LAKE WHATCOM WATER AND SEWER DISTRICT

GENEVA RESERVOIR RECOATING

REQUEST FOR QUALIFICATIONS

(District Project #C2518)

I. INTRODUCTION

A. This Request for Qualifications ("RFQ") outlines the information necessary to understand the consultant selection process and the required documentation a Consultant must submit. After reviewing this RFQ, any firm that determines it has the necessary expertise and experience and could successfully perform the required services may provide a Submittal, addressing the items set forth herein. A general overview of the selection process is as follows:

1. Consultants shall deliver the Submittal to the District no later than **2:00 p.m. on May 29, 2025**, after which time they will be reviewed and evaluated. The Submittal shall be delivered to:

   Lake Whatcom Water and Sewer District
   1220 Lakeway Drive
   Bellingham, Washington 98229
   Attn: Greg Nicoll, P.E.

2. The District may, at its option, contact a Consultant and ask clarifying questions concerning the Consultant's Submittal.

3. At the District's option, the District may conduct interviews with Consultants qualifying as finalists.

The purpose of this RFQ is to obtain a qualified consultant team to provide professional services to plan, design, provide on-site inspection, and assist with construction administration for a project to recoat the District's existing Geneva Reservoir. The scope of work includes professional services for design, bidding, inspection, and construction contract administration. The District intends to select the most qualified firm for the project.

B. This recoating project will be constructed as part of a larger construction project that will include structural seismic upgrades to the reservoir that are currently in design. The recoating scope of work will be included as Schedule B of the project and coordination with the design team for the seismic improvements portion of the project (Schedule A), which is led by Wilson Engineering, will be required to ensure coatings and structural improvements are constructed in proper sequence to minimize cost and down-time of the reservoir while maximizing the quality and longevity of the new coating system.

C. It is anticipated that Consultant services will be separated into two phases of work. The initial contract and first phase of work will cover design and preparation of detailed drawings, specifications, cost estimates, and bidding. The second phase of work, which will be added by a future contract amendment, will include services during construction, including administration and inspection.

II. DISTRICT SUMMARY

A. The Lake Whatcom Water and Sewer District is a special purpose district operating under Title 57 Revised Code of Washington. Originally formed in 1968 as Whatcom County Water District No. 10, the District provides water service to approximately 4,100 equivalent residential units (ERUs) and sewer service to approximately 4,400 ERUs in an 18-square mile area encompassing Lake Whatcom. The District is operated by 18 full-time professionals, governed by a five-member board of commissioners elected from within the District, and has an average annual budget of approximately $8 million.

1. Water System Summary. The District owns and operates three Group A water systems and one Group B water system. In total, the District operates two water treatment plants, six booster stations, eight reservoirs, and approximately 70 miles of transmission and distribution mains. Additional information specific to the District's water system may be found in the 2018 Water System Comprehensive Plan, available on the District's website at https://lwwsd.org/resources/water-system-comprehensive-plan/.

2. Sewer System Summary. The District owns and operates 26 sewer lift stations and over 85 miles of sewage collection and conveyance lines. The District does not treat the sewage it collects, instead delivering its wastewater to the city of Bellingham's treatment plant for treatment and disposal under terms of an interlocal agreement that expires in 2034. Additional information specific to the District's sewer system may be found in the 2020 Comprehensive Sewer Plan, available on the District's website at https://lwwsd.org/resources/comprehensive-sewer-plan/.

III. PROJECT BACKGROUND

The Lake Whatcom Water and Sewer District provides potable water to its South Shore water system, which is comprised of the Sudden Valley and Geneva communities (population approximately 10,000), wholly by water treated at its Sudden Valley Water Treatment Plant (SVWTP). The upper portion of the Geneva community, which is an urban growth area adjacent to the City of Bellingham, is served by the Geneva reservoir, a 524,000-gallon welded steel reservoir that was put into service in 1979. This reservoir has not been recoated or substantially rehabilitated since its original construction. Based on a coatings evaluation completed in 2022 and a reservoir condition assessment completed in 2024 (attached), the existing coating is nearing the end of its

useful life and is in need of complete replacement.

In addition to the deteriorated condition of the coatings, previous evaluations have determined that the reservoir is seismically deficient and the District is proceeding with a project to address the identified seismic deficiencies. Although the exact scope of work for the seismic improvements has not been finalized, the reservoir will need to be taken out of service to complete the repairs and the repairs will likely compromise portions of the existing coatings. As a result, the District has determined that the most cost-effective alternative for addressing the seismic and coating deficiencies is to complete the two projects concurrently as a single project. However, the seismic repairs project is 85% funded by a federal FEMA Hazard Mitigation Grant (HMG) and the recoating will be paid for with District funds. To ensure complete transparency and to avoid intermingling the two projects, the two scopes of work will need to be managed as separate schedules of work and all expenses will be tracked and managed separately.

The selected coatings engineer will be contracted directly to Lake Whatcom Water and Sewer District and will have no contractual relationship with the design team for the seismic improvements.

IV. PROCUREMENT PROCESS

A. General Information

1. Compliance with Legal Requirements.

    a. The procurement of these consultant services will be in accordance with applicable District, federal, state and local laws, regulations and procedures. The District reserves the right to reject any and all Submittals received. Any Consultant failing to submit information in accordance with the procedures set forth herein may not be considered responsive and may therefore be subject to disqualification by the District.

    b. In accordance with the provisions of this RFQ, the District will evaluate the Submittals. The final selection, if any, will be that Consultant which, in the opinion of the District, best meets the requirements set forth in the RFQ and is determined to be the most highly qualified for the services requested.

2. Costs borne by Consultants. All costs incurred in the preparation of a Submittal and participation in this RFQ and negotiation process shall be borne by the proposing firms.

3. Public Disclosure. Once in the District's possession, Submittals shall become property of the District and considered public documents under applicable Washington State laws. All documentation that is provided to the District may be subject to disclosure in accordance with Washington State public disclosure laws.

B. Protests

1. Time to File a Protest.

a. Any Consultant responding to this RFQ may file a protest challenging the requirements identified in the RFQ provided such protest is received no later than ten (10) calendar days prior to the date established for responding to this solicitation.

b. A financially interested Consultant may file a protest based on evaluation of Submittals provided such protest is received no later than five (5) calendar days after the protesting party knows or should have known of the facts and circumstances upon which the protest is based.

c. In no event shall a protest be considered if all Submittals are rejected or after execution of this contract.

2. Form of Protest. A protest shall be in writing and addressed to: Lake Whatcom Water & Sewer District, 1220 Lakeway Drive, Bellingham, WA 98229, Attention: General Manager. The protest shall include the following:

   a. The name, address and telephone number of the party protesting or their representative;

   b. The District project number and contract title under which the protest is submitted;

   c. A detailed description of the specific grounds for protest and any supporting documentation; and

   d. The specific ruling or relief requested.

3. Determination of Protest. Upon receipt of a timely written protest, the District General Manager shall investigate the protest and shall, prior to execution of the contract, respond in writing to the protest. The District General Manager's decision shall be considered the final action by the District.

4. Compliance with Protest Process. Failure to comply with these protest procedures will render a protest untimely and inadequate and may result in rejection thereof by the District.

5. Exhaustion of Administrative Remedies: As a mandatory condition precedent to initiating a lawsuit against the District, a protesting Consultant shall comply with the Protest Procedures defined herein.

6. Venue: By responding to this RFQ and for the convenience of the parties, the Consultant acknowledges and agrees that a lawsuit or action related to or arising out of this procurement shall be brought in the Superior Court of Whatcom County, Washington.

C. Schedule

1. Anticipated Schedule. The selection process is anticipated to proceed as outlined below and is subject to change:

Date	**Selection Process**

May 15, 2025	**Public Announcement of the RFQ**
May 29, 2025	**Submittals Due**
June 11, 2025	**Recommendation to Board**
Late June 2025	**Contract Execution**
January 2026	**Advertise Public Works Contract for Bids**

2. Notification. The District will notify appropriate firms of changes in the RFQ and Notice of Selection.

3. Addenda. In the event it becomes necessary to revise any part of the RFQ, addenda will be provided to all firms still under consideration at the time the addendum is issued. If any firm has reason to doubt whether the District is aware of the firm's interest, it is the responsibility of the firm to notify the District to be sure that addenda are received. Mail, e-mail or call such notice to Greg Nicoll, P.E., District Engineer at:

   Phone: 360-734-9224
   E-mail: greg.nicoll@lwwsd.org
   Mail: Lake Whatcom Water and Sewer District
   1220 Lakeway Drive
   Bellingham, WA 98229

D. Negotiations

1. At the completion of the selection process, the selected Consultant will enter into contract negotiations with the District. Negotiation of a contract will be in conformance with applicable federal, state and local laws, regulations and procedures. The negotiated cost and pricing data, once agreed to by the District and the Consultant, shall form the basis for a billing/payment provision.

2. At the beginning of negotiations, the selected Consultant and District shall establish a Negotiation Schedule. Negotiations shall begin with the Work Plan identified in the Qualifications Statement submitted by the selected Consultant.

3. If the District and selected Consultant cannot come to terms on level of effort (LOE) and a scope of work (SOW) after three (3) revisions to the SOW and LOE, the District may discontinue negotiations and go to next highest ranked Consultant. Failure to reach agreement after three (3) revisions demonstrates an inability to reach agreement within a reasonable timeframe.

