____ UN/NA No _____ PG _____ RQ (amount lbs) _____

RQ Desc.	1.	2.
DOT Desc.	1.	2.

Waste Codes _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Wastewater ☐ Non Wastewater ☐ Sub-Category _____

Physical and chemical properties **(check all that apply)**

pH
- ☐ < 2
- ☐ 2 – 5
- ☐ 5 – 9
- ☐ 9 – 12.5
- ☐ > 12.5
- _____ exact

Specific Gravity
- ☐ <0.8
- ☐ 0.8 – 1.0
- ☐ 1.0
- ☐ 1.0 – 1.2
- ☐ > 1.2
- _____ exact

Flashpoint (F)
- ☐ < 80
- ☐ 80 – 100
- ☐ 101 – 140
- ☐ 141 – 200
- ☐ > 200
- ☐ no flash _____ exact

Solids
- _____ % suspended
- _____ % settleable
- _____ % dissolved
- Free Liquid Range _____ to _____ %
- _____ % ash
- _____ water solubility
- _____ BTU/lb

Physical State
- ☐ solid
- ☐ semi-solid
- ☐ liquid
- ☐ pumpable semi-solid
- ☐ flowable powder
- ☐ gas
- ☐ aerosol
- ☐ pressurized liquid
- ☐ debris (40 CFR 268.45)
- ☐ other (describe) _____

Hazardous Characteristics
- ☐ air reactive
- ☐ water reactive
- ☐ cyanide reactive
- ☐ sulfide reactive
- ☐ explosive
- ☐ oxidizing acid
- ☐ peroxide former
- ☐ radioactive or NRC regulated
- ☐ shock sensitive
- ☐ temperature sensitive
- ☐ polymerization / monomer
- ☐ OSHA carcinogen
- ☐ infectious
- ☐ inhalation hazard Zone: _____

Odor
- ☐ none
- ☐ mild
- ☐ strong
- describe _____

Halogens
- _____ % Bromine
- _____ % Chlorine
- _____ % Fluorine
- _____ % Iodine

Layers	☐ **multi-layered**	☐ **bi-layered**	☐ **single phase**
	Top Layer	Middle Layer	Bottom Layer
Viscosity by Layer	☐ high (heavy –syrup) ☐ medium (oil) ☐ low (water) ☐ solid	☐ high (heavy syrup) ☐ medium (oil) ☐ low (water) ☐ solid	☐ high (heavy –syrup) ☐ medium (oil) ☐ low (water) ☐ solid

Color _____
_____
_____

Used Oil ☐ yes ☐ no On-spec: ☐ yes ☐ no HOC: ☐<1000 ppm or ☐ > 1000 ppm

Material Profile Data No.: _____ Material No. _____

Chemical Composition B= Benzene (NESHAP) C= OSHA Carcinogen M=Marine Pollutant, O= Ozone Depleting Substance, S=Severe Marine Pollutant T= TRI Reportable Compound U= Underlying Hazardous Constituent

	Constituents	Range	Units		Constituents	Range	Units

Total Composition of All Constituents Must Equal or Exceed 100%

Additional Regulatory Information:

Is the material being imported into the USA? No ☐ Yes ☐ Country _____

Does the material contain PCB regulated under 40 CFR ? No ☐ Yes ☐ Concentration _____ ppm

Is the material subject to the Marine Pollutant Regulations? No ☐ Yes ☐ _____

Is the material subject to Benzene NESHAP Regulations? No ☐ Yes ☐ Benzene Concentration _____ ppm

If yes, is the material subject to Notification and Control Requirements? No ☐ Yes ☐ _____

Is the material subject to RCRA Subpart CC Controls? No ☐ Yes ☐ VOC concentration _____ ppmw

CC Approved analytical method ☐ Generator Knowledge ☐

Is the material from a CERCLA or State mandated clean-up? No ☐ Yes ☐ _____

Is the material Excluded or exempt from 40 CFR 261 Regulations No ☐ Yes ☐ _____

Container Information (Identify UN container markings if known)

Packaging: Solid ☐ Bulk: Roll-off: Size _____ Other describe type and size: _____

Container: Drum : Type _____ Other describe type and size: _____

Liquid ☐ Bulk describe type and size: _____

Shipping Frequency: Units _____ Per: Week ☐ Quarter ☐ Year ☐ One Time ☐ Other _____

Additional Information:

_____

_____

_____

_____

_____

GENERATOR CERTIFICATION

I hereby certify that all information submitted in this and all attached documents contain true and accurate descriptions of this material. Any sample analysis or material samples submitted are representative of the material as defined in 40 CFR 261, Appendix I (or by using equivalent methods). All relevant information regarding known or suspected hazards in the possession of the generator has been disclosed. I authorize sampling of any material shipments for purposes of recertification.

