

Procurement Specification Cover Sheet


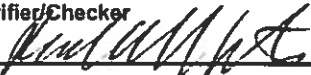


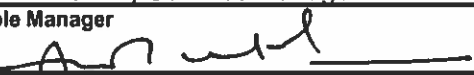


1. Title Vault 4 Clean Cap Grout		
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1.0 SCOPE

1.1 General Description

1.1.1 Furnishing and Delivery of Clean Cap Grout

1.1.1.1 This specification defines the requirements for the preparation and delivery of three alternative mix compositions (see Attachment 5.5). Only one of the mixes will be selected for delivery. Vault 4 Clean Cap Mixes 1 and 2 utilize water as the liquid component whereas Vault 4 Clean Cap Mix 3 utilizes a 6 wt% sodium hydroxide (NaOH) solution in place of water. Furnish and deliver production Clean Cap Grout in accordance with the requirements provided in this document. Perform trial batching as required to demonstrate capacity to produce production grout to meet specification requirements.

1.1.2 Work Included

1.1.2.1 Qualification, operation and maintenance of a Batch Plant and the necessary equipment for batching, mixing and delivery.

1.1.2.2 Initial qualification of Clean Cap Grout shall utilize the supplier's source materials and Batch Plant. Provide sufficient trial batching at the Batch Plant utilizing material components which represent the actual material components to be used for Clean Cap Grout production.

1.1.2.3 Provide material components that conform to the requirements of this document.

1.1.2.4 Provide sufficient facilities and equipment to store and protect the material components.

1.1.2.5 Grout Mix Re-qualification if required due to changes resulting from decisions or actions on the part of the Clean Cap Grout supplier.

1.1.2.6 Provide qualified testing laboratory services if required for the qualification, operation and maintenance of the Batch Plant.

1.1.3 Related Work Not Included

1.1.3.1 Forming, placing, consolidating, finishing, curing or protection at the placement site.

1.1.3.2 Inspection and testing of the trial batches and grout initial qualification testing.

1.1.3.3 Clean Cap Grout production grout testing.

1.1.3.4 Testing for Clean Cap Grout mix re-qualification if required due to changes by Savannah River Remediation, LLC (SRR).

1.1.3.5 Grout trial batching testing, grout mix initial qualification testing, and grout mix re-qualification testing, will be performed at the production facility. Production grout testing will be performed at the point of delivery.

2.0 REFERENCES

2.1 Definitions

2.1.1 Acronyms

CY	Cubic Yard
EDR	Engineering Document Requirements
QVDR	Quality Verification Document Requirements
SDDR	Supplier Deviation Disposition Request

SRR Savannah River Remediation, LLC
SRS Savannah River Site

2.1.2 Terms

- 2.1.2.1 Deviation – any departure from the requirements contained in the purchase order and specification which the supplier proposes to incorporate if approved by SRR.
- 2.1.2.2 Nonconformance – a deficiency in component characteristic, as defined in SRR approved drawings and documents.
- 2.1.2.3 Point of Placement - is the end of the pump hose or tremie, i.e. the final “as-cast” grout location inside the vault.
- 2.1.2.4 Point of Delivery - is the end of the chute on the delivery truck at the SRS Vault 4.
- 2.1.2.5 Repair – restoring a nonconformance characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired even though that item still does not conform to the original requirement.
- 2.1.2.6 Rework – the process by which a nonconforming item is made to conform to original requirements by completion or correction.
- 2.1.2.7 Use-as-is – disposition permitted for a nonconforming item when it can be established that the item is satisfactory for its intended use.

2.2 Codes / Standards / Orders / Regulations

2.2.1 General

- 2.2.1.1 Materials, production, examination and testing shall be in accordance with SRR accepted national codes and standards editions as invoked and supplemented by this specification.
- 2.2.1.2 Obtain SRR acceptance via a Supplier Deviation Disposition Request (SDDR) for editions and/or addenda of Codes / Standards not specifically authorized by this specification prior to use.

2.2.2 Required Codes / Standards

- 2.2.2.1 American Concrete Institute (ACI)
 - A. 211.1-91 (R2009), Standard Practice for Selecting Proportions for Normal, Heavyweight and Mass Concrete
 - B. 301-10, Specifications for Structural Concrete
 - C. 304.2R-96 (R2008), Placing Concrete by Pumping Methods
 - D. 305R-10, Guide to Hot Weather Concreting
 - E. 306R-10, Guide to Cold Weather Concreting
- 2.2.2.2 American Society for Testing and Materials (ASTM)
 - A. C 94/C 94M-14, Standard Specification for Ready-Mixed Concrete
 - B. C 150/C 150M-12, Standard Specification for Portland Cement
 - C. C 172/C 172M-10, Standard Practice for Sampling Freshly Mixed Concrete
 - D. C 618-12a, Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
 - E. C 989/C989M-13, Standard Specification for Slag Cement for Use in Concrete and Mortars
 - F. C 1611/C 1611M-09b, Standard Test Method for Slump Flow of Self-Consolidating Concrete