4. If the District and selected Consultant cannot come to terms on cost and pricing data after three (3) revisions, the District may discontinue negotiations and go to the next highest ranked Consultant. Failure to reach an agreement after three (3) revisions demonstrates an inability to reach agreement within a reasonable timeframe.

E. Contract Terms and Conditions

1. A copy of the draft agreement(s) for A/E professional services is included as an Attachment.

2. By submitting qualifications, the Consultant represents that it has carefully read the terms and conditions of the Request for Qualifications and agrees to be bound by them. Agreement to be negotiated.

F. Cost and Pricing Data

1. The selected consultant shall provide the following information within five (5) business days after Notice of Selection has been received. Failure to provide such information in a timely manner may result in the District discontinuing negotiations with the selected Consultant and starting negotiations with the next highest ranked Consultant.

    a. Direct Salaries. Selected consultant and its subconsultants shall submit the following information:

        (1) List of employees, in alphabetical order (last name first), with job classification, rate of pay, and salary review date.

    b. Overhead Rates. Selected consultant and its subconsultants shall provide the following information:

        (1) Provide current audited overhead schedule, audit report, and cost detail by general ledger account.

        (2) Provide a listing of all personnel who will perform work on this Project whose salaries, in full or in part, are included in overhead for the current and previous year. For each person identify his or her title, classification, position in company and salary rate.

    c. Billing Rates. Submit only for certain qualifying small firms.

        (1) Small firms that do not have an accounting system in place, that identifies direct and indirect costs separately, generally use billing rates. Fully burdened billing rates, which include labor, overhead costs and profit are allowed on a case-by-case basis for those firms that typically use this method for billing purposes.

    d. Other Direct Cost(s).

        (1) Identify all Other Direct Cost(s) (ODC) for this project and the rationale used as a basis for this cost.

        (2) For each ODC, provide the unit prices and/or rates with supporting rationale, historical data and estimating methodology used to validate these rates.

        (3) Failure to identify ODC results in a presumption that there are no ODC.

    e. Profit. Selected consultant and its subconsultants shall provide the following:

(1) Proposed profit;

(2) Rationale and justification for the proposed profit rate.

f. Markup on Subconsultant Costs and ODC. Selected consultant and its subconsultants shall provide the following:

(1) Proposed markup on subconsultant costs and ODC;

(2) Rationale and justification for the proposed markups.

V. INSURANCE REQUIREMENTS

A. Prior to execution of the Agreement, the Selected Consultant shall file with the District certificates of insurance and endorsements from the insurer(s) certifying to the coverage of all insurance required in accordance with the District's standard agreement. All evidences of insurance must be certified by a properly authorized officer, agent, general agent or qualified representative of the insurer(s) and shall certify the name of the insured, the type and amount of insurance, the location and operations to which the insurance applies, the expiration date, and provides that the District receives notice at least thirty (30) calendar days prior to the effective date of any policy limit or cancellation of required coverages. The Consultant shall notify the District at least thirty (30) calendar days prior to the effective date of any cancellation or reduction in coverage in the policy. The Consultant shall maintain during the entire Contract period, insurance coverage at least as broad as the limits and coverage outlined in the District's standard agreement. The Consultant shall, upon demand of the District, make available to the District at Consultant's local office in all such policies of insurance and the receipts of payment of premiums thereon. Failure to provide such policies of insurance within a time acceptable to the District shall entitle the District to suspend or terminate the Consultant's work hereunder. Suspension or termination of the Consultant Agreement shall not relieve the Consultant from its insurance obligation hereunder.

B. The Consultant shall obtain and maintain at a minimum the limits of insurance set forth in the Consultant Agreement. By requiring such minimum insurance, the District shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under the Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

C. Each insurance policy shall be written on an "occurrence" form; excepting that insurance for professional liability, errors and omissions when required, is acceptable on a "claims made" form.

D. If coverage is approved and purchased on a "claims made" basis, the Consultant shall continue coverage either through (1) policy renewals for not less than three years from the date of completion of the work which is the subject of this Agreement or (2) the purchase of an extended discovery period for not less than three years from the date of completion of the work which is the subject of this Agreement, if such extended coverage is available.

E. If, in order to meet the insurance requirements the Consultant must rely on the insurance to be

provided by one or more subconsultant, then such subconsultant(s) shall be required to meet all of the requirements herein applicable to the insurance they are providing, and shall include District and Consultant as additional insureds on all liability policies except Professional Liability/Errors & Omissions and Workers Compensation. The District will not make any payments on work performed by subconsultants until all insurance documentation from such subconsultants have been received and accepted by the District.

F. Provided the affected insurance policies permit the following waiver, without voiding coverage, Consultant and District waive all rights against each other to subrogation for damages covered by property insurance.

VI. EVALUATION AND SELECTION CRITERIA

A. All Submittals will be evaluated by a Consultant Selection Panel ("Panel"), which will be responsible for ranking of the Submittals. The criteria outlined below will be used in evaluating the Submittals and determining the most qualified Consultant. A total of 100 points (excluding a potential interview) has been assigned to the Evaluation Criteria. The maximum points possible will follow each criterion listed. The points indicate relative weight or importance given to each criterion.

B. The District may determine that the ranking is close and an interview with the top ranked firms is necessary. Interviews will have a maximum of 50 points. The number of Consultants to participate in interviews, if any, will be determined by the District based on the recommendation of the evaluation. The District may choose to use different criteria for the interview, in which case the finalists will be so notified in writing. The interview process may or may not include a Consultant presentation and the Consultants will not be given questions to prepare for in advance of the interview.

C. Following the review of the submittals and the interviews (if conducted) the evaluators will use the points to score each Submittal. Each evaluator will put the scores in rank order, with the highest scored Consultant 1st, the second-highest scored Consultant 2nd, etc. This ranking will then be totaled. From the ranking, the District intends to recommend the most qualified Consultant to the Board of Commissioners for approval to begin negotiations.

VII. DOCUMENTATION

A. The prime Consultant shall submit two (2) bound copies and one (1) USB drive with the electronic PDF file of the Submittal.

B. Consultants are discouraged from submitting lengthy Submittals. The District requests that Submittals be concise and clearly written containing only essential information. Submittals shall be 15 pages or less, including any resumes and cover letter.

- Submittals should be minimum of 11 font.
- Sheets with double-sided printing will be counted as 2 pages.
- Sketches, maps and charts printed on 11x17 count as 1 page.

The Submittal shall consist of the following parts:

1. Letter of Interest: The Letter of Interest shall contain the following information:
    - RFQ Title: **Geneva Reservoir Recoating Project;**
    - Consultant's name, mailing address, contact person, telephone and fax numbers;
    - UBI and federal tax ID numbers; and
    - Stipulation that Consultant accepts all terms of the RFQ, especially the terms and conditions of the attached sample contract(s).

2. Qualifications Statement. The submittal shall include Key Personnel's:
    - General statement of the understanding of the scope of services.
    - Project Team including proposed subconsultants.
    - The Project Team's experience with selection and installation of coating systems and their specific application to water storage facilities, including design, construction management and inspection services.
    - Experience with District's water system infrastructure.
    - Approach to managing and completing projects involving multiple schedules of work and multiple design teams.
    - Approach to communicating with the District.
    - Approach to ensure cost efficient execution and quality control.

    The submittal shall be presented in a clear, comprehensive and concise manner and shall be submitted in a complete package by the prime Consultant.

VIII. EVALUATION CRITERIA AND SUBMITTAL INFORMATION

A. **Experience and Technical Competence - 40 Points**.

The District will evaluate the experience and technical competence of the Consultant's Key Personnel to complete the project. Emphasis will be placed on recent experience and expertise in performing the required services on projects with a scope of work similar in size and complexity to this Project.

B. **Work Plan - 30 points.**

The District will evaluate the proposed Work Plan to determine the Consultant's understanding of the scope of work, allocation of skilled personnel to specified tasks, appropriate utilization of subconsultants, and overall project approach.

1. The Work Plan is an opportunity for the Consultant to demonstrate its understanding of scope and propose ideas for the Project.

C. **Record of Past Performance & References - 30 Points**.

1. The District will evaluate the project team's record of performance and references on previous and/or ongoing projects with consideration given to quality of work, ability to meet schedules and budgets, cooperation, responsiveness, performance on other District projects and other managerial considerations.

2. The District will evaluate the project examples provided with respect to Key Personnel's experience with similar projects and the amount of involvement they had with the project examples. The project examples provided should demonstrate Key Personnel's experience in providing services similar in scope to this Project.

D. **Interviews - 50 Points (if conducted)**

1. The District may or may not conduct interviews. If the District determines that interviews are necessary, the District will conduct interviews with the short-listed Consultants (Finalists).

2. Consultants will be notified in writing of the request and provided the date, place, and time of the interview. The interview process may or may not include a Consultant presentation and the Consultants will not be given questions to prepare for in advance of the interview. The District may choose to use different criteria for the interview, in which case the Finalists will be so notified in writing.

3. Failure to participate in the interview process may result in a Consultant's disqualification from further consideration.

PROFESSIONAL SERVICES AGREEMENT
FOR
GENEVA RESERVOIR RECOATING

THIS AGREEMENT, made and entered into by and between Lake Whatcom Water and Sewer District, Whatcom County, Washington, hereinafter referred to as "District", and **[[[FIRM NAME]]]** ("Consultant"), a corporation with a place of business at **[[[FIRM ADDRESS]]]**, collectively referred to as "Parties", shall be effective upon the authorized signatures of both Parties to this Agreement ("Effective Date").