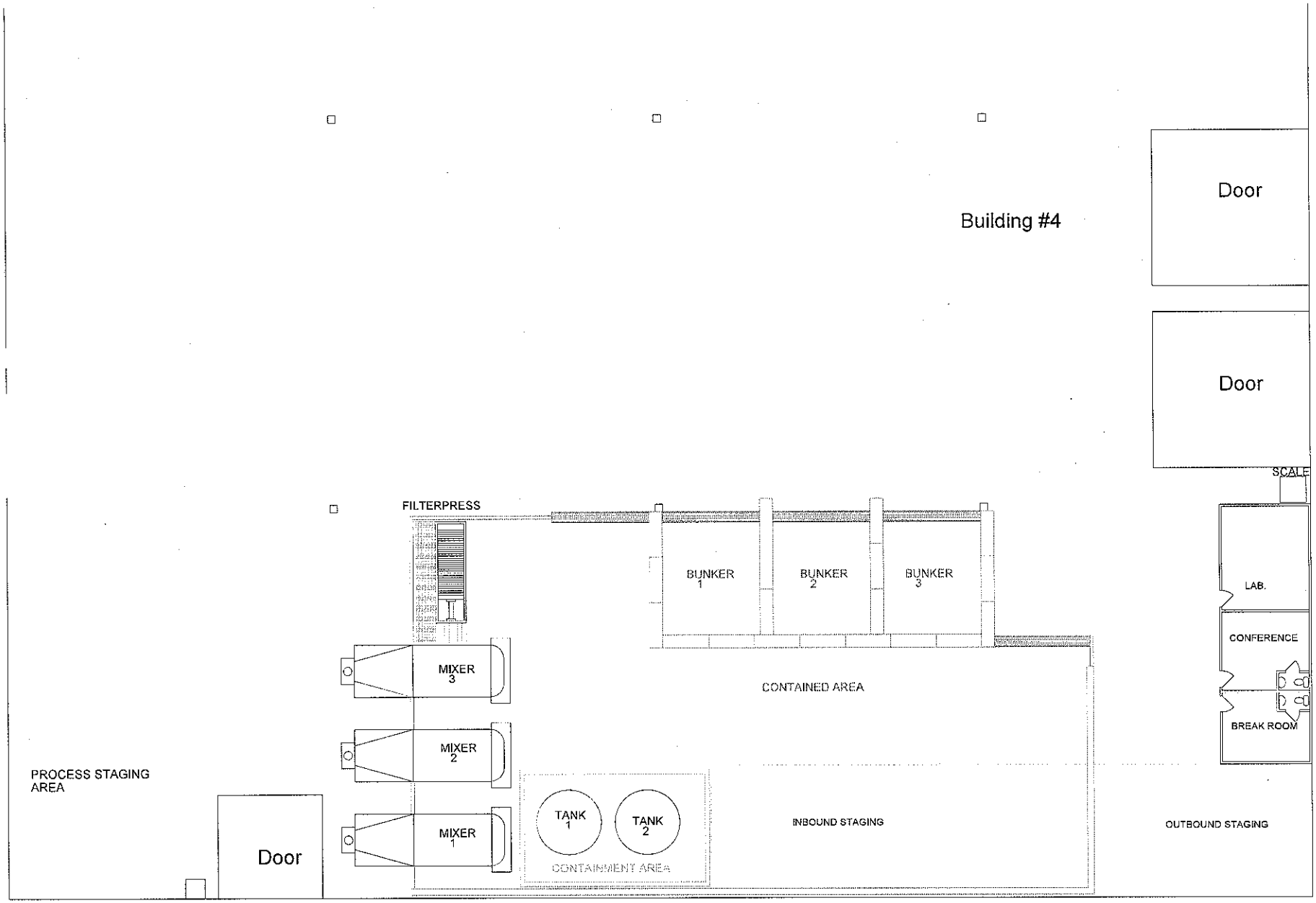
_____ _____ _____

NAME (print of type) **PHONE** **DATE**

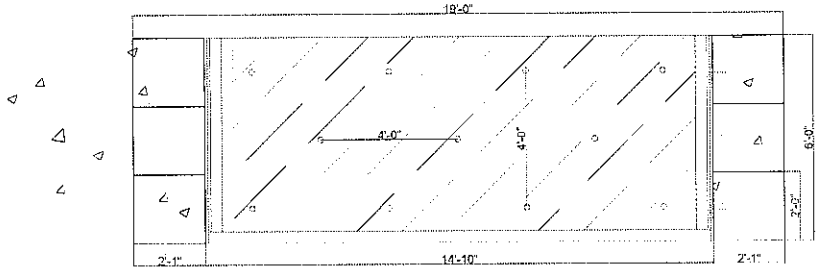
_____ _____

SIGNATURE **TITLE**

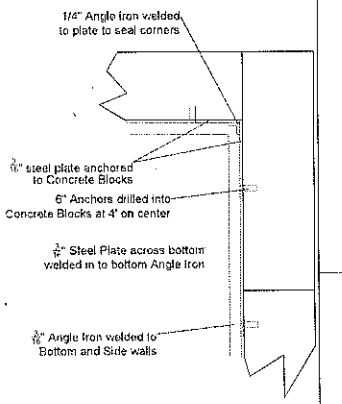
Facility Processing – PPE Required No ☐ Yes ☐ Describe _____


Building #4
Door
Door
SCALE
FILTERPRESS
BUNKER 1
BUNKER 2
BUNKER 3
LAB.
CONFERENCE
BREAK ROOM
MIXER 3
MIXER 2
MIXER 1
CONTAINED AREA
PROCESS STAGING AREA
Door
TANK 1
TANK 2
CONTAINMENT AREA
INBOUND STAGING
OUTBOUND STAGING

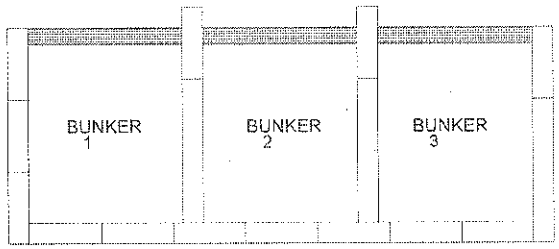
Front View



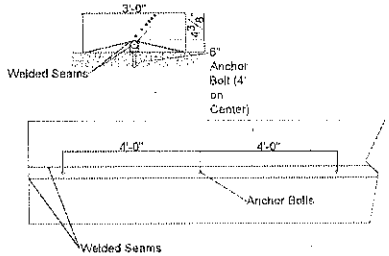
Top Section View



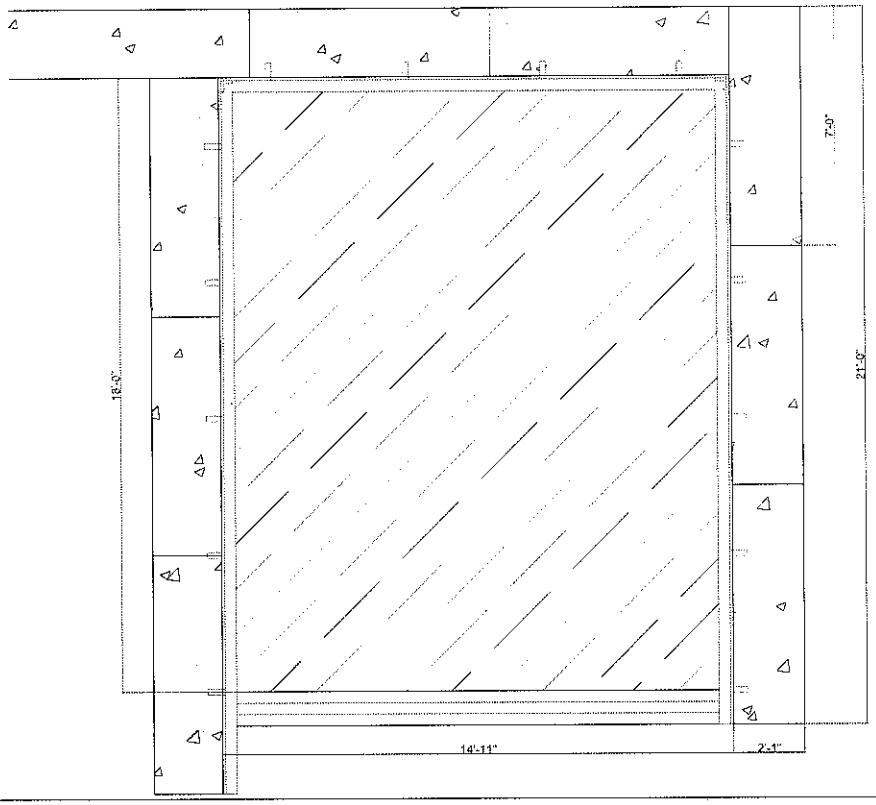
Bunker Overview



Containment Ramp



Top View



NOTES: FLOORS TO BE REPAIRED AND COATED BEFORE INSTALLATION WITH APPROVED EPOXY.