- G. E 329-13b, Standard Specification for Agencies Engaged in Construction Inspection, Testing or Special Inspection
- H. C 1077-14, Standard Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
- 2.2.2.3 National Ready-Mixed Concrete Association (NRMCA)
 - A. QC3, 2011, QC Manual Section 3, "Plant Certification Check List", Eleventh Revision
- 2.2.2.4 American Society of Mechanical Engineers (ASME)
 - A. NQA-1, 2008 with 2009 Addenda, Quality Assurance Requirements of Nuclear Facility Applications
- 2.2.3 Orders / Regulations
 - 2.2.3.1 Occupational Safety and Health Administration (OSHA)
 - A. 29 CFR 1926, 2012, Safety and Health Regulations for Construction
- 2.3 Applicable Documents**
 - 2.3.1 Form OSR 45-4, (SDDR)
- 3.0 REQUIREMENTS**
 - 3.1 Performance Requirements**
 - 3.1.1 Production Facility
 - 3.1.1.1 Production Facility, mixers, and agitators: Conform to ASTM C 94/C 94M.
 - 3.1.1.2 Production Facility: Meet the NRMCA QC3, Plant Certification Check List (NRMCA Certification) requirements for storage and handling, batching, mixing and transporting equipment.
 - A. Maintain NRMCA Certification through completion of the contract.
 - B. Submit NRMCA Certification.
 - 3.1.1.3 Measuring Material Components and Batching: In accordance with ASTM C 94/C 94M unless noted otherwise in this document.
 - 3.1.1.4 Provide grout with a temperature range between fifty (50) and ninety (90) degrees Fahrenheit at the point of delivery.
 - A. Use ACI 306R during cold weather.
 - B. Use ACI 305R during hot weather.
 - C. Determine if ice is needed in order to meet the criteria of hot weather, batching and placement.
 - D. Contact SRR for assistance with the determination of whether ice is necessary.
 - 3.1.2 Batch Ticket
 - 3.1.2.1 Provide batch tickets in accordance with Section 14.1 of ASTM C 94/C 94M.
 - A. Include the additional information of Section 14.2 of ASTM C 94/C 94M except that the material components require traceability to the material components previously accepted by SRR by providing the brand, type, class, grade or source of the material components or by providing the Supplier's material identification numbers for the material components.
 - 3.1.2.2 Designate the start time for mixing when water (or NaOH solution) is introduced in the drum for a stationary mixer.

- A. Designate the revolutions on the truck drum revolution counter at the end of discharge from the stationary mixer into the truck.
- 3.1.2.3 If truck mixing is utilized, designate the start time for mixing as the time of the first addition of water (or NaOH solution) to the dry material components.
 - A. Designate the revolutions on the truck drum revolution counter at the first addition of water (or NaOH solution) to the dry material components.
- 3.1.2.4 Designate the amount of water (or NaOH solution) in gallons, not exceeding the water (or NaOH solution)-to-cementitious material ratio, available for addition by the direction of SRR at the point of delivery.
- 3.1.2.5 The grout supplier plant representative shall initial the batch ticket.

3.1.3 Additional Items

- 3.1.3.1 Establish a washing and cleaning area at the Batch Plant in order to wash out Supplier operated truck chutes and mixer drums.
 - A. Supplier shall wash truck chutes in a SRR designated area at the point of delivery.
- 3.1.3.2 Provide a communication system between the Batch Plant and the point of delivery.

3.2 Design Requirements

3.2.1 Production Mixes

3.2.1.1 General

- A. Initial mix designs are described in Attachment 5.5.
- B. Provide grout utilizing the local material components at the Batch Plant.
- C. Do not make adjustments to the grout mixes without prior approval of SRR.
 - 1. Re-qualify grout mixes if adjustments are required.
 - 2. Propose Revised Mix Designs via SDDR.
- D. Do not change the material components without prior approval of SRR.
 - 1. Re-qualify grout mixes if changes in material components are required.
 - 2. Propose Material Component Changes via SDDR.
- E. Do not change the source of material components without prior approval of SRR.
 - 1. Re-qualify grout mixes if changes are required.
 - 2. Propose Material Component Source Changes via SDDR.

3.2.1.2 Clean Cap Grout Mix

- A. Clean Cap Grout Trial Batching and Initial Qualification Requirements
 - 1. Complete sufficient trial batching to demonstrate capability to provide selected Clean Cap Grout mix to meet specification requirements. Mix uniformity to comply with ASTM C 94/C 94M. Grout mix testing by SRR.
 - 2. Materials used in trial batching shall be representative of the materials to be used to meet Clean Cap Grout production requirements. Submit Trial Batching Grout Mix Component documentation concurrent with performing grout mix trial batching and initial qualification.
 - 3. The minimum trial batch size shall be 3 cubic yard (CY).
 - 4. The trial batching shall demonstrate the ability to meet the minimum slump flow requirement specified in Attachment 5.5. (Ref. ASTM C1611)
- B. Re-qualification (If required due to changes by Supplier)

1. Design, proportion, and test in accordance with ACI 211.1, ACI 301 and ACI 304.2R. Grout mix testing by Supplier.
 2. Submit Re-Qualification Test Results for Grout Mix and Components
- C The Supplier shall not produce any grout batch at the Supplier's Batch Plant with an amount of water (or NaOH solution) which exceeds the maximum amount allowed per grout batch. The maximum amount of water (or NaOH solution) in any grout batch shall not exceed the amount shown in the approved grout mix; the amount of water (or NaOH solution) is limited as the maximum water (or NaOH solution) to cementitious materials ratio. For Water based mixes, the supplier may use less than the maximum amount of water to produce any grout batch, and then compute the amount of any additional water which could be added later without exceeding the maximum amount of water allowed per grout batch. This additional amount of water which could be added later to the grout batch without exceeding the maximum amount of water allowed per grout batch will be defined as the "hold water amount", and will be stated on the batch ticket.
1. Additional water, up to the "hold water amount" stated on the batch ticket, may be added by the direction of SRR at the point of delivery.

3.2.2 Production Mix Identifiers

3.2.2.1 Specified on Attachment 5.5.

3.2.2.2 Ensure all documentation identifies the production mix identifiers assigned to the Batch Plant.

3.2.3 Material Components

3.2.3.1 Water and Ice

- A. Provide water and ice that conforms to ASTM C 94/C 94M.
- B. Do not use wash water for batching unless directed by SRR.

3.2.3.2 Portland Cement

- A. Provide Portland cement that meets the requirements of ASTM C 150, Type II.
- B. The Portland cement shall be ground with proper amount of gypsum and diethylene glycol grinding aid.
- C. For each shipment of Portland cement used, obtain and retain a Manufacturer's Certification Report on chemical composition requirements and physical requirements that confirms compliance with ASTM C 150, and on grinding agents used in the manufacturing process.
- D. Submit Portland Cement Certification.