WHEREAS, the District, a special purpose municipal corporation, provides water and sewer service to its constituents; and

WHEREAS, the District desires to retain the Consultant to perform certain professional services necessary to perform the **Geneva Reservoir Recoating** ("Project"); and

WHEREAS, the District procured the professional services as required by RCW 39.80; and

WHEREAS, the Consultant represents it has available and offers to provide qualified personnel and facilities necessary to accomplish such services required for the Project within the required time.

The Parties enter into this Agreement. The term Agreement and Contract shall be used interchangeably and refer to this Agreement.

SECTION 1: PERIOD OF PERFORMANCE

1.1. All required work and services specified in the terms and conditions of this Agreement for the Project per Exhibit A, Scope of Work, shall be completed on **May 30, 2026** unless extended or terminated earlier by the District pursuant to the terms and conditions of this Agreement. The District reserves the right to let the Agreement expire and to select another consultant to perform the additional study and/or phases.

1.2. Time is a material consideration in the performance by the Consultant under this Agreement. The Consultant shall complete its work and services within the Project schedule, including any established milestones and task completion dates, and the Period of Performance, set forth in the Scope of Work. The completion dates for tasks may be modified by a written directive; however, the Period of Performance for the Agreement may only be modified through an amendment. No completion dates shall be extended because of any unwarranted delays attributable to the Consultant. Completion dates may be extended in the event of a delay caused by the District which results in a delay in the performance of an affected task, or because of unavoidable delay caused by any governmental action or other conditions beyond the control of the Consultant, which could not be reasonably anticipated and which results in a delay in the performance of an affected task.

1.3. Time Extensions. The Total Price, Period of Performance and task budgets shall not be increased because of any unwarranted delays or costs attributable to the Consultant. In the event of a delay not attributable to the Consultant which (1) delay could not be reasonably anticipated and (2) results in an increase in costs to perform the work, the

District may, through the execution of an amendment, increase the Total Price, Period of Performance and/or task budget.

SECTION 2: ADMINISTRATION AND SUPERVISION

2.1. District. An employee of the District, hereinafter called the "Project Manager," who shall be designated in writing by the General Manager, shall perform day-to-day management of this contract. The General Manager or their designee will issue notices to proceed, approve all requests for payment, authorize termination or modification of tasks, and approve in writing changes to the task budgets. The Project Manager will be responsible for determining when the Consultant has satisfactorily performed all work and for ensuring that the Consultant complies with all provisions of this Agreement.

2.2. Consultant. The Consultant represents that it has, or will obtain, all personnel necessary to perform the services required under this Agreement and that such personnel shall be qualified, experienced and licensed as may be necessary or required by laws and regulations to perform such services. All services required under this Agreement shall be performed by the Consultant, its employees, or by subconsultants whose selection has been authorized by the District; provided, that the District's authorization shall not relieve the Consultant or its subconsultants from any duties or obligations under this Agreement or at law to perform in a satisfactory and competent manner. All contractual duties, requirements and obligations that the Consultant owes to the District shall also be owed to the District by the Consultant's subconsultants retained to perform the work pursuant to this Agreement. The term "Consultant" shall refer to **[[[FIRM NAME]]]** and all of its subconsultants.

A. Authorized Subconsultants. The Contract shall identify in the Scope of Work, Exhibit A, the subconsultants who are authorized to perform work under this Contract.

B. Process for Adding or Removing Subconsultants. If during the term of this Contract, the Consultant wishes to add or remove a subconsultant, the Consultant shall provide the General Manager with a written request identifying the proposed change. The written request shall include the following information:
   1. Identity of the subconsultant and the work to be performed;
   2. Resumes and documentation outlining the subconsultant's experience;
   3. If the subconsultant is to perform work of the consultant or another subconsultant already identified in Exhibit A, an explanation of why the work is going to be transferred to a new subconsultant.

C. District Approval of Subconsultants. The District has sole discretion in approving or rejecting proposed subconsultants. Each subcontract shall be available for review and the cost summary subject to review by the Project Manager prior to the subconsultant proceeding with the work. Before any subconsultant not already identified in the Contract can perform any work under this Contract, the District shall provide written authorization to the Consultant.

D. Substitution of Personnel. The Consultant recognizes and agrees that if a change is made substituting or changing assigned key personnel, the Consultant shall be responsible for any and all costs associated with "Transfer of Knowledge and Information". The Transfer of Knowledge and Information shall be defined to

include the labor hours spent reviewing project documentation, participating in meetings with Project personnel, and participating in site visits to familiarize oneself with the Project and project location(s). The District shall not pay for any time spent for the "Transfer of Knowledge and Information".

1. The Consultant shall provide sufficient advance notice of any intention to remove or reassign key personnel. The Consultant shall not remove or reassign the key personnel assigned to this Project without written consent from the District. Exhibit E, Key Personnel, is a listing of key individuals for this work. Notice for the substitution of individuals and positions identified as Key Personnel shall include the following:

    a. An explanation of the reason for the reassignment or removal;
    b. The name of the person proposed to replace the individual; and
    c. Identification of the experience and qualifications of the individual proposed.

2. For individuals who are not identified as "Key Personnel" in Exhibit E, the Consultant shall provide documentation supporting the labor rate for the substituted personnel prior to submitting an invoice and the labor rate shall not exceed 110 percent of the originally assigned personnel's labor rate.

3. District Request Removal Personnel. The Consultant shall remove from the Project any personnel or subconsultant if, after the matter has been thoroughly considered by the District and the Consultant, the District considers such removal necessary and in the best interests of the Project and so advises the Consultant in writing. In this case, the District will compensate the consultant for Transfer of Knowledge costs associated with the removal of any personnel or subconsultant.

SECTION 3: SCOPE OF WORK

3.1. The District hereby retains the Consultant upon the terms and conditions contained herein to perform certain work and services on the Project. The work and services for the Project to be performed by the Consultant are set forth in Exhibit A, Scope of Work, attached hereto, and incorporated herein by this reference. The general Project Schedule is also set forth in Exhibit A, attached hereto and incorporated herein by reference.

3.2. The District shall make available to the Consultant, without cost, copies of as-built plans, drawings, survey notes, studies, soil reports, maintenance and performance records, and other relevant data, and property descriptions of various District facilities related to the Project, which are readily available, and on file at the District. These documents are available solely as additional Information to the Consultant and do not relieve the Consultant of its duties and obligations under this Agreement nor constitute any representation or warranty by the District as to conditions or other matters related to the Project.

3.3. It shall be the responsibility of the Consultant to gather and become familiar with all site information including existing improvements specific to each assigned Task Order.

SECTION 4: CHANGES IN WORK

4.1. Any direction from the District to perform work that results in an increase or decrease in scope, changes to the Total Price or Period of Performance, or changes impacting the Scope and Budget for the project shall be made only by an amendment prior to the work being performed.

4.2. In the event the Consultant identifies something that may impact the scope of work, Project Schedule and/or cost, Consultant shall inform the Project Manager within five (5) business days of the event and possible impacts to scope, schedule and cost. If appropriate, the parties shall execute an amendment.

4.3. The District may, at any time, by written amendment direct the Consultant to make additions within the general scope of the services or work to be performed under this Agreement, delete portions of the Project, or revise portions of the work. Any changes within the general scope of work, which result in an increase or decrease in time of performance or cost, shall only be made by amendment.

SECTION 5: RESPONSIBILITY OF THE CONSULTANT

5.1. Standard of Care

A. The Consultant shall be responsible for the professional quality, technical adequacy and accuracy, timely completion and coordination of all plans, designs, drawings, specifications, reports and other services prepared or performed pursuant to this Agreement. The Consultant shall perform its work to conform to generally accepted professional standards applicable to the types of services and work provided hereunder. The Consultant shall be responsible for the professional standards, performance and actions of all persons and firms performing work pursuant to this Agreement. The Consultant shall, without additional compensation, correct or revise any errors, omissions or specific breaches of a contractual obligation in such plans, designs, drawings, specifications, reports and other services.

B. The District's approval of plans, drawings, designs, specifications, reports and other products of the professional services rendered hereunder shall not in any way relieve the Consultant of responsibility for the technical adequacy or accuracy thereof. Neither the District's review, approval or acceptance of, nor payment for, any of the services shall be construed to operate as a waiver of any rights under this Agreement or of any cause of action arising out of the performance of this Agreement.

C. The Consultant shall be knowledgeable and familiar with the District's Construction General Conditions and any District provided Division 0 (which includes General and Supplemental conditions and Bidding Provisions) and Division 1 (General Construction Requirements). Any technical specifications drafted by the Consultant shall be consistent with these Divisions and such technical specifications should not create any ambiguity or conflict with these Divisions.

D. Consistent with generally accepted professional standards, the Consultant shall promptly bring to the District's attention any concerns that the Consultant has regarding the design, or any finding, conclusions, or final decisions made by the District. The Consultant shall, at the District's request, provide the District with a written evaluation of its concerns, along with proposed solutions to any identified problems.

5.2. Maintenance of Project Documentation

A. Upon written request by the Project Manager, the Consultant shall provide the District with access to all documents and correspondence, including e-mail communications, memoranda, and all other written materials prepared or used in performance of work on this Project.

B. The Consultant is cautioned that information and documentation submitted to the District may become a public record in accordance with the Revised Code of Washington and may not be exempt from disclosure under the Washington State Public Records Act.