CHANGE ORDERS MUST HAVE WRITTEN APPROVAL

CONTAINMENT BUNKER - DRAWING DETAILS

SHOREMET LLC 3478 MARBLE HILL RD NABB, IN 47147	APPROVED BY:	DATE:	09-27-2010
	DRAWING BY: PERO DUKLESKI	REV.:	CB01

Product Test Listings (07/07)

ASTM TESTING:	
B 117	450 Hour Salt Spray (Fog) - Salt Spray Fog Testing - RUST GRIP® over Black Steel
C 411	96 Hour Hot Surface Performance - Tested at 147 degrees C/297 degrees F for 96 hours - No ignition, smoking, smoldering or color change
D-257-99	D-C Resistance of Insulating Materials - Surface Resistivity = 5.237E+15 - Volume Resistivity = 5.263E+15
D 3359	Adhesion and Penetration - Penetration through 18 layers of Lead Base Paint - Rated 5A = Excellent
D 4060	Tabor Abrasion Resistance - 1000 Cycles with a CS 17 Wheel, 1000 gram Load - 18 milligram loss per 1000 Cycles, rated Excellent
D 4541	Standard Method for Pull-Off Strength - Pull-Off Strength = 1467
D 6904	Resistance to Wind-Driven Rain for Exterior Coatings Applied to Masonry
D 7088	Resistance to Hydrostatic Pressure for Coatings Used in Below Grade Applications Applied to Masonry
E-108-00	Spread of Flame Tests on Pitched Roofs - Class "A" Non-combustible
E 903-96	Spectral Reflectance - Average of 3 Tests = 44.6% Solar Reflectance 55.5% Solar Absorption
E 1795	Encapsulation of Leaded Paint in Buildings - Direct Impact Resistance (ASTM D 2794) - Adhesion (ASTM D 3359, D 4541) - Dry Abrasion Resistance (ASTM D 4060) - Water Vapor Transmission (ASTM D 1653) - Flexibility – Mandrel Bend (ASTM D 522) - Distilled Water Resistance – Immersion 24 hours - .010" Tinplated Steel (ASTM D 1308, D 3359) - ¼" Steel or Aluminum (ASTM D 1308, D 4541) - Chemical Resistance – 24 Hours- 12 Reagents - Spot Test on Glass (ASTM D 1308) - Surface Burning Characteristics (E 84) - Volatile Organic Content (VOC) - (ASTM D 2369, D 4017, D 3960, D 1475) - Weathering (1000 hours) - Aging (interior and exterior) - Scrub Resistance (ASTM D 2486) - Black Plastic – No Break thru after 12 cycles) - Mildew Resistance (ASTM D 3273, 3274) - Paint / Repair Ability (ASTM D 3359) - Tensile Properties (6780psi after 3 weeks) - Visco-Elastic Properties (ASTM D 2370)

ASTM TESTING CONTINUED	
G 85	Prohesion - 1500 Hour Salt Fog - Rated 9 (out of a possible 10 rating) - State of Louisiana Department of Transportation

Testing for ABS (American Bureau of Shipping), IMO (International Maritime Organization) and U.S. Coast Guard Approval.	
IMO A. 653 (16)	Flame Spread [A 653 (16)]
MSC 41	Smoke Toxicity - ASTM B117, D163, D522, D3359, & E1795

China Center for Technical Testing:	
National Measurement M0729	
GB/T 1771-91	- Resistance to Salt Fog (2000 hours)
GB/T 1866-88	- Manuel Aging (2000 hours)
GB/T 10834-88	- Resistance to Salt Water (1000 hours)
GB/T 5219-85	- Adhesion (pulling apart method)

Window Recycling Test for Encapsulation of Lead Based Paint:
Testing was done for encapsulating existing lead based paint on windows for HUD
- Window coated with RUST GRIP®
- Coated surface showed no wear, friction burn, or lead-based paint exposure
- Window was cycled a total of 29,700 times before test concluded

Maximum Temperature Exposure Test:
Thermal analysis testing was performed on RUST GRIP® to determine maximum temperature exposure during application and operation
-Maximum temperature is 600 degrees F (315 degrees C)

Complete Test Results Are Available Upon Request

10835 W. 78th Street, Shawnee, Kansas 66214 Phone: 913-962-4848 Fax: 913-962-6767
Website: www.spicoatings.com Email: sales@spicoatings.com

Certifications and Registrations (11/06)

1. **AMERICAN BUREAU OF SHIPPING**
   - Passed SOLAS 1974 (as amended) requirements for paints/finish materials Requiring compliance with Parts 2 (Smoke & Toxicity) and 5 (Surface Flammability) of the IMO FTP Code, Res. MSC.61 (67)
   - U.S. Type Approval Certificate No. SL520997-X
   - E.C. Type Approval Certificate No. 04-HS 458158-EC
   - U.S. Coast Guard Product Approval No.: 164.112/0729/458158
2. **USDA (UNITED STATES DEPARTMENT OF AGRICULTURE)**
   - USDA Approved
   - Letter of Authorization from USDA Product Safety Branch
   - Letter of Written Certification as Accepted by USDA from Manufacturer
3. **FACTORY MUTUAL APPROVAL**
   - Tested and Approved for Metal Roofing
4. **LOUISIANA DEPARTMENT OF TRANSPORTATION**
   - Approved for Use on Qualified Products List
   - Passed Salt Fog Test for 1500 hours
5. **MISSISSIPPI DEPARTMENT OF TRANSPORTATION**
   - Approved for Use on Qualified Products List
6. **TENNESSEE DEPARTMENT OF TRANSPORTATION**
   - Acceptable for encapsulation of galvanized guardrail
7. **UNIVERSITY OF KENTUCKY**
   - Acceptable for encapsulation of steel bridges for Kentucky Department of Highways
8. **GEORGIA DEPARTMENT OF TRANSPORTATION**
   - Field tested applying RUST GRIP® directly over the steel structure and concrete support columns to fill and seal the voids and gaps in the surface tying the structure together.
   - The bridge when new was 10 ton load capacity. After years in service, it dropped to 3 ton from deterioration. Surface and structural repairs were made and RUST GRIP® applied to total surface over all the metal and concrete surfaces. Four months later a new evaluation was made of the structural strength of the bridge which was found to be 21 ton load capacity.
9. **NATIONAL ROOFING CONTRACTORS ASSOCIATION**
   - Superior Products International II, Inc. is an active member of the NRCA.
10. **GSA APPROVAL FOR FEDERAL US GOVERNMENT**

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Website: www.spicoatings.com Email: sales@spicoatings.com

How does RUST GRIP increase the strength of a deteriorated bridge or concrete surface:

When the surface (metal) deteriorates from weathering, salts and acids, the surface will pit and show hairline cracks that open voids inside the metal surface, bolts, joints and braces. This openings from cracks and voids weakens the structural strength of the metal.