3.2.3.3 Slag Cement

- A. Provide a Slag Cement that meets the requirements of ASTM C 989, Grade 100.
- B. The Slag cement shall be ground with water and 50-50 amine acetate /diethylene glycol mixture, with the amine being triethanolamine reacted with acetic acid.
- C. For each shipment of Slag Cement used, obtain and retain a Manufacturer's Certification Report on chemical composition requirements and physical requirements that confirms compliance with ASTM C 989, Grade 100, and on grinding agents used in the manufacturing process.
 1. Submit Slag Cement Certification.
- D. For the first shipment of Slag Cement from a manufacturer, obtain and retain documentation, such as laboratory test results, showing conformance for the reactivity with cement to ASTM C 989 for Grade 100 Slag Cement.

1. Submit Slag Cement Documentation.

3.2.3.4 Sodium Hydroxide Solution (NaOH) for Mix Vault 4 Clean Cap 3.

- A. Provide a 6 wt% NaOH solution prepared by diluting 50 wt% membrane grade NaOH with potable water. 50 wt% membrane grade NaOH shall conform to the following compositional requirements:

Component	Specification
Sodium Hydroxide (NaOH)	49.5 – 51.00 wt%
Sodium Carbonate (Na ₂ CO ₃)	≤ 0.1 wt%
Sodium Chloride (NaCl)	≤ 100 ppm
Sodium Chlorate (NaClO ₃)	≤ 50 ppm
Sodium Sulfate (Na ₂ SO ₄)	≤ 50 ppm
Iron (Fe)	≤ 3.0 ppm

- B. For each shipment of NaOH solution, obtain and retain documentation, such as laboratory test results, showing conformance to the chemical requirements and verification that the solution is 6wt%.

1. Submit NaOH solution documentation.

3.2.3.5 Fly Ash

- A. Provide a Thermally Beneficiated Fly Ash that meets the chemical and physical requirements of ASTM C 618, Class F.
- B. Thermally Beneficiated Process Requirements - Acceptable thermally beneficiated fly ash processes are Carbon Burn-Out (CBO) and Staged Turbulent Air Reactor (STAR). Other processes may be acceptable, but will require evaluation and approval by SRR. The removal of the ammonia and reduction in carbon content are key aspects of the process. Additives may not be added to the thermally beneficiated fly ash.
- C. For each shipment of fly ash used, obtain and retain documentation, such as laboratory test results, showing conformance to the chemical requirements and physical requirements of ASTM C 618 for the Class F fly ash.
 1. Documentation shall also show the loss on ignition for the fly ash and the Ammonia content.
 2. Submit Standard Fly Ash Documentation.
- D. For the first shipment of fly ash from a manufacturer, obtain and retain documentation, such as laboratory test results, showing conformance to the reactivity with cement alkalis of the supplementary optional physical requirements of ASTM C 618 for the fly ash.
 1. Previous laboratory testing, field performance records or equivalent documentation are acceptable.
 2. Submit Initial Fly Ash Documentation.

3.3 Service Conditions

- 3.3.1 See contract documents.

3.4 Quality Requirements

3.4.1 SRR Review

- 3.4.1.1 SRR reserves the right to review aspects of the production, examination and testing to the extent necessary to ensure compliance to this specification and code requirements.
- 3.4.1.2 Review includes the right to access the Supplier's facilities, including sub-tier subcontractors, vendors, and suppliers, for the purpose of review, audit, surveillance, and witnessing of production, examination and testing activities.
- 3.4.1.3 Technical and quality changes to the subcontract are only valid and executable in written form as defined in the subcontract documents, including this specification.

3.4.2 Quality Assurance Program

- 3.4.2.1 Work performed in the execution of this specification shall be in accordance with an SRR approved Supplier's Quality Assurance Program that complies with the requirements defined in Attachment 5.4.
- 3.4.2.2 Submit the Supplier's Quality Assurance Program Manual to SRR with the proposal.
 - A. Include Production Facility NRMCA Certification as defined in Section 3.1.1.2.
- 3.4.2.3 SRR review and acceptance of the Supplier's Quality Assurance Program Manual is required prior to award of the contract.
- 3.4.2.4 Subsequent revisions to the Supplier's Quality Assurance Program Manual shall be reviewed and accepted by SRR prior to its use in the execution of this specification.
- 3.4.2.5 When the use of sub tier supplier(s) is deemed necessary, the Supplier is responsible to flow down those Technical and Quality requirements deemed applicable for the activities within its defined scope of work, in accordance with referenced Codes, Standards, Material Specifications, or other requirements identified in this specification and the procurement documents included with the Purchase Order/Subcontract package.
 - A. The flow down of requirements encompasses verification that the sub tier supplier has been appropriately qualified for performance of activities complying with this procurement.
 - B. The Supplier shall maintain objective evidence of the successful flow down and provide such evidence to SRR upon request.
 - C. The Supplier is further more responsible to flow down all commercial Terms and Conditions, including articles incorporated by reference, to all sub tier suppliers.
 - D. This flow down is also required at all levels if the sub tier supplier to the prime supplier deems it necessary to further subcontract its parts of this SRR subcontract.

3.4.3 Supplier Records

- 3.4.3.1 Retain the following documents and records generated in association with this specification.
 - A. Contract documents, including this specification and associated SDDR's.
 - B. Engineering and Quality documentation submittals.
 - C. Documents identified in this specification as retained records.
 - D. Any document generated in association with this specification (e.g. procedures, reports, certifications, qualifications, letters, etc.) not required as a submittal.
- 3.4.3.2 Provide retained records to SRR monthly during production.

- 3.4.3.3 Retain records for a minimum of 1 year beyond the closure of the subcontract.
 - A. Dispose of retained records after the retention period.
 - B. SRR shall be notified no less than 90 days prior to the end of the retention period.