C. The Consultant acknowledges that unauthorized disclosure of information or documentation concerning this Project may cause substantial economic loss or harm to the District. Except as otherwise required by Court Order or subpoena, the Consultant shall not without prior written authorization by the General Manager allow the release, dissemination, distribution, sharing, or otherwise publication or disclosure of information or documentation obtained, discovered, shared or produced pursuant to this Agreement.

SECTION 6: PRODUCTS

6.1. In the performance of this Agreement, the Consultant shall, to the extent practicable, design and draft specifications that provide for maximum use of structures, machines, products, materials, construction methods, and equipment which are readily available through competitive procurement, or through standard or proven production techniques, methods and processes.

6.2. The Consultant shall not, in the performance of work under this Agreement, produce a design or specification which would require the use of structures, machines, products, materials, construction methods, equipment, or processes which the Consultant knows to be available only from a single source, unless the Consultant has provided a written justification for the use of a single source in writing and the District concurs.

6.3. The Consultant shall not, in the performance of work under this Agreement, produce a design or specification which would be restrictive or written in such a manner as to contain proprietary, exclusionary, or discriminatory requirements other than those based upon performance, unless such requirements are necessary to test or demonstrate a specific thing, or to provide for necessary interchangeability of parts and equipment. The Consultant shall report to the District any single source or restrictive design or specification giving the reason(s) why, in the Consultant's professional judgment, it is necessary to restrict the design or a particular specification. The Consultant shall substantiate in writing, and to the District's satisfaction, the basis for the single source or restrictive design or specification.

6.4. When one or more brand names or trade names of comparable quality or utility are listed, the words "or approved equal" shall follow the brand name(s) and the salient characteristics shall be identified.

SECTION 7: COMMENCEMENT AND MONTHLY REPORTS

7.1. Notice to Proceed. After execution of this Agreement by the District and the Consultant, the District will issue a written notice to proceed on the Project or specific tasks thereof. Such notices to proceed will be provided for specific tasks identified as necessary to produce specified work products and shall set forth the date of commencement of the work, a description of the work to be performed, the schedule for the work authorized, and the budgets for such tasks. Upon receipt of a notice to proceed, the Consultant shall promptly commence work.

7.2. Monthly Reports. Unless otherwise stated in the Scope of Work, not later than the 10th day of each calendar month during the performance of the Project, the Consultant shall submit to the Project Manager, a monthly report, in a format approved by the Project Manager, sufficient to show the activities completed and the Project progress as measured against the Project Schedule and Exhibit B, Project Budget. At a minimum the monthly report shall identify work completed, costs incurred, budget status (budget vs. estimated balance to complete), amendments, project schedule, any variance between planned vs. actual project performance, all issues that may result in completion of any task beyond the established schedule or task budget, and all issues that may result in an increase in Total Price.

SECTION 8: COMPENSATION

8.1. Subject to the provisions set forth in this Agreement, the District will pay the Consultant for authorized and satisfactorily completed work and services rendered under this Agreement. No more than monthly progress payments shall be full compensation for work performed and services rendered, for all supervision, labor, supplies, materials, equipment or use thereof, taxes, and for all other necessary incidentals, but in no case shall the total progress payment exceed the Total Price as defined herein. The amount to be paid to the Consultant shall be computed as hereinafter set forth; provided, that such payment shall not exceed a maximum amount of **[[[CONTRACT AMOUNT]]] DOLLARS ([[[$XXX,XXX]]])** ("Total Price"). In the event the Consultant incurs costs in excess of the Total Price, the Consultant shall pay such excess from its own funds and the District shall not be required to pay any part of such excess and the Consultant shall have no claim against the District on account thereof.

8.2. Compensation for work and services shall be based on Labor Costs (fully burdened billing rates that include wages and salaries, benefits, overhead and profit), and Other Direct Costs.

A. Labor Costs. Direct Labor Costs shall be the total number of allowable hours worked on each Task Order by each individual multiplied by the Billing Rates identified in Exhibit B.

1. Billing Rates are “fully loaded,” which includes salaries, overhead, and profit.

2. The District shall only pay the Billing Rate and shall not pay any premium associated with overtime.

3. The parties agree to the Billing Rates as set forth in Exhibit B. Billing Rates may be subject to reasonable adjustments, but only in accordance with paragraph 8.4 below.

B. Other Direct Costs. Other Direct Costs ("ODC") are those costs identified within Exhibit D or any Task Order-specific scope of work which can be specifically identified with the Contract objectives, are required for performance of the Contract, are approved in advance in writing by the Project Manager, and are actually incurred.

8.3. Unallowable Costs. The District shall not pay for any costs or direct charges associated with or relating to the following activities:

A. Any resubmission, changes to or adjustments in the invoices, and fixing improper invoices and the preparation and submission of monthly invoices if this cost is not included in the Consultant's overhead.

B. Preparation of, discussion and/or negotiation of a request for adjustments in any Billing Rate and/or Labor Escalation percentage; and

C. Changing or reassigning personnel or subconsultants, including but not limited to preparing requests concerning Transfer of Knowledge for Key Personnel. Exception, the District will pay for costs associated with the change or reassignment resulting from a written request from the District requesting the specific personnel or subconsultant change.

D. Preparation of any documentation related to, discussion of, or negotiation of equitable adjustment, disputes, claims or Section 16, Disputes and Remedies.

E. Meals, except when in Travel Status outside of Whatcom and Skagit counties.

8.4. Limitations on Changes to Labor Rates.

A. The Consultant agrees that all Billing Rates identified in this Agreement shall be effective for the entire Contract duration, including all amendments; provided however, Billing Rates may be increased at the sole discretion of the District on an annual basis.

B. Billing Rate increases must be based on actual and verifiable increases in labor costs.

C. Should the Consultant seek an adjustment in Billing Rate(s) or ODC, Consultant must notify the District in writing of its request to modify the existing rate. Consultant shall submit only one request per year that must include all individual rate increase requests. This request shall include the amount of the increase for each rate in additional to the new rate.

8.5. Approval of Increases by District; Adjustments in Billing Rates, and the amount of any rate increase require the approval of the General Manager. The Consultant shall provide additional information as requested by the District. The District shall review the Consultant's request for a rate increase and respond in writing to the request within sixty (60) calendar days of receipt of such request.

8.6. Effective Period. Any change to the Billing Rates shall not be effective until the date the General Manager approves, in writing, the increase. Rates shall not be retroactive. Only services performed after the date the General Manager approves the rate increase shall be billed at the new Billing Rate. The written approval is considered a part of the Contract documents and shall be incorporated into the Contract in the next amendment.

8.7. Invoice Process. The Consultant shall submit to the Project Manager an invoice for payment for work completed to the end of the previous month associated with active Project Task Orders. Such invoices shall be for work performed subsequent to that work covered by all previously submitted invoices and shall be computed pursuant to the rates and limitations set forth hereinabove.

A. Invoices shall detail the work by task, hours and employee name and level for which payment is being requested; include copies of all invoices from authorized subconsultants for which payment is being requested; and shall itemize, and include copies of, receipts and invoices for the Other Direct Costs.

B. At no time shall the total cumulative amounts paid for Project work exceed the total which would be due upon the completion of all Project work multiplied by the percentage of the required work satisfactorily completed, as determined by the District.

C. In the event of a disputed invoice, the District shall pay the undisputed amounts and withhold from payment the disputed portion of the invoice.

8.8. Prompt Payment of Subconsultants. Within ten (10) business calendar days of receipt of a progress payment from the District that includes dollars for work performed by subconsultants, Consultant shall pay such subconsultants out of such amounts as are paid by the District, for all work satisfactorily completed by the subconsultant.

8.9. Final Payment. Final payment of any Task Order balance earned by and payment to the Consultant for Project work will be made within sixty (60) calendar days after all of the following:

A. Satisfactory completion of all work required by this Agreement;

B. Receipt by the District of the plans, studies, surveys, photographs, maps, calculations, notes, reports and all other documents and/or deliverables which are required to be prepared and submitted by the Consultant under this Agreement;

C. Delivery of all equipment/materials purchased specifically for the Project where the District has reimbursed the Consultant for such costs;

D. Receipt by the District of a fully executed final statement of amounts invoiced by and paid to each subconsultant under this Agreement; and,

E. Execution and delivery by the Consultant of a release of all claims against the District arising under or by virtue of this Agreement, other than such claims, if any, as may be specifically exempted by the Consultant from the operation of the release in stated amounts to be set forth therein.

F. No payment, whether monthly or final, to the Consultant for any Project work shall constitute a waiver or release by the District of any claims, right or remedy it may have against the Consultant under this Agreement or by law; nor shall such payment constitute a waiver, remission or discharge by the District of any failure or fault of the Consultant to satisfactorily perform the Project work as required under this Agreement.

SECTION 9: TERMINATION OF AGREEMENT

9.1. Termination for Default

A. The District may terminate this Agreement, in whole or in part, in writing if the Consultant substantially fails to fulfill any or all of its material obligations under this Agreement through no fault of the District.

B. If the District terminates all or part of this Contract for default, the District shall determine the amount of work satisfactorily performed to the date of termination and the amount owing to the Consultant using the criteria set forth below; provided, that (a) no amount shall be allowed for anticipated profit on unperformed services or other work and (b) any payment due to the Consultant at the time of termination may be adjusted to the extent of any additional costs the District incurs because of the Consultant's default. In such event, the District shall consider the actual costs incurred by the Consultant in performing the Project work to the date of termination, the amount of work originally required which was satisfactorily completed to the date of termination, whether that work is in a form or of a type which is usable and suitable to the District at the date of termination, the cost to the District of completing the work itself or of employing another firm to complete it and the inconvenience and time which may be required to do so, and other factors which affect the value to the District of the Project work performed to the date of termination. Under no circumstances shall payments made under this provision exceed the total price set forth in active Task Orders executed under this Agreement. This provision shall not preclude the District from filing claims and/or commencing litigation to secure compensation for damages incurred beyond that covered by withheld payments.