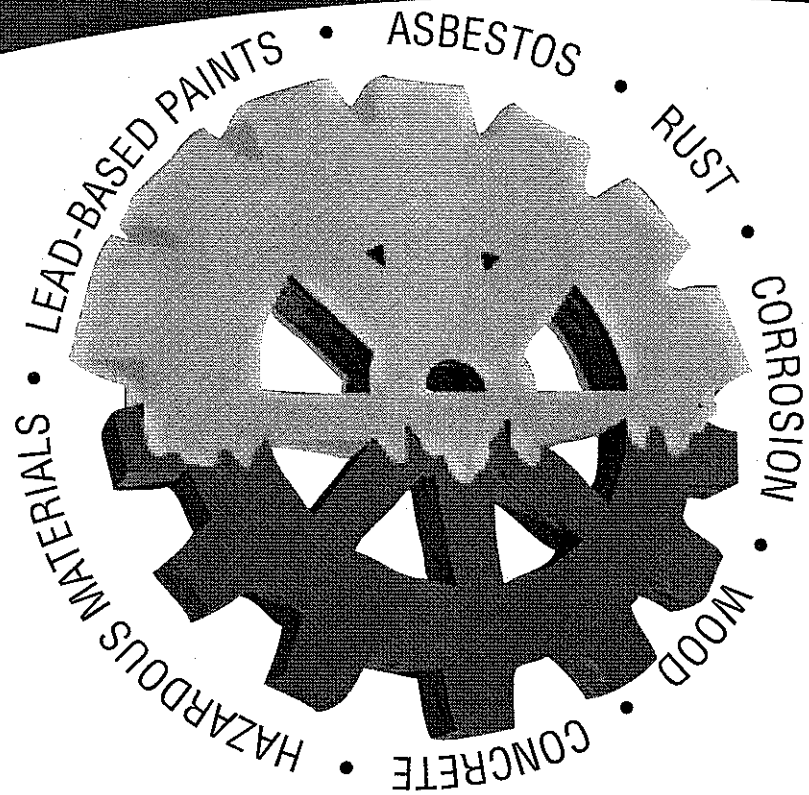
The concrete supports and standards are affected by **Delayed Ettringite Formation**. After only 6 months of aging in heat and weathering, there is a form of internal sulfate attack. The sulfate concentration in the pore liquid is high for an unusually long period of time in the hardened concrete. Eventually, the sulfate reacts with calcium-and aluminium-containing phases of the cement paste and the cement paste expands. Due to this expansion empty cracks (gaps) are formed around aggregates. The cracks may remain empty or later be partly or even completely filled with ettringite. When the ettringite fills and expands, this further cracks and opens voids in the concrete that weakens the structural strength of the concrete.

RUST GRIP strengthens the structural strength by penetrating deep into the pores, cracks and voids to fill and then seal these areas. Only after 3 weeks of cure (see ASTM E 1795 pg 5 of testing) the RUST GRIP becomes nearly 7000 psi surface tensile strength. After 4 months, it can reach up to 12,000 psi which acts to weld together the voids and cracks. This reaction forms a solid binder for all cracks and voids to solidify and make the surface stronger than when first built (as in irregular pours for concrete as described above and metal voids). This is how RUST GRIP strengthens a surface to more than it's original tensile strength.

DOT of Georgia found this to be the purpose of the RUST GRIP when applied over a bridge that strengthened to double it's original strength after being coated over both the concrete supports and metal structure. To back up this finding, Parsons Brinckerhoff Contructions Services, the leading bridge design and building group in the US, called and serveyed the engineers with the DOT and found the results were correct. Over 100 years old, Parsons Brinckerhoff designed New York City's first subway line and stretched a railroad across China. As mentioned, Parsons Brinckerhoff has grown into one of the world's leading planning, engineering, program and construction management, and operations and maintenance firms providing infrastructure on six continents. Having their engineers prove the facts of the DOT vertifed the results obtained by using the RUST GRIP to strengthen the bridge. (pbworld.com).

J.E. Pritchett
President
Superior Products International II, Inc.
Manufacturer of Superior Products

RUST GRIP®



ONE-COAT ENCAPSULATION

PATENTED METHOD OF ABATING BIO-HAZARDOUS MATERIALS

NO WHITE-SAND BLASTING NEEDED

- **VTEC LABS certified penetration of 18 layers of existing lead-based paint**
- **Endures 29,700 rub cycles without exposing existing lead-based paint**
- **Passed 2000 hour salt spray test • Test "5" on Flame Spread (0-25 Class A)**
- **Meets EPA Guidelines • USDA approved for use on surface areas in and around food preparation**
- **15 year history of performance on oil rigs and pipe lines • FM, ABS, IMO and Coast Guard approved**

SUPERIOR PRODUCTS
INTERNATIONAL II, INC.®

The right coating for ultimate protection.

RUST GRIP offers a simple solution for true encapsulation—a one-coat system that can be applied over a variety of surfaces that meets or exceeds stringent registrations, certifications and testing.

REDUCED SURFACE PREPARATION AND APPLICATION COSTS

- Requires only 1,500 to 3,500 psi power wash (with minimal hand or power tooling) to clean and prepare surface; no white metal or near white metal blast is required
- Can be applied over flash or surface rust without loss of adhesion or reduced performance; can be applied over existing paint (non-glossy, solidly-bonded)
- Can be re-applied or touched up with minimal surface preparation
- Has been applied directly over rusted surface and after 3 years, pull test of 580 PSI compared to 100 PSI before coated.

HIGH SURFACE TENSILE STRENGTH

- 6,780+ psi surface tensile strength after three weeks
- Penetrates deeply into pores of substrate and existing coating to "anchor into" and seal surface
- No other corrosion coatings have the surface tensile strength of RUST GRIP® at the recommended thickness of four (4) dry mils

APPLIED TO MANY SURFACES

RUST GRIP protects and seals new or rusted steel, aluminum, concrete, wood, fiberglass, traditional coatings and existing paint films including lead-based paint, asbestos, and other substrates. RUST GRIP can be applied directly to concrete.