3.4.4 Testing Laboratories

- 3.4.4.1 Procure the services of a testing laboratory, which conforms to ASTM E 329 and ASTM C 1077, for initial qualification of the grout and mix components.
 - A. Submit Initial Qualification Testing Laboratory Documentation showing compliance with ASTM E 329 and ASTM C 1077 or be otherwise approved by SRR prior to bid award.
- 3.4.4.2 Procure the services of a testing laboratory, which conforms to ASTM E 329 and ASTM C 1077, for re-qualification of the grout and mix components if required due to Supplier changes.
 - A. Submit Re-Qualification Testing Laboratory Documentation showing compliance with ASTM E 329 and ASTM C 1077 or be otherwise approved by SRR prior to bid award.

3.5 SRR Furnished Material, Equipment, Services

- 3.5.1 Grout pump, hopper, or pumper truck and other grout placement equipment and labor at the point of delivery.
- 3.5.2 Inspection and testing of the trial batches and grout initial qualification testing. Clean Cap Grout production grout testing. Testing for Clean Cap Grout mix re-qualification if required due to SRR changes.
- 3.5.3 Designated area at point of delivery for washing truck chutes and disposal of truck chute wash water.

3.6 Schedule & Plant/Delivery Capacity

- 3.6.1 Provide capacity of Batch Plant, and necessary equipment for trial batching, production batching, mixing and delivery, based on the following criteria:
 - 3.6.1.1 A sustained average capacity of 400 CY/day through a five day work week. A sustained average capacity of 40 CY/hr for an eight hour period.
- 3.6.2 Provide production Clean Cap Grout with a notice of order based on the following criteria as a guide:
 - 3.6.2.1 For orders up to one hundred (100) CY – Minimum of twelve (12) hours notification.
 - 3.6.2.2 For orders more than one hundred (100) CY – Minimum of one (1) week notification.
- 3.6.3 Estimated grout production duration to be delivered for this procurement:
 - 3.6.3.1 Estimated duration of this grout production will be provided in the contract documents and the batch plant and delivery equipment shall be operational and available during this time.
- 3.6.4 Clean Cap Grout trial batching requirements to be provided for this procurement:
 - 3.6.4.1 Clean Cap Grout trial batching requirements are described herein in Section 3.2.1.2.A.
 - 3.6.4.2 The initial trial batch will follow the design mixes shown in Attachment 5.5 as directed by SRR. Subsequent trial batching will be iterations as required to develop a production mix to meet the field test acceptance criteria shown in Attachment 5.5.

SRR will revise the design mix and subsequent trial batch mixes as required, and provide direction to the Supplier for subsequent trial batches.

- 3.6.4.3 The Supplier shall make available fresh grout for inspection and testing, at the production facility. Inspection and testing requirements to be as shown for production grout in Attachment 5.3.
- 3.6.4.4 The trial batching shall be representative of the production batching to be performed to place clean cap in Vault 4 cells, i.e. the production facilities, delivery equipment, material components and personnel shall be representative.
- 3.6.4.5 The trial batching shall conform to the requirements described herein, i.e. conformance of the production facility, testing and certification of material components, measurement of material components and batch tickets.
- 3.6.4.6 Quality verification documentation requirements for material components shall be as specified in Section 3.2.1.2.A.2 and shown in Attachment 5.2.
- 3.6.4.7 Excess grout shall be disposed of at the Supplier's facility as required herein in Section 4.1.2.2.

3.7 Personnel Qualification / Certification

Not Used

3.8 Deliverables and Submittals

3.8.1 Deliverables

- 3.8.1.1 Deliver to SRR, at the point of delivery, Clean Cap Grout as defined in the purchase documents.
- 3.8.1.2 Deliver to SRR, at the point of delivery, a batch ticket with each delivery in accordance with this document.

3.8.2 Submittals

- 3.8.2.1 Reference the following information on transmittals, submittals and other correspondence:
SRR Purchase Order No.: _____(Defined on Award)
SRR Project Title: _____(Defined on Award)
Supplier's Order Number: _____
- 3.8.2.2 Address transmittals, Engineering Document Requirements (EDR) submittals, SDDR correspondence and one copy of each Quality Verification Requirements (QVDR) document to:
Savannah River Site
Document Control Center, Bldg. 704-1N
SRR Purchase Order No.: _____(Defined on Award)
Aiken, SC 29808
Attention: _____(Defined on Award)
- 3.8.2.3 Address a copy of transmittal letters and other communication to:
Savannah River Site
Building _____(Defined on Award)
SRR Purchase Order No.: _____(Defined on Award)
Aiken, SC 29808

Attention:(Defined on Award)_____(Procurement Representative)

3.8.3 Documentation - General

3.8.3.1 Use black markings on white paper.

3.8.3.2 Use of recycled paper with a maximum of 25 percent recycled content is acceptable for documentation.

3.8.4 QVDR Submittal Process

3.8.4.1 Submit Quality Verification Documents listed in Attachment 5.2.

- A. Develop an itemized list according to the listing in Attachment 5.2 and include with the documentation set.
- B. Submit QVDR documentation to the SRR Cognizant Technical Function, care of the SRR Procurement Representative.
- C. Submit an electronic file copy of all QVDR documents in "Unsecured" PDF version by e-mail to vendordocuments@srs.gov . Provide the purchase order number and the QVDR document description in the e-mail title block and in the body of the e-mail. A maximum of 30 MB per e-mail is allowed to be transmitted.

3.8.5 EDR Submittal Process

3.8.5.1 Submit Engineering Documents. (Attachment 5.1)

- A. Submit an electronic file copy of all EDR documents in "Unsecured" PDF version by e-mail to vendordocuments@srs.gov . Provide the purchase order number and the EDR document description in the e-mail title block and in the body of the e-mail. A maximum of 30 MB per e-mail is allowed to be transmitted.

3.8.5.2 SRR review will result in a status as follows:

Status 1: Work may proceed.

Status 2: Submit final documentation. Work may proceed.