C. Upon receipt of a termination notice the Consultant shall at no additional cost to the District:

1. Promptly discontinue all services affected (unless the notice directs otherwise);

2. Terminate all subcontracts to the extent they relate to the work terminated; and

3. No later than thirty (30) calendar days after receipt of termination, promptly deliver or otherwise make available to the District all data, drawings, electronic drawing files, specifications, calculations, reports, estimates, summaries, Official Project Documentation and other Project documentation, such other information and materials as the Consultant or subconsultants may have accumulated in performing this Agreement, whether completed or in progress and all equipment/materials purchased specifically for the Project where the District has paid the Consultant for such items.

D. Termination for Convenience.

1. The District may terminate this Agreement, in whole or in part, for the convenience of the District. The District shall terminate by delivery to the Consultant a Notice of Termination specifying the extent of the termination and the effective date.

2. If the District terminates this Contract for convenience, the District shall pay the Consultant only for the following items:

   a. An amount for Labor Costs and Indirect Costs in accordance with the Contract and Exhibit B for services satisfactorily performed to the date of termination;

   b. Actual and reasonable Other Direct Costs, as allowed under Exhibit D, incurred before the termination; and

   c. Actual and Reasonable termination settlement costs the Consultant reasonably incurs relating to commitments which had become firm before the termination, unless the District determines to assume said commitments. Reasonable termination settlement costs include settlement costs for subconsultants and actual reasonable accounting and clerical costs related to preparing a termination settlement proposal.

3. Upon receipt of a termination notice the Consultant shall at no additional cost to the District:

   a. Promptly discontinue all services affected (unless the notice directs otherwise);

   b. Terminate all subcontracts to the extent they relate to the work terminated;

   c. No later than thirty (30) calendar days after receipt of termination, promptly deliver or otherwise make available to the District all data, drawings, specifications, calculations, reports, estimates, summaries, Official Project Documentation, other Project documentation, and such other information and materials as the Consultant may have accumulated in performing this Agreement, whether completed or in progress and all equipment/materials purchased specifically for the Project where the District has reimbursed the Consultant for such costs;

d. Take any action necessary, or that the District may direct, for the protection and preservation of property related to this Agreement that is in the possession of the Consultant and in which the District has or may acquire an interest.

SECTION 10: OWNERSHIP AND USE OF DOCUMENTS

10.1. Reports, studies, drawings, specifications, calculations or other information developed under the terms of this Agreement shall become the property of the District after full payment to Consultant for their preparation. Any reuse of drawings/plans, specifications and/or calculations for another project without written verification or adaptation by Consultant will be at the District's sole risk and without liability or legal exposure to Consultant. District shall defend, indemnify and hold Consultant harmless from all claims, damages, losses, and expenses, including attorney's fees, arising out of or resulting therefor. The District further acknowledges that it may receive certain materials from Consultant by way of electronic file and agrees that should it modify such materials in connection with their subsequent use, that Consultant shall bear no responsibility for the contents thereof.

SECTION 11: THIRD-PARTY CLAIMS AND DISPUTES

11.1. At the District's request, Consultant will assist the District in review and evaluation claims and disputes, preparing information for the District's legal counsel, providing services as witness in litigation or arbitration to which the District is a party and providing other services in connection with actual or potential claims or disputes arising out of the work, regardless of whether or not consultant is named in such legal action. The parties shall cooperate to agree on the compensation for such services. If Consultant is determined to be responsible for the claim, dispute or litigation due to its negligence or breach of the contract herein, it shall remit back to the District the amounts paid under this section to the extent of such negligence or breach.

SECTION 12: AUDIT AND ACCESS TO RECORDS

12.1. The Consultant, including its subconsultants, shall maintain books, records, documents, and other evidence directly pertinent to performance of the work under this Agreement in accordance with generally accepted accounting principles and practices consistently applied. The District, or any of its duly authorized representatives, shall, for the purpose of audit and examination, have access to and be permitted to inspect such books, records, documents, and other evidence for inspection, audit and copying for a period of six years after completion of the Project. The District shall also have access to such books, overhead data, records and documents during the performance of Project work if deemed necessary by the District to verify work performed and Invoices, to assist in negotiations for amendments to the Agreement or modifications to tasks, and to resolve claims and disputes.

12.2. Audits conducted under this Section shall be in accordance with generally accepted auditing standards and established procedures and guidelines of the reviewing or audit agency(ies).

SECTION 13: LEGAL RELATIONS

13.1. The Consultant shall comply, and shall ensure its subconsultants comply, with all the terms of this Agreement and the District resolutions and federal, state and local laws, regulations and ordinances applicable to the work and services to be performed under this Agreement.

13.2. In performing work and services hereunder, the Consultant and its subconsultants, employees, agents and representatives shall be acting as independent contractors and shall not be deemed or construed to be employees or agents of the District in any manner whatsoever. The Consultant shall not hold itself out as, nor claim to be, an officer or employee of the District by reason hereof and will not make any claim, demand or application to or for any right or privilege applicable to an officer or employee of the District. The Consultant shall be solely responsible for any claims/costs and/or losses arising from the Consultant's failure to pay wages, compensation, benefits or taxes and/or pay for services, supplies and/or materials provided by Consultant employees, agents and representatives, including subconsultants, and will protect, defend, indemnify and hold the District harmless there from.

13.3. To the maximum extent permitted by law, the Consultant agrees to indemnify and save harmless the District, its officers, agents and employees, from and against any and all suits, claims, actions, losses, costs, reasonable attorney fees and expenses, penalties, judgments, settlements and damages of whatsoever kind or nature arising out of, in connection with, or incident to errors or omissions in the performance of contractual obligations, and/or the negligent performance of work or services provided by or on behalf of the Consultant, except to the extent caused by the negligence of the District. The Consultant's indemnity obligation includes an obligation to (a) satisfy any judgment or other final decision of a court or other tribunal; (b) pay any reasonable settlement negotiated by the District with respect to claims that are within the scope of the indemnity obligation; and (c) pay all claims against the District by an employee or former employee of the Consultant or its subconsultants, and for this purpose, by mutual negotiation, the Consultant expressly waives, as respects the District only, all Immunity and limitation on liability under any industrial insurance act, including Title 51 RCW, other worker's compensation act, disability benefit act, or other employee benefit act of any jurisdiction which would otherwise be applicable in the case of such claim, The Consultant further agrees to defend all claims against the District and its officers, agents, and employees which, if proven, could result in liability of the District, its officers, agents, or employees for loss or damage caused by any such errors, omissions, or negligent work or services performed by the Consultant. The Consultant's obligation to defend shall include timely payment of all reasonable attorney fees, costs and expenses incurred in the defense of such claims. In the event of litigation between the parties to enforce the rights under this paragraph, reasonable attorney fees and expenses shall be allowed to the prevailing party.

13.4. The District's rights and remedies in this Agreement are in addition to any other rights and remedies provided by law.

13.5. The indemnification, protection, defense and save harmless obligations contained herein shall survive the expiration, abandonment or termination of this Agreement.

SECTION 14: INSURANCE

14.1. Prior to execution of the Agreement, the Consultant shall file with the District certificates of insurance and endorsements from the insurer(s) certifying to the coverage of all insurance required herein. All evidences of insurance must be certified by a properly authorized officer, agent, general agent or qualified representative of the insurer(s) and shall certify the name of the insured, the type and amount of insurance, the location and operations to which the insurance applies, the expiration date, and provides that the District receives notice at least thirty (30) calendar days prior to the effective date of any policy limit or cancellation of required coverages. The Consultant shall notify the District at least thirty (30) calendar days prior to the effective date of any cancellation or reduction in coverage in the policy. Documentation of coverage shall be provided on each insurance renewal date. The Consultant shall, upon demand of The District, make available to The District at Consultant's local office in The District all such policies of insurance and the receipts of payment of premiums thereon. Failure to provide such policies of insurance within a time acceptable to The District shall entitle The District to suspend or terminate the Consultant's work hereunder, Suspension or termination of this Agreement shall not relieve the Consultant from its insurance obligation hereunder.

14.2. The Consultant shall obtain and maintain at a minimum the limits of insurance set forth below. By requiring such minimum insurance, the District shall not be deemed or construed to have assessed the risks that may be applicable to the Consultant under this Agreement. The Consultant shall assess its own risks and, if it deems appropriate and/or prudent, maintain greater limits and/or broader coverage.

14.3. Each insurance policy shall be written on an "occurrence" form; excepting that insurance for professional liability, errors and omissions when required, is acceptable on a "claims made" form.

14.4. If coverage is approved and purchased on a "claims made" basis, the Consultant shall continue coverage either through (1) policy renewals for not less than seven years from the date of completion of the work which is the subject of this Agreement or (2) the purchase of an extended discovery period for not less than seven years from the date of completion of the work which is the subject of this Agreement, if such extended coverage is available.