ONE COAT SYSTEM

RUST GRIP is easy to apply using a brush, roller, or airless sprayer. RUST GRIP was designed as a one-coat system, but serves as a primer and/or topcoat.

RUST GRIP is a 60% less costly alternative to the traditional 3-part zinc rich primer-epoxy-urethane system being used over bridges and other steel structures.

RUST GRIP is a one-coat application using two passes before moving the set up.

COST EFFECTIVE

Using RUST GRIP replaces traditional 3-part system at a fraction of the time and cost.

3-part System vs. RUST GRIP

3-part System Steps

1. White Sandblast	$2.50/sqft
2. Primer	$0.30/sqft of product
3. Intermediate	$0.30/sqft of product
4. Top Coat	$0.30/sqft of product
5. 3 - Laborers	$0.50/labor = $1.50/sqft

Total $4.90/sqft.

RUST GRIP SYSTEM

1. Power Wash	$0.45/sqft
2. RUST GRIP application	$0.65/sqft
3. 1- Laborers	$0.50/labor = $0.50/sqft

Total $1.60/sqft.

Advantage RUST GRIP
67% Less Expensive

"Savings of $3.30/sqft"

LIMITED SURFACE PREP

RUST GRIP applies directly over existing, firmly bonded paint or rust without loss of performance.

3-part systems normally require a white metal blast (SSPC SP-5) or a near white blast (SSPC SP-10). Blasting is the greatest expense using the 3-part system. RUST GRIP will greatly reduce the over-all cost of a project.

WITHSTANDS EXPOSURE TO CAUSTIC ENVIRONMENTS

RUST GRIP has performed in the petrochemical environments for over 15 years.

It can be submerged in 100% Nitric Acid without any negative effects.

It can line gasoline or solvent storage tanks.

Designed to resist acids, salts, and caustics with no loss of integrity.

PATENTED ENCAPSULANT

- Encapsulates rust, lead-based paint, asbestos, and bio-hazardous materials. Patent #5,695,812
- Eliminates abatement of lead-based paint.

MOISTURE MEMBRANE

- Permanent, protective membrane that stops water penetration over metal, concrete, masonry, and wood surfaces (not for total immersion). Passed ASTM testing for Water-Barrier and Wind Driven Rain Testing.
- Prevents surface deterioration, contamination, and resists the formation of mold and mildew.

CLASS "A" FIRE RATING

Will help to decrease and not contribute to the spread of a fire.

- Tested "0" Flame Spread and "5" Smoke

ONE-PART COATING

- No pot life constraint; no two-part mixing
- UV controlled

USDA APPROVED

For use in and around food preparation areas.

HIGH SURFACE TENSILE STRENGTH

Achieves a surface tensile strength of 6780+ psi after 3 weeks cure time.

LONG-TERM DURABILITY—CHEMICAL AND ACID RESISTENT

- No loss in performance characteristics or durability over life span
- 15-20 year life expectancy in the harshest environments

REGISTRATIONS, CERTIFICATIONS, AND APPROVALS

USDA Approved
US Coast Guard Approval
ABS (American Bureau of Shipping) Approval
IMO (International Marine Organization) Approval
FM (Factory Mutual) Approval

Louisiana Department of Transportation
Approved for use on Qualified Products List
Passed 1500 hour Salt Fog Test

Mississippi Department of Transportation
Approved for use on Qualified Products List

Tennessee Department of Transportation
Acceptable for encapsulation of galvanized guardrails

University of Kentucky
Acceptable for encapsulation of steel bridges for Kentucky Department of Highways

Georgia Department of Transportation
Field tested by applying RUST GRIP directly over the steel structure and concrete support columns to fill and seal the voids and gaps in the surface tying the structure together.

The bridge when new was built and tested to a 10 ton load capacity. After years in service, it dropped to only a 3 ton capacity caused by deterioration. Surface and structural repairs were made and RUST GRIP was applied to the entire surface of the metal and concrete surfaces. Four months later, a new evaluation was made of the structural strength of the bridge, which was found to have a 21 ton load capacity.

Environmental Protection Agency (EPA)
Meets EPA Guidelines

Ecopetrol Oil Certification
Specifications into tanks, pipes, facilities, and equipment uses
Engineer – Henry Lizcano Paez, Ingerioro do Corrosion

ASTM TEST LISTINGS:

B 117 – 450 Hour Salt Spray (fog)
RUST GRIP over black steel

C 411 – 96 Hour Hot Surface Performance
Tested at 147 C / 297 F for 96 Hours
No ignition, smoking, smoldering, or color change

D 257-99 D-C Resistance of Insulating Materials
Volume Resistance – Average - 2.683E+12
Volume Resistivity – Average – 5.263E+15

D 1308 Chemical Resistance

D 1653 Water Vapor Transmission

D 2794 Direct Impact Resistance

D 3273 Mildew Resistance

D 3359 – Adhesion and Penetration
Penetrates 18 layers of lead-based paint.
Rated 5A = Excellent

D 4060 – 1000 Cycles Tabor Abrasion
1000 Cycles with a CS 17 Wheel, 1000 gram load
18 milligrams loss per 1000 cycles, rated Excellent

D 4541 – Pull-off Strength of Coatings Using Portable Adhesion Testers
Average of 10 pull tests was 1467 psi.

D 6904 Resistance to Wind-Driven Rain for Exterior Coatings Applied to Masonry
Test Procedure: Testing was conducted in accordance with ASTM D 6904 except no block filler was used. The coating was applied in two coats. Each coat was approximately 4 mils wet film thickness with a minute dry between coats. The coating was allowed to cure for twenty-one days before testing was conducted.
Conclusion: The coating conforms to the requirements of the superseded Federal Specification TT-C-555B, as tested.

G 85 Prohesion
- 1500 Hours Salt Fog
- Rated 9 (out of possible 10 rating)
- State of Louisiana Department of Transportation

D 7088 Resistance to Hydrostatic Pressure for Coatings Used in Below Grade Applications Applied to Masonry
Objective: To evaluate the hydrostatic pressure resistance of a submitted water-proof coating.
Procedure: RUST GRIP applied to exterior of 8" masonry cube having 1" thick walls. Allowed to dry for 21 days. Testing was conducted at 4 psi. as outlined in the method.
Conclusion: The sample of RUST GRIP does not exhibit any water droplets or blistering when tested. The sample conforms to the requirements as stated in the Federal Specification TT-P-1411A Paint, Copolymer-Resin, Cementitious for Waterproofing and Masonry Walls.