Status 3: Revise and resubmit. Work may proceed subject to resolution of indicated comments.

Status 4: Revise and resubmit. Work may not proceed.

Status 5: Permission to proceed not required.

3.8.5.3 Results of SRR review will be returned within 7 calendar days from the date of receipt.

3.8.5.4 Revise documents with a status of 2, 3, or 4 to incorporate SRR comments.

3.8.5.5 Submit revised documents within 10 calendar days from the date of Supplier receipt.

3.8.5.6 Notify SRR prior to changing Status 1 or Status 5 Engineering Documents.

3.8.5.7 Submit changed Engineering documents.

3.8.5.8 Assignment of Status 1 or Status 5 to the Engineering Documents by SRR does not relieve the Supplier of any part of their obligation:

- A. To satisfy the requirements defined in this specification.
- B. For the correctness of Engineering Documents.
- C. For the adequacy and suitability of material and equipment represented.

3.9 Packaging, Handling, Shipping, and Storage Requirements (PHSS)

3.9.1 Supplier Standards are acceptable for packaging, handling, shipping and storage for the material components associated with this document.

3.10 Deviations

3.10.1 After award of the subcontract, a SDDR form shall be prepared and submitted to SRR for review and disposition for each Supplier proposed deviation from this procurement specification, including material substitution requests.

3.10.1.1 For each proposed deviation, the Supplier shall:

- A. Identify the specification and revision number.
- B. Identify the criteria that cannot be met by item and specification section number.
- C. Present an explanation for the deviation.
- D. Present a proposal for resolution of the deviation and technical justification for the proposed solution.
- E. Present a price and schedule adjustment for resolution of the deviation.

NOTE: Proposed deviations shall be identified promptly and transmitted to SRR to allow for adequate review and approval durations without impacting the Supplier's schedule. (If possible, a minimum of 7 calendar days should be allowed)

3.10.2 After award of the subcontract, a SDDR form shall be prepared and submitted to document disposition of non-conformances from the specification (including approved documents) where the Supplier wishes to request a "Use-as-is" or "Repair" disposition.

NOTE: A Nonconformance shall be identified on an SDDR and SRR notified within 5 working days of discovery.

3.10.2.1 For each nonconformance where a "Use-as-is" or "Repair" disposition is being requested, the Supplier shall provide the following information on the associated SDDR for SRR for review and disposition:

- A. Identify the specification and/or document number and revision number.
- B. Identify the criteria that cannot be met.
- C. Present an explanation for the nonconformance.
- D. Present a proposal for resolution of the nonconformance and provide a sound justification for the technical adequacy of the proposed solution.
- E. Present a price and schedule adjustment for resolution of the nonconformance.

3.10.2.2 Replacement of rejected materials or other rework of an item such that it is restored to a configuration that meets the specification/approved design does not require a SDDR.

3.10.3 Do not perform any work or make delivery of any item for which a SDDR is submitted until a written disposition of the SDDR is received from SRR.

4.0 ACCEPTANCE OF ITEMS

4.1 Inspection/Testing Requirements

4.1.1 General Requirements

4.1.1.1 Measuring and Test Equipment (M&TE)

4.1.1.2 Calibrate all M&TE instruments in accordance with the requirements in NQA-1 Subpart 2.5 paragraph 703, ASTM C 94, and NRMCA QC3.

4.1.1.3 Retain M&TE Calibration Records and make available to SRR upon request.

4.1.2 Initial Inspection and Acceptance of the Production Mixes

4.1.2.1 The initial inspection and acceptance of the production grout by SRR under this document are as follows:

- A. SRR will verify and record on the batch ticket that the Supplier's representative has reviewed the batch ticket for the amount of water (or NaOH solution) added and the Supplier's representative has initialed the batch ticket.
 - B. The slump flow at the discharge of the chute shall be within the working range requirements as shown on Attachment 5.5.
 - 1. Perform acceptance slump flow test in accordance with the testing frequencies and requirements per Attachment 5.3.
 - 2. Informational slump flow test may be taken from the top of any batch at the direction of SRR in order to determine the delivered slump flow, at the discharge of the chute.
 - C. Initiate discharge to point of delivery after a minimum of (30) minutes from the start of mixing and a minimum of (90) drum revolutions, and complete discharge to point of delivery within ninety (90) minutes from the start of mixing.
 - 1. With the approval of the SRR Responsible Engineer, the discharge limit may be exceeded provided the grout is of such slump flow that it can be placed.
 - D. SRR will record the discharge completion time on the batch ticket.
 - 1. SRR will also record the total time (start of mixing time to the discharge completion time) on the batch ticket(s).
 - E. The batch ticket(s) will be reviewed and accepted by SRR at the point of delivery.
- 4.1.2.2 Rejected / Excess Grout
- A. Grout rejected due to the Supplier's error shall be returned to the Supplier's facility for disposal.
 - B. Grout rejected due to an error by SRR will be disposed of at the Supplier's facility.
 - C. Excess grout shall be disposed of at the Supplier's facility.
- 4.1.2.3 Chute and Drum Washing
- A. Wash chutes in a SRR designated area at the point of delivery.
 - B. Wash and clean all mixer drums at the production facility.
- 4.1.3 Inspection/Testing Requirements by SRR
- 4.1.3.1 SRR will perform inspection and testing in accordance with Attachment 5.3 at the point of delivery. Perform sampling of fresh grout and field acceptance testing at the point of delivery, in accordance with Attachment 5.3.
- 4.1.3.2 SRR may increase the testing frequencies as it sees fit.
- 4.1.3.3 If the slump flow of the grout falls outside the specified limits of this document, SRR may perform a check test immediately on another portion of the same sample at the discretion of SRR.
- A. In the event the slump flow, is outside the specified range, SRR will direct the supplier to take measures to adjust succeeding loads in attempt to bring them into range.
 - B. SRR may reject mixes that do not meet the specified slump flow.
 - C. Provide support to SRR in determining the cause of questionable grout.
- 4.2 SRR Surveillance and Audits**
- 4.2.1 Testing Laboratories
- 4.2.1.1 SRR will procure, as required, the services of a testing laboratory for production and trial batch testing.