14.5. If, in order to meet the requirements of this Section, the Consultant must rely on the insurance to be provided by one or more subconsultant, then such subconsultant(s) shall be required to meet all of the requirements herein applicable to the insurance they are providing, and shall include District and Consultant as additional insureds on all liability policies except Professional Liability/Errors & Omissions and Workers Compensation. The District will not make any payments on work performed by subconsultants until all insurance documentation from such subconsultants have been received and accepted by the District.

14.6. Consultant hereby grants to District a waiver of any right to subrogation which any insurer of said Consultant may acquire against the District by virtue of the payment of any loss under such insurance. Consultant agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the District has received waiver of subrogation endorsement from the insurer.

14.7. The Consultant shall maintain limits no less than, for:

A. General Liability. $1,000,000 combined single limit per occurrence for bodily injury, personal injury and property damage, and for those policies with aggregate limits, a $1,000,000 aggregate limit. Coverage shall be at least as broad as Insurance Services Office form number (CG 00 01) covering COMMERCIAL GENERAL LIABILITY.

B. Professional Liability Errors and Omissions. $2,000,000 per claim and in the aggregate.

C. Automobile Liability. $1,000,000 combined single limit per accident for bodily injury and property damage. Coverage shall be at least as broad as Insurance Services Office form number (CA 00 01) covering BUSINESS AUTO COVERAGE, symbol 1 "any auto"; or the combination of symbols 2, 8, and 9.

D. Workers' Compensation. Statutory requirements of the State of residency. Coverage shall be at least as broad as Workers' Compensation coverage, as required by the Industrial Insurance Act of the State of Washington, as well as any similar coverage required for this work by applicable Federal or "other States" State Law.

E. Employer's Liability or "Stop Gap". Coverage shall be at least as broad as the protection provided by the Workers Compensation policy Part 2 (Employers Liability) or, in states with monopolistic state funds, the protection provided by the "Stop Gap" endorsement to the general liability policy.

14.8. Any deductibles or self-insured retentions must be declared to, and approved by, the District. The deductible and/or self-insured retention of the policies shall not limit or apply to the Consultant's liability to the District and shall be the sole responsibility of the Consultant.

14.9. The insurance policies required in this Agreement are to contain, or be endorsed to contain the following provisions:

A. Liability Policies except Professional Liability & Errors and Omissions and Workers Compensation:

1. The District, its officers, officials, employees and agents are to be covered as additional insured as respects liability arising out of activities performed by or on behalf of the Consultant in connection with this Agreement. Such additional insured status shall include Products-Completed Operations.

2. To the extent of the Consultant's negligence, the Consultant's insurance coverage shall be primary insurance as respects the District, its officers, officials, employees and agents. Any insurance and/or self-insurance maintained by the District, its officers, officials, employees or agents shall not contribute with the Consultant's insurance or benefit the Consultant in any way.

3. The Consultant's insurance shall apply separately to each insured against whom a claim is made and/or lawsuit is brought, except with respect to the limits of the insurer's liability.

4. When Consultant's scope of work involves a vessel on or around water the policy shall include Jones Act coverage.

14.10. If at any time of the foregoing policies shall fail to meet the minimum standards above, the Consultant shall, upon notice to that effect from the District, promptly obtain a new policy, and shall submit the same to the District, with the appropriate certificates and endorsements, for approval.

SECTION 15: DISPUTES AND REMEDIES

15.1. Choice of Law. This Agreement and all provisions hereof shall be interpreted in accordance with the laws of the State of Washington in effect on the Effective Date.

15.2. General Manager Review. All claims, counter-claims, disputes and other matters in question between the District and the Consultant arising out of or relating to this Agreement or the breach of it shall be referred to the General Manager or a designee for determination, together with all facts, data, contentions and so forth which relate thereto. The General Manager shall make a determination within thirty (30) calendar days of such referral.

15.3. Mediation and Arbitration. The parties will first attempt to mediate any dispute arising under or in connection with this Agreement, in accordance with the provisions of the Washington Uniform Mediation Act, Ch. 7.07 RCW. In the event such mediation is unsuccessful, any such dispute will be settled by arbitration as set forth in this Section 15.3. No legal right of action may arise out of any such dispute until arbitration has been completed. Each party, however, will have full access to the courts to compel compliance with these arbitration provisions, to enforce an arbitration award or to seek injunctive relief, whether or not arbitration is available or under way. The arbitration will take place as follows:

A. Notice. The party demanding arbitration must give the other parties a written notice. The written notice must contain, in addition to the demand for arbitration, a clear statement of the issue or issues to be resolved by arbitration, an appropriate reference to the provision of the Agreement which is involved, the relief the party requests through arbitration, and the name and address of the arbitrator requested by the demanding party.

B. Response. The party receiving the notice of the demand for arbitration must provide a written response to the demand within fifteen (15) days following receipt of the notice. The response must contain a clear statement of the respondent's position concerning the issue or issues in dispute and the name and address of the arbitrator it selects as the arbitrator to hear the dispute. If the parties fail to agree upon an arbitrator within five (5) days following the time allowed for this response to the demand for arbitration, the demanding party may apply to the presiding department of the Superior Court for Whatcom County, Washington to designate the arbitrator.

C. Arbitration. The arbitrator will meet in Bellingham, Washington, within twenty (20) days after the selection of the arbitrator and will allow each party an opportunity to submit oral and written evidence and argument concerning the issue in dispute. The arbitrator may resolve only the question or questions submitted to arbitration and must include as part of his consideration a full review of the Agreement and all material incorporated in the Agreement by reference.

D. Decision. The decision of the arbitrator will be final and will bind the parties.

E. Consent to Change. By consent of all parties to any dispute under this Agreement, the method of selection of an arbitrator or arbitrators, or even the arbitrator(s) selected, may be changed at any time.

F. Payment of Costs. Subject to the provisions of Section 13.3, in any arbitration, each party will pay its own costs, witness fees and attorneys' fees. The fees charged by the arbitrator and the costs of the proceeding shall be borne equally.

G. State Law. Except to the extent inconsistent with the terms of this Agreement, the terms and provisions of Chapter 7.04A RCW are incorporated in and made a part of this Agreement.

15.4. Exhaustion of Administrative Remedies. Referral to and determination by the General Manager or a designee and mediation and arbitration shall be a condition precedent to the commencement of a civil action to adjudicate such dispute.

15.5. Jurisdiction & Venue. Subject to these provisions herein, the Superior Court of Whatcom County, Washington, shall have exclusive jurisdiction and venue over any legal action arising under this Agreement and the laws of the state of Washington shall apply.

SECTION 16: NOTICE

16.1. Any notice required to be given under the terms of this Agreement shall be in writing and directed to the party at the address set forth below. Notice shall be considered issued and effective upon receipt thereof by the addressee-party.

[[[NAME OF FIRM]]]	Lake Whatcom Water and Sewer District
Attn: [[[NAME]]]	Attn: Justin Clary, General Manager
[[[ADDRESS]]]	1220 Lakeway Drive
[[[CITY, STATE ZIP]]]	Bellingham, WA 98229
Phone: [[[###-###-####]]]	Phone: 360.734.9224

SECTION 17: ENTIRETY, AMENDMENT AND EXECUTION OF AGREEMENT

17.1. This Agreement merges and supersedes all prior negotiations, representations and agreements between the Parties relating to the subject matter hereof and constitutes the entire agreement between the Parties.

17.2. The Contract documents included in the Agreement are identified below. Any inconsistency or conflict between the Contract documents shall be resolved by giving precedence in the following descending order of importance:

A. Professional Services Agreement for **Geneva Reservoir Recoating**, as modified by the latest amendment;
B. Exhibit A, Scope of Work, as modified by the latest amendment;
C. Exhibit B, Project Budget;
D. Exhibit C, Insurance;
E. Exhibit D, Allowable Other Direct Costs; and
F. Exhibit E, Key Personnel List

17.3. This Agreement shall be executed in two (2) counterpart copies, any of which shall be considered for all purposes as the original.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed by their respective authorized officers or representatives as of the day and year written below.

[[[COMPANY NAME]]]

By:_____ Dated:_____
[[[NAME]]], [[[TITLE]]]

Lake Whatcom Water and Sewer District

By:_____ Dated:_____
Justin Clary, General Manager

Approved as to Form

By:_____ Dated:_____
Robert Carmichael
Attorney for Lake Whatcom Water and Sewer District

EXHIBIT A

SCOPE OF SERVICES
Lake Whatcom Water and Sewer District
GENEVA RESERVOIR RECOATING

The scope of work for the project is summarized below.

A1. Project Management

1. Organize, manage, and coordinate the disciplines required to accomplish the services required for this project. Perform quality assurance/quality control of all final documents. Maintain and enforce the project schedule and budget. Consultant will provide backup documentation of work products as appropriate to adequately record the Consultant's work, including assumptions made, regulation interpretations, methodology used, calculations, rationale supporting recommendations, and meeting or conversation records. Standards for the design deliverables will be provided to the selected consultant during negotiations.

A2. Design and Bidding

The Consultant shall:

1. Develop the design into detailed construction contract documents consisting of plans, specifications, and engineer's cost estimates.
2. Coordinate design and construction activities with the design team for the reservoir recoating schedule of work.
3. Attend and assist with pre-bid conference,
4. Respond to bidder inquiries,
5. Prepare and distribute addenda, and

A3. Services During Construction (to be included in future contract amendment)

The Consultant shall fully perform or assist with:

1. Construction support services including providing an experienced and qualified project representative to assist the District to monitor the on-site progress and quality of the executed work, as needed;
2. Attend progress meetings;
3. Prepare agenda and meeting notes;
4. Review contractor submittals and shop drawings for conformance to the contract documents;

5. Review and respond to contractor's requests for information and issue design clarifications as necessary;
6. Assist District staff in preparation of change orders;
7. Review contractor's payment requests;
8. Coordinate and evaluate specialized testing;
9. Prepare record drawings; and,
10. Prepare project close-out documentation.