Test	Requirement	Results
Blistering	None	None
Adhesion Loss	None	None
Softening	None	None
Discoloration	None	None
Water Droplets	droplet size 6 maximum	Passed

E 84 Surface Burn - "5" Spread

E 108-00 Spread of Flame on Pitched Roofs
- Class "A" Non-Combustible

E 903-96 Spectral Reflectance
- Average of 3 Tests = 44.6 Solar Reflectance

E 1795 – Encapsulation of Leaded Paint
- Direct Impact Resistance (ASTM D 2794)
- Adhesion (ASTM D 3359, D 4541)
- Dry Abrasion Resistance (ASTM D 4060)
- Water Vapor Transmission (ASTM D 1653)
- Flexibility – Mandrel Bend (ASTM D 522)
- Distilled Water Resistance – Immersion 24 Hours
- .010" Tinplated Steel (ASTM D 1308, D 3359)
- Steel or Aluminum (ASTM D 1308, D 4541)
- Chemical Resistance – 24 Hours-12 Reagents
- Spot Test on Glass (ASTM D 1308)
- Surface Burning Characteristics (E 84)
- Volatile Organic Content (VOC)
- (ASTM D 2369, D 4017, D 3960, D 1475)
- Weathering (1000 Hours)
- Aging (Interior and Exterior)
- Scrub Resistance (ASTM D 2486)
- Black Plastic – No Break through after 12 cycles
- Mildew Resistance (ASTM D 3273, 3274)
- Tensile Properties (6780 psi. after 3 weeks)
- Visco-Elastic Properties (ASTM D 2370)

OTHER LABORATORY TESTING:

Window Cycling Test – VTEC Laboratories – New York

Preparation: RUST GRIP was used to encapsulate a double-hung window removed because of having LBP (lead-based paint.) A machine was devised to use an electronic opening and closing rotary wheel with a digital counter specifically for this test. This allowed the window to be opened and closed at two second intervals.
Procedure: The test was designed to measure friction wear of a coating over LBP to find the failure point of friction wear that would expose the hazardous LBP. The tested window completed 20,000 cycles of opening and closing, which is equal to the opening and closing of a window once a day, every day for 54 years.
Conclusion: A visual inspection showed no wear or friction burn through, and no LBP exposed after 20,000 cycles. Wiping test with a sterile gauze pad proved no LBP.

Testing for ABS (American Bureau of Shipping), IMO (International Maritime Organization and US Coast Guard Approval:
IMO A. 653 (16) Flame Spread
MSC 41 Smoke Toxicity
ASTM B 117, D 1653, D 522, D 3359, & E 1795

China Center for Technical Testing:
National Measurement M0729
GB/T 1771-91
Resistance to Salt Fog (2000 hours)
GB/T 1866-88
Manuel Aging (2000 hours)
GB/T 10834-88
Resistance to Salt Water (1000 hours)
GB/T 5219-85
Adhesion (pulling apart method)
GB/T 1733-93
8 Hours Boiling Water

Thermal Analysis:
NETZ SCH STA 409 PC/PG DSC Rating: resin burnout, 303c, 404c and 521c

CHARACTERISTICS:

- Silver-Gray in color
- Moisture Cure Polyurethane
- Cures to 6780+ psi tensile strength
- Recoat window: 1 hour to 24 hours without profiling surface (according to current temperature and humidity)
- Impact Resistant
- Can be used to encapsulate asbestos and lead-based paint.
- Aluminum metallic base
- Permeability: 0.22 perms
- Dries to touch in 2 hours at 70° F
- 50% solids by weight
- 51.37 solids by volume
- VOC Level is 414 grams per liter
- Very good chemical resistance, but not recommended for use with ammonia
- UV controlled and is not affected by most caustic environments.
- Currently used on bridges and guardrails to encapsulate lead-based paint and galvanized metal.
- Can withstand electrical currents without losing adhesion. (important for underground pipes and tanks)
- Shelf Life: Up to 3 years (unopened) under appropriate storage conditions.
- 15-20 years life expectancy when properly applied.

LIMITATIONS:

Silver-Gray in color. It cannot be tinted due to the aluminum pigments which gives it it's strength and durability. It can be top-coated in the color desired anywhere between 1 to 24 hours (according to current temperature and humidity).

Surfaces must be totally dry. It cannot be used over wet or moist surfaces.

Not for use in situations of constant underwater immersion. It can be used as a primer for epoxies and other coatings made for total immersion.

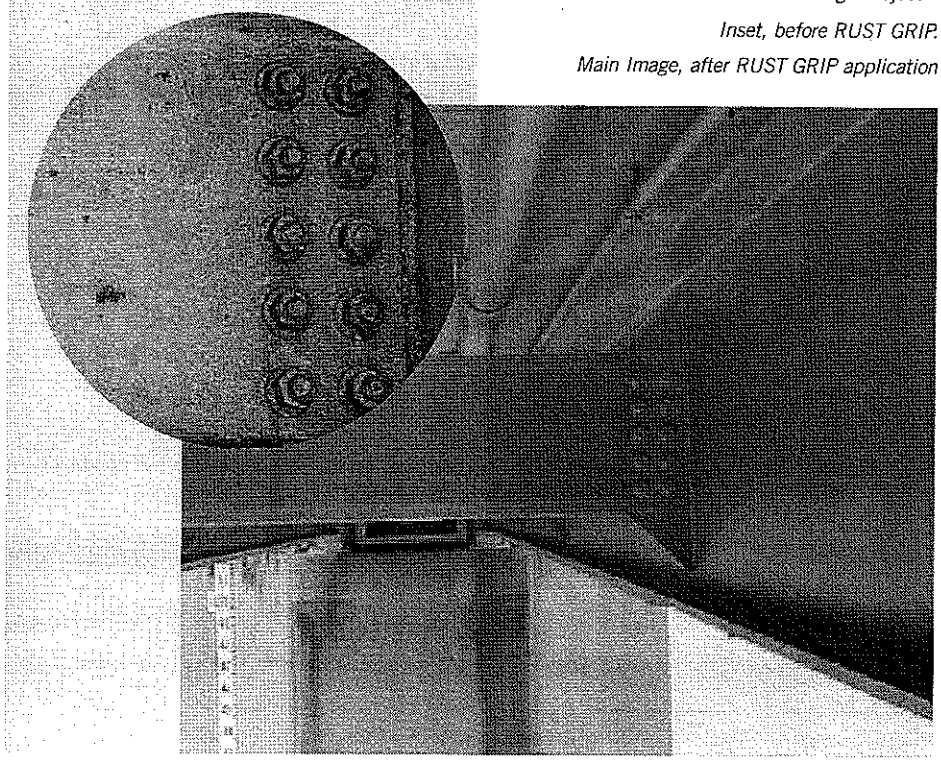
Not recommended for use around high ammonia levels. It can be used as a primer coat for other coatings.