- A. The testing laboratory will conform to ASTM E 329 and ASTM C 1077, or be otherwise approved by SRR.
- 4.2.1.2 SRR will procure the services of a testing laboratory for testing of the grout and mix components for re-qualification, if required, due to changes by SRR.
 - A. The testing laboratory will conform to ASTM E 329 and ASTM C 1077, or be otherwise approved by SRR.
- 4.2.1.3 Supplier shall procure the services of a testing laboratory for testing of the grout and mix components for re-qualification, if required, due to changes by Supplier.
 - A. The testing laboratory shall conform to ASTM E 329 and ASTM C 1077, or be otherwise approved by SRR.
- 4.2.2 All materials and production facilities shall be subject to inspection by SRR.
 - 4.2.2.1 Cooperate with SRR or its representative by providing reasonable access for making necessary checks of the production facilities and for obtaining samples.
 - 4.2.2.2 SRR will sample fresh re-qualification grout and test it during re-qualification in accordance with this document.
 - A. The Supplier shall provide prior notification to SRR of the re-qualification grout batches.
 - B. This notification shall be, at a minimum, five (5) days prior to re-qualification batching.
 - 4.2.2.3 SRR may increase or decrease the testing frequencies as it sees fit for SRR surveillances.

4.3 Final Acceptance Method

- 4.3.1 Supplier shall provide batch ticket(s), inspection report(s), and test result(s) outlined in this document for acceptance by SRR.
- 4.3.2 Final acceptance of Clean Cap Grout is by SRR at point of delivery based on the Supplier provided batch ticket(s), inspection report(s), and test result(s) outlined in this document.
- 4.3.3 SRR will verify assignment of Status 1 or 5 (in accordance with the "Deliverables" section of this specification) for all documents listed on the EDR, Attachment 5.1.
- 4.3.4 SRR will verify receipt and acceptability of all documents listed on the QVDR, Attachment 5.2.

5.0 ATTACHMENTS

- 5.1 Engineering Document Requirements (2 Pages)**
- 5.2 Quality Verification Document Requirements (3 Pages)**
- 5.3 Inspection and Testing of Clean Cap Grout Production (1 Page)**
- 5.4 Supplier Quality Assurance Program Requirements (1 Page)**
- 5.5 Mix Components for Clean Cap Grout Production (1 Page)**

Engineering Document Requirements Form Instructions

Attachment No. 5.1
Revision No. 1
Spec/Req'n No. C-SPP-Z-00012
Page 2 of 2

Purpose The Engineering Document Requirements (EDR) form is prepared by the originator, establishes a basis for actions required of a Supplier and provides the schedule for the submittal of engineering documents by the Supplier.

Legend Entry

No.	Information Required
1	Document category number – see below.
2	Applicable specification number and appropriate paragraph.
3	Description corresponding to document category number.
4	Permission to proceed with fabrication or other specific processes is marked yes, if required.
5	List a milestone after award i.e., prior to fabrication, prior to test, prior to shipment, or with shipment that the listed document is to be submitted by Supplier.
6	Number of copies required for submittal.
7	Reproducible, Mylar, Vellum, etc.
8	Enter remarks when appropriate.