EXHIBIT B

BILLING RATES
Lake Whatcom Water and Sewer District
GENEVA RESERVOIR RECOATING

All work shall be billed per the attached Billing Rate schedule.

EXHIBIT C

PROJECT SCHEDULE
GENEVA RESERVOIR RECOATING

Project Schedule

Design	Completion by January 15, 2026
Bidding	Completion by March 15, 2026
Services During Construction	Completion by December 31, 2026

EXHIBIT D

INSURANCE
Lake Whatcom Water and Sewer District
GENEVA RESERVOIR RECOATING

[Attach Insurance Certificate and Endorsements]

EXHIBIT E

ALLOWABLE OTHER DIRECT COSTS (ODC's)
Lake Whatcom Water and Sewer District
GENEVA RESERVOIR RECOATING

Allowable ODC's include Subconsultants and Reimbursables as listed in Exhibit B – Billing Rates:

Subconsultants:

- List Subconsultants.

Reimbursables:

- Publication charges
- Project application fees, project permit fees
- Reproduction of drawings and construction documents
- Direct expenses for travel, meal and lodging outside of Whatcom and Skagit Counties
- Mileage at project-current IRS mileage rates
- Specialized equipment rental, at rental rate

EXHIBIT F

KEY PERSONNEL LIST
Lake Whatcom Water and Sewer District
GENEVA RESERVOIR RECOATING

Key Personnel List

- [[[NAME, TITLE]]]
- [[[NAME, TITLE]]]
- [[[NAME, TITLE]]]
- [[[NAME, TITLE]]]

GENEVA RESERVOIR RECOATING

ATTACHMENT A
PROJECT INFORMATION

LAKE WHATCOM WATER & SEWER DISTRICT

DIVISION 22-1, DIVISION 30, AND GENEVA RESERVOIR COATING CONDITION ASSESSMENT



EVERGREEN
COATING ENGINEERS

December 2022

INTRODUCTION

Lake Whatcom Water and Sewer District (District) contracted with Evergreen Coating Engineers, LLC. (ECE) to complete a condition assessment of three of the District's reservoirs: Division 22-1, Division 30, and the Geneva Reservoir. The field evaluation was conducted on September 14 and 15, 2022 by Lance Stevens, P.E., NACE CIP Level 3.

REVIEW OF EXISTING DOCUMENTATION

The District provided copies of dive inspections of all three reservoirs performed by H2O Solutions, Inc. on April 10, 2018 (H2O report). The reports were reviewed prior to the site visit. After the site visits were conducted, the District provided the "Reservoir Seismic Vulnerability Assessment Technical Report" prepared by BHC Consultants in December 2016 (BHC Report). The District provided the Option C Summary information regarding changes to the reservoir storage requirements as part of the Division 7 Reservoir being designed. Information from these reports is utilized in the Analysis section of this report.

SITE INVESTIGATION

The site inspection started with a floating inspection of the interior roof and general condition assessment of the exterior of the Division 22-1 Reservoir followed by the general condition assessment of the exterior of the Division 30 Reservoir. Six 20mm adhesion testing dollies were placed on each reservoir and coating samples taken. The second day began with a floating inspection of the interior roof, general condition assessment of the exterior, and coating sample grab and repair on the Geneva Reservoir. The adhesion tests were then performed on the Division 22-1 and 30 Reservoirs followed by the repair of the test and sample scars. Adhesion testing was not performed on the Geneva Reservoir due to the deteriorated condition of the exterior coating system. Coating thickness measurements were taken of the exterior coating system on the Division 22-1, Division 30, and Geneva reservoirs. Given the deteriorated nature of the interior coating system on each reservoir, per field discussion with Kristin Hemenway, interior coating thickness measurements were not taken.

Coating Adhesion Testing

There are two options for recoating a tank. The first option is for all of the coatings to be removed to bare steel and a new coating system applied. The second option is for the existing coatings to be cleaned, damaged areas repaired, and a new system applied over the old system. Not removing the existing system lowers project cost by eliminating the containment that must be constructed if the existing coatings are blasted off. From experience, the cost to blast clean a structure versus pressure wash and hand clean every rusted spot are about equal. It must be understood that applying a new system over an existing system, or top coating, does carry risk to the owner. Any issue that occurs with the existing coating system after top coating will not be warranted by the Contractor as there is likely an existing condition associated with the issue that is outside of his control. The issues can be delamination from stresses that are imparted to the existing system by the new coating system or sometimes from the solvents used in the new system which can attack the old coating system causing failures. There are two ways to help lessen these risks, but some risk does remain. The first way is adhesion testing and the second is to paint large patches of the new coating system on the existing system and give it time to field test the effects.

Adhesion testing is utilized to determine how tight the existing coating system is held to itself and to the structure. The purpose of the testing is to determine whether the existing coating system can withstand

the weight of the new coatings as well as the stresses that will be imparted as the new coatings dry. The test is conducted by utilizing an epoxy adhesive to glue an aluminum dolly to the coating. Once the epoxy is cured, an adhesion tester is attached to the dolly and pressure is applied until the dolly is pulled from the surface or 3,500 psi is reached. If the coatings fail, they will fail in some combination of cohesive failure which is within the same layer of paint, and/or adhesive failure which is failure between layers of paint or between the paint and the substrate. The glue can also fail adhesively or cohesively but in either event it is noted as a percentage of glue failure. For this test, a Defelsko PosiTest AT-A Automatic S/N 17275 was utilized which has a hydraulic pump that automatically applies a smooth and continuous pull-off pressure which will provide the best result.

Six dollies were set on each tank with three placed on the roof and three placed on the first ring of the shell wall. The test results are provided in tabular format under the site visit description for each reservoir. Typically, results over 1,000 psi are acceptable and over 1,400 psi are preferred. It should be noted that these are values that Evergreen Coating Engineers recommends and industry values, depending upon the source, can be as low as 600-700 psi. We believe that the risk that the Owner carries in opting to top coat versus the savings involved should meet a higher standard than the industry minimums.

Evaluating Rust on Steel Surfaces

Rust grades utilized to describe the degree of rusting on surfaces are per SSPC-VIS 2: Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces. Table 1 contains the definitions the rust grades, percentage of rusting, and type of rusting. Photographs of the various percentages and types are located in the SSPC-VIS 2 Manual. Spot rusting refers to rusting where the bulk of the rusting is concentrated in a few localized areas of the painted surface. General rusting refers to various size rust spots that are randomly distributed across the surface. Pinpoint rusting refers to rust that is distributed across the surface as very small individual specks of rust.

Table 1: Scale and Description of Rust Grades per SSPC-VIS 2

Rust Grade	Percent of Surface Rusted	Photographic Standard[1]		
		Spot	General	Pinpoint
10	Less than or equal to 0.01%	NONE		
9	Greater than 0.01% to 0.03%	9-S	9-G	9-P
8	Greater than 0.03% to 0.1%	8-S	8-G	8-P
7	Greater than 0.1% to 0.3%	7-S	7-G	7-P
6	Greater than 0.3% to 1.0%	6-S	6-G	6-P
5	Greater than 1.0% to 3.0%	5-S	5-G	5-P
4	Greater than 3.0% to 10.0%	4-S	4-G	4-P
3	Greater than 10.0% to 16.0%	3-S	3-G	3-P
2	Greater than 16.0% to 33.0%	2-S	2-G	2-P
1	Greater than 33.0% to 50.0%	1-S	1-G	1-P
0	Greater than 50.0%	NONE		

[1]Photographic references are found in the SSPC-VIS 2 publication.

Testing for Total Metals in the Coating System

Samples were taken of the interior and exterior coating systems for each reservoir and tested by EPA Method 6010D (SW-846) for RCRA 8 Metals except for Mercury. Mercury is not a metal known to be found in coating systems and per Method 6010D, is not typically analyzed by this method. Results for

lead, which is the primary metal of concern, are provided in the description for each reservoir and the full results are provide in Appendix A: Metals Testing Laboratory Results.

Division 22-1 Reservoir

The Division 22-1 Reservoir is a 50 feet diameter by 35 feet tall, 500,000 gallon, welded steel reservoir that was constructed in 1971 by Union Tank Works. The reservoir has one 24-inch by 18-inch elliptical manway and one round, 24-inch diameter rooftop access hatch for interior entry. The reservoir has a level gauge that faces the driveway and an exterior light that is mounted above the level gauge and ladder. A water sample stand and impressed current cathodic protection rectifier are also mounted near the base of the ladder. Photographs are provided in Appendix B: Division 22-1 Reservoir Photos.

The roof is accessed by a ladder with a ladder cage and safety climb device. The ladder cage ends flush with the rooftop and safety climb device only extends a couple feet above the roof making the transition onto the roof from the ladder difficult. For this reason, the District currently only allows access to the roof via manlift. The ladder and cage are not compliant with current WAC 296-876-600 due to the ladder rungs being closer than 7-inches to the shell wall, as well as the dimensions and flare of the cage not meeting the WAC requirements. Once on the roof, there is a fall restraint cable attached to an anchor near the vent for use in fall protection. There are five cathodic protection ports and one junction box for the connection of the reference anodes to the rectifier. There are two U-shaped railings marked as unsafe for tie-off use near the hatch.