Not for use on food preparation surfaces that are in direct contact with foodstuffs.

RUST GRIP is USDA approved for use around foods, food preparation and facilities.

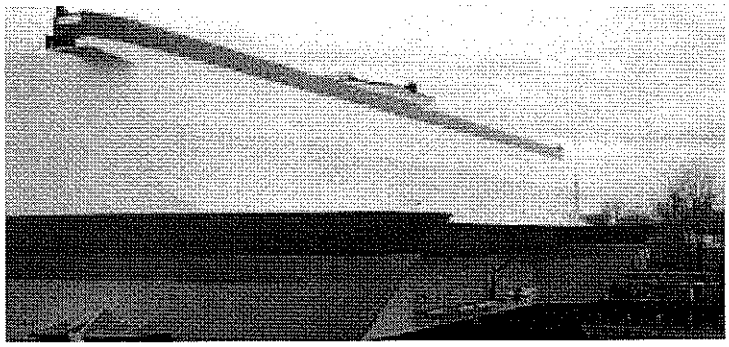
RUST GRIP cannot be applied over pack-rust or scale. This must be removed as it tends to hold and hide moisture. Tight surface rust, up to 1/8th inch, that is totally dry can be coated with no problems.

Below: Danville Bridge Project –
Inset, before RUST GRIP.
Main Image, after RUST GRIP application



RUST GRIP®
FIELD APPLICATIONS

Michigan City, Indiana – Blue Chip Casino Boat
Largest Casino Boat Built in US
$163 Million Dollars in cost of constructing



Bare, rusted, 1 year old steel used for Casino Boat before coating. RUST GRIP was applied directly over all existing rusted steel before any other coatings were applied.

A power-wash was done to remove dirt and residue, then RUST GRIP was applied as a primer over the entire interior and exterior dry surface.

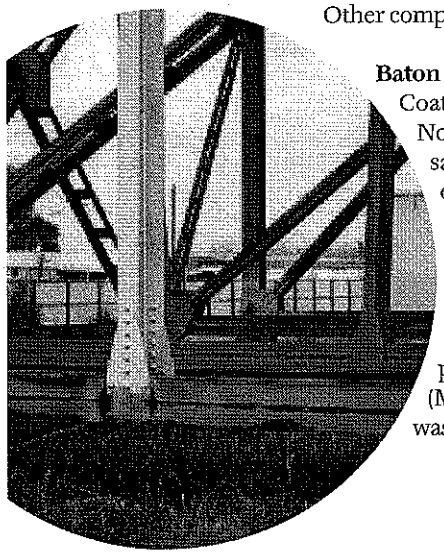
Coating of the Casino Boat was completed using RUST GRIP over its entirety, then using Super Therm, Moist Metal Grip, Lining Kote, and Enamo Grip, as top coatings in specific areas.

No white metal blast was required before coating. Problems of corrosion and insulation were both solved by using Superior Products International II, Inc. coatings.

Vinton, Louisiana Bridge
Coated with RUST GRIP in April, 1996 for testing in a salt air, warm, highly humid environment, along with other competitor's products.

RUST GRIP appears and performs the same today (March 2007) as when the bridge was originally coated.

Other competing corrosion coatings failed.



Baton Rouge, Louisiana Bridge
Coated with RUST GRIP in November, 2003 for testing in a salt air, warm, highly humid environment.

RUST GRIP was applied with both brush and roller over the rusted surface with no surface preparation.

RUST GRIP appears and performs the same today (March 2007) as when the bridge was originally coated.

Miami, Florida Bridge
Coated in 2001, RUST GRIP was applied by brush and roller over the rusted surface of the bridge with no surface preparation except that pack-rust and scale was removed.

RUST GRIP was applied to all metal and concrete in this application.

Caustic and Corrosion Tank
Preparation of steel substrate by high pressure water blast and Xylene wipe to ensure a clean, dry, sound substrate ready to apply RUST GRIP.

RUST GRIP was applied as both a primer (base-coat) and a top coat on the inside and outside of the tank for long lasting protection.

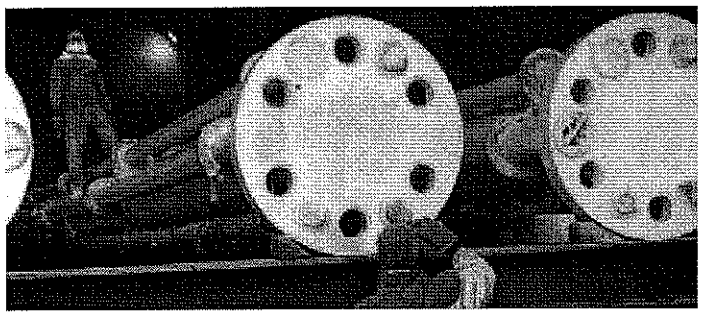
Panama Canal – Pedro Miguel Locks
Coated in 1998, RUST GRIP was applied to the rusted upper portion of the lock gates of the Canal in Gatun. The poppet valves and various related components were coated as well.

In 1999, RUST GRIP was applied to the new valves and lock gates for protection.

As of February of 2007, all surfaces coated with RUST GRIP are still in good condition and no corrosion is occurring.

Morrow, Georgia – Cobb County Bridge
A county bridge was downgraded from a 10 ton load capacity to a 3 ton load capacity, due to rust and deterioration of the substructure. After replacing some of the original deteriorated substructure, the entire steel structure and concrete was coated with RUST GRIP. The State's re-certification process upgraded the bridge to a 21 ton load capacity. The bridge superintendent stated that much of the increase in load capacity was due to RUST GRIP strengthening both the concrete and steel.

Nigeria Offshore Applications



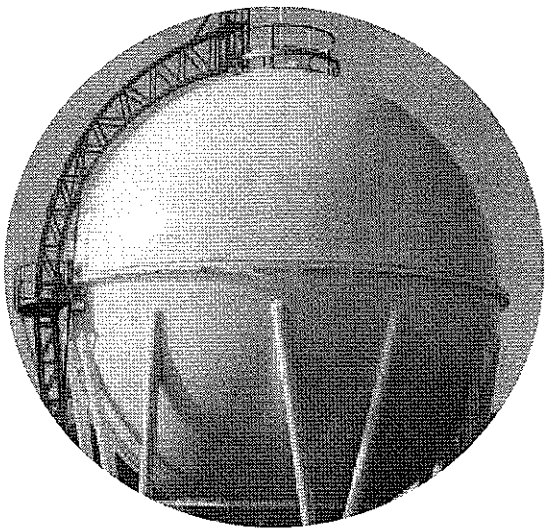
This project involved pipes used for offshore oil drilling operations, subject to cycles of immersion underwater and storage on deck.