Document Category Number and Descriptions

- 1.0 Drawings
 - 1.1 Outline Dimensions, Services, Foundations and Mounting Details – Drawings providing external envelope, including lugs, centerline(s), location and size for electrical cable, conduit, fluid, and other service connections, isometrics and details related to foundations and mountings.
 - 1.2 Assembly Drawings – Detailed drawings indicating sufficient information to facilitate assembly of the component parts of an equipment item.
 - 1.3 Shop Detail Drawings – Drawings which provide sufficient detail to facilitate fabrication, manufacture, or installation. This includes pipe spool drawings, internal piping and wiring details, cross-section details and structural and architectural details.
 - 1.4 Wiring Diagrams – Drawings which show schematic diagram equipment, internal wiring diagrams, and interconnection wiring diagram for electrical items.
 - 1.5 Control Logic Diagrams – Drawings which show paths which input signals must follow to accomplish the required responses.
 - 1.6 Piping and Instrumentation Diagrams – Drawings which show piping system scheme and control elements.
- 2.0 Parts Lists and Costs – Sectional view with identified parts and recommended spare parts for one year's operation and specified with unit cost.
- 3.0 Complete SRS Data Sheets – Information provided by Supplier on data sheets furnished by SRS.
- 4.0 Instructions
 - 4.1 Erection/Installation – Detailed written procedures, instructions, and drawings required to erect or install material or equipment.
 - 4.2 Operations – Detailed written instructions describing how an item or system should be operated.
 - 4.3 Maintenance – Detailed written instructions required to disassemble, reassemble and maintain items or systems in an operating condition.
 - 4.4 Site Storage and Handling – Detailed written instructions, requirements and time period for lubrication, rotation, heating, lifting or other handling requirements to prevent damage or deterioration during storage and handling at jobsite. This includes shipping instruction for return.
- 5.0 Schedules: Engineering and Fabrication/Erection – Bar charts or critical path method diagram which detail the chronological sequence of activities, i.e., Engineering submittals, fabrication and shipment.
- 6.0 Quality Assurance Manual/Procedures – The document(s) which describe(s) the planned and systematic measures that are used to assure that structures, systems, and components will meet the requirements of the procurement documents.
- 7.0 Seismic Data Reports – The analytical or test report which provides information and demonstrates suitability of material, component or system in relation to the conditions imposed by the stated seismic criteria.
- 8.0 Analysis and Design Reports – The analytical data (stress, electrical loading, fluid dynamics, design verification reports, etc.) which demonstrate that an item satisfies specified requirements.
- 9.0 Acoustic Data Reports – The noise, sound and other acoustic vibration data required by the procurement documents.
- 10.0 Samples
 - 10.1 Typical Quality Verification Documents – A representative data package which will be submitted for the items furnished as required in the procurement documents.
 - 10.2 Typical Material Used – a representative example of the material to be used.
- 11.0 Material Descriptions – The technical data describing a material which a Supplier proposes to use. This usually applies to architectural items, e.g., metal siding, decking, doors, paints, coatings.
- 12.0 Welding Procedures and Qualifications – The welding procedure, specification and supporting qualification records required for welding, hard facing, overlaying, brazing and soldering.
- 13.0 Material Control Procedures – The procedures for controlling issuance, handling, storage and traceability of materials such as weld rod.
- 14.0 Repair Procedures – The procedures for controlling materials removal and replacement by welding, brazing, etc., subsequent thermal treatments, and final acceptance inspection.
- 15.0 Cleaning and Coating Procedures – The procedures for removal of dirt, grease or other surface contamination, and preparation and application of protective coatings.
- 16.0 Heat Treatment Procedures – The procedures for controlling temperatures and time at temperature as a function of thickness, furnace atmosphere, cooling rate and methods, etc.
- 19.0 UT – Ultrasonic Examination Procedures – Procedures for detecting discontinuities and inclusions in materials by the use of high frequency acoustic energy.
- 20.0 RT – Radiographic Examination Procedures – Procedures for detecting discontinuities and inclusions in materials by x-ray or gamma ray exposure of photographic film.
- 21.0 MT – Magnetic Particle Examination Procedures – Procedures for detecting surface or near surface discontinuities in magnetic materials by the distortion of an applied magnetic field.
- 22.0 PT – Liquid Penetrant Examination Procedures – Procedures for detecting discontinuities in materials by the application of a penetrating liquid in conjunction with suitable developing materials.
- 23.0 Eddy Current Examination Procedures – Procedures for detecting discontinuities in materials by distortion of an applied electromagnetic field.
- 24.0 Pressure Test – Hydro, Air, Leak, Bubble or Vacuum Test Procedures – Procedures for performing hydrostatic or pneumatic structural integrity and leakage tests.
- 25.0 Inspection Procedures – Organized process followed for the purpose of determining that specified requirements (dimensions, properties, performance results, etc.) are met.
- 26.0 Performance Test Procedures – Test performed to demonstrate that functional design and operational parameters are met.
 - 26.1 Mechanical Tests – e.g., pump performance, data, valve stroking, load, temperature rise, calibration, environmental, etc.
 - 26.2 Electrical Tests – e.g., impulse, overload, continuity, voltage, temperature rise, calibration, saturation, loss, etc.
- 27.0 Prototype Test Reports – Reports of a test which is performed on a standard or typical examination of equipment or item, and which is not required for each item produced in order to substantiate the acceptability of equal items. This may include tests which result in damage to the item(s) tested.
- 28.0 Personnel Qualification Procedures – Procedures for qualifying welders, inspectors and other special process personnel.
- 29.0 Supplier Shipping Preparation Procedures – Procedures used by a Supplier to prepare finished materials or equipment for shipment from its facility to the jobsite.

Quality Verification Document Requirements

FORM INSTRUCTIONS

Purpose The Quality Verification document Requirements (QVDR) is initiated by SRS and completed by the Supplier when providing quality verification documents. The QVDR is a multipurpose form to

Transmit quality verification documents from the Supplier,
Provide evidence of SSR release of documentation and /or work, and
Provide evidence of an SRS inspection check of documentation received at SRS.

SRS Entries

Entry No.	Information Required
1	Enter Document Category Number – see below.
2	Enter Specification Number and Paragraph Reference.
3	Enter Description corresponding to the Document Category Number.
4	SSR to initial upon item release.
6	Enter "Remarks: as appropriate.
16	SSR and dates release.

Supplier Entries

Entry No.	Information Required
7	Enter number of pages of quality verification document being submitted.
8	Enter information required.
9	Enter information required.
10	Enter information required.
11	Enter the quantity of units covered by the documents submitted. For each item on Entry No. 12 being released, provide a separate copy of this completed form and the supporting quality verification documents.
12	Enter information required.
13	Enter information required.
14	Enter information required.
15	Supplier – Signature of an employee authorized to sign such documents.

Field Entries

Entry No.	Information Required
5	SRS inspector at the jobsite to complete check-in.
17	The SRS inspector will review the quality verification documentation package. If found satisfactory, he signs and dates the check-in statement.