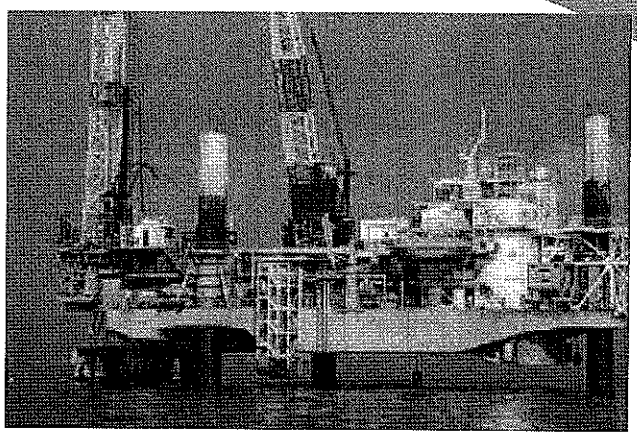
The environment of the application which involved years of exposure to saltwater, salt spray, sun and abrasion and included temperatures ranging from 40° to 250° F, caused excessive deterioration of the original coating, which had been applied four years prior.

Steps of the application included sand blasting to SSPC-SP6, surface cleaning and chloride removal, two coats of RUST GRIP, two coats of MOIST METAL GRIP, and two coats of ENAMO GRIP white.

INTERNATIONAL AREAS OF BUSINESS ACTIVITY

Asia: Japan • China • Taiwan • Korea • Malaysia • Singapore • Indonesia • Russia • Kazakhstan
Europe: Italy • Germany • France • Belgium • Netherlands • Greece • Spain
Middle East: Saudi Arabia • UAE • India • Turkey
South America: Venezuela • Colombia • Brazil • Argentina
Central America: Mexico • Panama
Africa: Egypt • Nigeria
Australia • New Zealand • Canada • U.S.A.



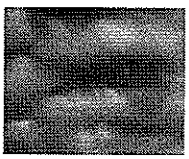


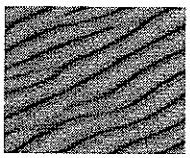
RUST GRIP® WILL COVER ANY RUSTED AREA TO STOP AND CONTROL CORROSION

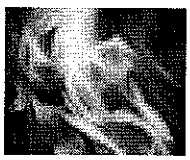
This one-part polyurethane coating encapsulates and holds a patented process to stop the progression of rust, corrosion, lead-based paints, asbestos and other bio-hazardous materials. RUST GRIP® may be applied to metal, concrete, or wood and is extrememly easy to use, fast and labor saving.

RUST GRIP® is tested to penetrate up to 18 coats of existing lead-based paint.

RUST GRIP IS EASY TO USE, FAST AND LABOR SAVING—ELIMINATING SANDBLAST PREPARATION







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Accredited by National Voluntary Laboratory Accreditation Program - Lab Code 100252
Accepted by Canadian General Standards Board - No. 76005 - ISO/IEC 25 Approved

May 12, 2010

Superior Products International II, Inc.
10835 W. 78th Street
Shawnee, KS 66214

Att: Mr. Craig R. Smith
Technical Director

Re: DL–15881C – Interim Report 9
Via FAX (913) 962-6767

OBJECTIVE

To test a coating for compliance to the salt spray requirements as outlined in the Florida Department of Transportation specification.

PRODUCT TESTED

Coated panels were submitted by Superior Products II, Inc. and identified as:

Rust Grip NS 1, 6-mils through ***Rust Grip NS 3, 6-mils***

TEST PROCEDURE

The coated panels were exposed in a Salt Fog Chamber maintained in accordance with ASTM B 117, for 10,000 hours. The panels were evaluated periodically for overall blistering in accordance with ASTM D 714 and rust staining in accordance with ASTM D 610.

TEST RESULTS

The test results can be found in the Appendix.

ASTM D 714, Degree of Blistering

Blister Size		Frequency of Occurrence	
10	- None	F	- Few
8	- Pinpoint size	M	- Medium
6	- 1/16-inch diameter approx.	MD	- Medium Dense
4	- 1/8-inch diameter approx.	D	- Dense
2	- ¼-inch diameter approx.		

This report may contain test data obtained from test methods not covered by NVLAP accreditation. See reverse side for those test methods which are covered
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INTERIM TEST RESULTS (cont.)

ASTM D 610, Degree of Rusting

Rust Grade	Description
10	No rusting
9	Minute rusting, less than 0.03% of surface area
8	Few isolated areas, less than 0.1% of surface area
6	Extensive rust areas, less than 1% of surface area
4	Rusting to the extent of 10% of surface area
2	Approximately 33% of surface rusted
0	Approximately 100% of surface rusted

DL Labs, Inc.

Mario Lazaro, Jr.
Assistant Technical Director

APPENDIX

TEST RESULTS

ASTM B 117

The three coated panels of ***Rust Grip NS, 6-mils*** exhibit the following:

	Blistering	Rust Staining
250 Hours Exposure	10	10
500 Hours Exposure	10	10
750 Hours Exposure	10	10
1,000 Hours Exposure	10	10
1,250 Hours Exposure	10	10
1,500 Hours Exposure	10	10
1,750 Hours Exposure	10	10
2,000 Hours Exposure	10	10
2,250 Hours Exposure	10	10
2,500 Hours Exposure	10	10
2,750 Hours Exposure	10	10
3,000 Hours Exposure	10	10
3,250 Hours Exposure	10	10
3,500 Hours Exposure	10	10
3.750 Hours Exposure	10	10
4,000 Hours Exposure	10	10
4,250 Hours Exposure	10	10
4,500 Hours Exposure	10	10
4.750 Hours Exposure	10	10
5,000 Hours Exposure	10	10
5,250 Hours Exposure	10	10
5,500 Hours Exposure	10	10
5.750 Hours Exposure	10	10
6,000 Hours Exposure	10	10
6,250 Hours Exposure	10	10
6,500 Hours Exposure	10	10
6.750 Hours Exposure	10	10
7,000 Hours Exposure	10	10
7,250 Hours Exposure	10	10
7,500 Hours Exposure	10	10
7,750 Hours Exposure	10	10
8,000 Hours Exposure	10	10
9,000 Hours Exposure	10	10

10,000 Hours Exposure **In progress**