Document Category Numbers and Descriptions

- 12.0 Welding Verification Reports – Reports of welding performed to include weld identification, and certification that qualified welding procedures and welders were used.
- 13.0 Material Verification Reports – Reports relative to material which confirm, substantiate or assure that an activity or condition has been implemented in conformance with code and material specifications imposed by the procurement documents.
- 14.0 Major Repair Verification Reports – Reports may include weld repair locations (maps), material test reports for filler metal, pre- and post-weld heat treatment records, NDE records, etc. The resolution of whether a repair is major or not is an SRS responsibility.
- 15.0 Cleaning and Coating Verification Reports – Reports include a certification of visual examination for surface preparation, surface profile, materials, etc.; and also humidity data, temperature data and coating thickness data as required by the procurement documents.
- 16.0 Heat Treat Reports – Reports normally include furnace charts and similar records which identify and certify the item(s) treated, the procedure used, furnace atmosphere, time at temperature, cooling rate, etc.
- 17.0 Material Property Reports
 - 17.1 MTR (Material Test Reports) – These reports include all chemical, physical, mechanical, and electrical property test data required by the material specification and applicable codes. These are applicable to cement, concrete, metals, cable jacket materials, rebar, rebar splices, etc.
 - 17.2 Impact Test Data – Reports of Charpy or drop weight tests including specimen configuration, test temperature and fracture data.
 - 17.3 Ferrite Data – Reports of the ferrite percentage for stainless steel materials used, including castings and welding filler metals as deposited.
 - 17.4 Materials Certificate of Conformance – Documents which certify conformance to the requirements of the applicable material specification.
 - 17.5 Electrical Property Reports – Reports of electrical characteristics, e.g., dielectric, impedance, resistance, flame tests, corona, etc.
- 18.0 Code Compliance – Verifying documents (such as data Forms U-1, M-2, State, etc.), which are prepared by the manufacturer or installer and certified by the Authorized Code Inspector.
- 19.0 UT – Ultrasonic Examination and Verification Reports – Examination results of certain characteristics of discontinuities and inclusions in material by the use of high frequency acoustic energy.
- 20.0 RT – Radiographic Examination and Verification Reports – Examination results of certain characteristics of discontinuities and inclusions in materials by x-ray or gamma ray exposure of photographic film, including film itself.
- 21.0 MT – Magnetic Particle Examination and Verification Reports – Examination results of surface (or near surface) discontinuities in magnetic materials by distortion of an applied magnetic field.
- 22.0 PT – Liquid Penetrant Examination and Verification Reports – Examination results of surface discontinuities in materials by application of a penetrating liquid in conjunction with suitable developing techniques.
- 23.0 Eddy Current Examination and Verification Reports – Examination results of discontinuities in material by distortion of an applied electromagnetic field.
- 24.0 Pressure Test – Hydro, Air, Leak, Bubble or Vacuum Test and Verification Reports – Results of hydrostatic or pneumatic structural integrity and leakage tests.
- 25.0 Inspection and Verification Reports – Documented findings resulting from an inspection.
- 26.0 Performance Test and Verification Reports – Reports of Test Results
 - 26.1 Mechanical Test, e.g., pump, performance data, valve stroking, load, temperature rise, calibration, environment, etc.
 - 26.2 Electrical Tests, e.g., load, impulse, overload, continuity, voltage, temperature rise, calibration, saturation, loss, etc.
- 27.0 Prototype Test Report – Report of the test which is performed on a standard or typical example of equipment, material or item, and which is not required for each item produced in order to substantiated the acceptability of equal items. This normally includes tests which may, or could be expected to, result in damage to the item(s) tested.
- 28.0 Certificate of Conformance – A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

Supplier Quality Assurance Program Requirements

Note to the CTF/CQF:

Level 1 — Procurements require verification of the supplier's quality program through the performance of an evaluation or audit that compares against the national or international consensus standard designated in Section A. Additional verification methods may also be designated in Section C.

Level 2 — Procurements that invoke a supplier quality assurance program, shall require the supplier to provide a copy of their Quality Assurance Manual for an adequacy/concurrence review and may apply the same consensus standard verification process as designated in Section A, otherwise designate at least one alternate evaluation method in Section C. (Ref. 1Q, 7-2; 1Q, 18-3; and 3E, 1.1)

Section A

National Consensus Standards for Supplier Quality Program Requirements are identified, but not limited, to the ones below:

- ASME/NQA-1 Part I - Nuclear Quality Assurance Program Requirements (Pages 2-4 must be completed)
- ISO 17025 (Calibration/Testing Standard)
- ASME Section VIII Division I (Appendix 10)
- NQA-1, Part II
 - 2.1 Fluid/Comp Clean
 - 2.2 Pack/Ship/Rec/Store/Handle
 - 2.3 Housekeeping
 - 2.4 IIT Power/Instr/Control Equipment
 - 2.5 IIT Con/Steel/Soils/Foundation
 - 2.7 Software
 - 2.8 IIT Mechanical
 - 2.14 CGD
 - 2.15 Hoist/Rig/Transport
 - 2.18 Maintenance
 - 2.20 Subsurface
- Other NQA-1 Part II Subpart 2.5 Paragraph 702 except (e)
- Other NQA-1 Part II Subpart 2.5 Paragraph 703 and NRMCA QC3 Certification

NOTE: When necessary, use an attachment to define additional requirements and/or details.

Section B

Clarifications/Exceptions (as needed)

Clarification: A Quality Program based on a recognized National Consensus Standard (e.g. ISO, etc.) is acceptable for use as long as the elements identified in this Attachment are addressed and the program meets or exceeds the requirements as specified.

Section C

For Level 2 procurements, methods of evaluating supplier's quality assurance program are:

1. The supplier will provide a copy of their Quality Assurance Manual for an adequacy/concurrence review, and
2. One or more of the boxes marked below will also be applied.
 - Performance of an audit as defined in Section A
 - Submittal of current applicable ASME certificate
 - Review of the Suppliers last 12 months of performance history
 - Supplement audit/evaluation
 - Document submittals identified on EDR document (e.g., process procedures, welder qualifications, etc.)
 - Supplier surveillance activities
 - Receiving Inspection
 - Other Independent lab testing (by SRR) of trial batch and production grout and Submittal of Supplier's NRMCA

Mix Components for Clean Cap Grout Production

MIX ID #	SLUMP FLOW	WEIGHT OF INGREDIENTS					REMARKS
		CEMENTITIOUS MATERIALS	WATER	5wt% NaOH			
MIX DENOTIFIER	WORKING RANGE	CEMENT TYP II	FLY ASH CEMENT CLASS S				
	Inches	Weight (%)	Weight (%)	W/C ratio by weight	NaOH/C ratio by weight	UNIT OF MEASURE	
(1)	(2)		(3)				
Vault 4 Clean Cap 1	26 - 38	10	45	0.5	-		
Vault 4 Clean Cap 2	26 - 38	10	45	0.45	-		
Vault 4 Clean Cap 3	26 - 38	10	45	-	0.53		

Notes: (1) Mix Identifier Code. Mix identifier code for the vendor supplied grout mix shall be shown in each batch ticket at the time of delivery.
 (2) Flow rate measured according to ASTM C 1611/C 1611M.
 (3) Thermally Beneficiated