The interior roof and area above the waterline were inspected by inflatable raft. The inspection equipment was deployed to the roof of the reservoir. A tarp was laid out on the roof, the raft was inflated, and all gear was disinfected utilizing a 200+ ppm bleach solution for approximately 15 minutes. The raft was deployed inside of the reservoir and the inspection was begun. The interior structure of the roof consists of one center column and dollar plate supporting radial C-channel rafters that connect to the side shell. The rafters are bolted to the dollar plate and are bolted to an angle bracket that is welded to the side shell. Many of the bolts are missing at the rafter to dollar plate connection. The rust grades of the interior components are provided in Table 2: Division 22-1 Interior and Exterior Surfaces Rust Grades.

Table 2: Division 22-1 Interior and Exterior Surfaces Rust Grades

Interior Surfaces	Rust Grade	Exterior Surfaces	Rust Grade
Roof Plates	0	Roof Plates	4-G
Rafters	0	Shell Wall	8-G
Shell Wall	6-S	Ladder and Cage	4-G
Center Column	5-P		
Ladder	3-G		
Overflow Pipe	5-P		
Inlet Pipe	4-P		

The interior shell wall of the reservoir was covered in rust staining but it did not appear that there was much corrosion on the wall above the waterline except at the rim angle where the shell wall connects to the roof plates. The roof plates, rafter angle brackets on the shell wall, rafters, and bolts connecting the rafters to the angle brackets have undergone significant corrosion.

The exterior shell wall has a significant number of coating repair patches distributed around the reservoir. Areas of delamination exist as well as areas of corrosion. The lower foot of the shell wall was covered in mildew and dirt around the reservoir but the areas above that appeared clean. The reservoir roof was heavily covered with lichens, dirt, and evergreen needles. Delamination of the coating system was observed in multiple locations all around the reservoir without a distinguishable pattern; however, the primer was still largely present. The roof vent is an older style "mushroom" vent and was covered with #24 mesh. The doubler plate for the vent riser does not sit flush with the roof and some type of filler material, maybe a foam or mastic, was used to seal the gaps. The hatch riser has corrosion over approximately one-third of the exterior surface area; however, the hatch lid appears to be in good condition.

The site around the reservoir is generally well kept. The ringwall sits a couple of inches above the surrounding grade on average although a few areas lower than that exist. The sill plate grout is in fair condition with some missing. There is a gravel driveway that is at least ten feet wide in good condition around the reservoir. There are trees on the east and west sides of the reservoir while the north and south sides are open. No tree limbs overhang or touch the reservoir but limbs do overhang the driveway. The site appears well drained.

The reservoir is in a developed neighborhood with houses immediately adjacent to the reservoir. The reservoir is not protected by fencing. The ladder is protected by a cage and cage guard. The cage could be bypassed for access to the roof without much difficulty. No intrusions alarms were noted on the reservoir.

The results of the adhesion testing are provided in Table 3: Division 22-1 Reservoir Adhesion Test Results below. Dollies 1, 2, and 3 were placed on the shell wall of the reservoir while Dollies 4, 5, and 6 were placed on the roof. The coating layers are as follows from the primer to the outermost coat, respectively: Tan primer, red intermediate, dark green finish coat, silver tie-coat, and light green top coat.

Table 3: Division 22-1 Reservoir Adhesion Test Results

Dolly No.	Max: 3,500 PSI	Failure %			Location of Failure[1]
		Adhesion %	Cohesive %	Glue %	
1	1662		7		B
		25			D/E
			68		F
2	1591			5	Y/Z
			15		B
			80		E
3	1592		100		B
4	661	5			C/D
		10			E/F
				15	Y/F
				25	Y/Z
		45			B/C
5	1152	5			C/D
				35	F/Y
		60			B/C
6	299	25			C/D
		75			B/C

[1] **A = Substrate; B= Primer coat; C= Intermediate coat; D= Finish; E= Tie-Coat; F= Topcoat; Y= Adhesive; Z= Dolly**

The interior coating system tested at 4,500 ppm for lead and the exterior coating system tested at 16,000 ppm for lead. Dry film thickness testing of the exterior coating system averaged 15.2 mils. As discussed with the District in the field, the interior coating system was not tested due to the condition of that coating system.

Division 30 Reservoir

The Division 30 Reservoir is a 25 feet diameter by 40 feet tall, 150,000 gallon, welded steel reservoir that was constructed in 1973 by Union Tank Works. The reservoir has one round 24-inch diameter manway and one 24-inch square rooftop access hatch for interior entry. The reservoir has a level gauge that faces the driveway and an exterior light that is mounted above the level gauge and ladder. A water sample stand is located at the top of the driveway. A galvanic cathodic protection rectifier, meter, and electrical cabinet are mounted near the base of the ladder. Photographs are provided in Appendix C: Division 30 Reservoir Photos.

The roof is accessed by a ladder and landing system with a ladder cage and safety climb device. There is one intermediate platform and the cage extends above the reservoir to the same height at the guardrails that extend out on either side from the cage. The safety climb device only extends a couple feet above the roof making the transition onto the roof from the ladder difficult. Once on the roof, there is a fall restraint cable attached to an anchor near the roof vent for use in fall protection. There are five cathodic protection ports and one junction box for the connection of the reference anodes to the rectifier.

The interior roof and area above the waterline were inspected from the access hatch. The interior ladder has a ladder cage which prevents the interior from being inspected from a raft. The roof is a self-

supporting dome and therefore has no rafters or columns. The rust grades of the interior components are provided in Table 4: Division 30 Interior and Exterior Surfaces Rust Grades.

Table 4: Division 30 Interior and Exterior Surfaces Rust Grades

Interior Surfaces	Rust Grade	Exterior Surfaces	Rust Grade
Roof Plates	2-G	Roof Plates	5-S
Shell Wall	6-S	Shell Wall	5-S
Ladder	5-G	Ladder and Cage	7-S
Overflow Pipe	5-S		
Inlet Pipe	3-G		

The interior shell wall of the reservoir is undergoing corrosion mostly above the waterline although it is not significant at this time. There is a significant amount of rust staining present from corrosion on the roof plates. The roof plates are rusting over a significant portion of the roof but the corrosion appears to be light surface rusting at this time and not likely to require any structural repairs nor leave any significant pitting. The riser for the access hatch is heavily pitted, actively corroding, and should be cleaned and coated soon.

The exterior shell wall has a number of coating repair patches mostly on the lower half of the first ring of the reservoir. These may be the result of rock chips from mowing the area between the reservoir and driveway. Areas of delamination between the top and intermediate coats are occurring in that area as well. One area on the top ring to the left of the ladder has several large coating failures that are actively corroding. The lower foot of the shell wall has mildew growth but most of the rest of the shell wall was clean of growth. The exception is the backside of the reservoir where it is apparent the crew could not reach to complete the cleaning of the shell wall. In this area, active growth of mildew and moss is occurring. The reservoir roof was heavily covered with lichens, dirt, and evergreen needles; however, the coatings appeared to be fully intact with the exception of the doubler plate for the vent riser which was covered with surface rust. The vent is an older style “mushroom” vent and was covered with #24 mesh.

The site around the reservoir is generally well kept. The ringwall of the reservoir is mostly at grade level in the front and below grade around the back side of the reservoir. The sill plate grout is mostly missing. The reservoir site was dug into a hillside so there is an embankment on the backside of the reservoir with a heavily treed hillside ascending steeply from there. The trees surrounding the reservoir are mature and significantly taller thus the degree of debris on the roof. The site appears well drained.

The reservoir is in a developed neighborhood with houses in the general area of the reservoir. The reservoir is not protected by fencing. The ladder is protected by a cage and cage guard. The cage could be bypassed for access to the roof without much difficulty. No intrusions alarms were noted on the reservoir.

The results of the adhesion testing are provided in Table 5: Division 30 Reservoir Adhesion Test Results below. Dollies 1, 2, and 3 were placed on the shell wall of the reservoir while Dollies 4, 5, and 6 were placed on the roof. The coating layers are as follows from the primer to the outermost coat, respectively: Red primer, dark green finish coat, silver tie-coat, and light green top coat.

Table 5: Division 30 Reservoir Adhesion Test Results

Dolly No.	Max: 3,500 PSI	Failure %			Location of Failure[1]
		Adhesion %	Cohesive %	Glue %	
1	915			10	Y/Z
		30			D/E
			60		C
2	1,837			5	Y/Z
		15			D/E
				50	Y/E
		15			D/C
			15		C
3	945			40	Y/Z
				25	Y/E
		10			D/E
			25		C
4	1,082		60		B
			40		C
5	1,089	10			D/C
			40		C
			50		B
6	1,161		100		C

[1] **A = Substrate; B= Primer coat; C= Finish; D= Tie-Coat; E= Topcoat; Y= Adhesive; Z= Dolly**

The interior coating system tested at 18,000 ppm for lead and the exterior coating system tested at 11,000 ppm for lead. Dry film thickness testing of the exterior coating system averaged 8.9 mils while the interior tested at 9.7 mils.

Geneva Reservoir

The Geneva Reservoir is a 50 feet diameter by 32 feet tall, 500,000 gallon, welded steel reservoir that was constructed in 1979 by Reliable Steel Fabricators. The reservoir has one 30-inch manway and one 24-inch square rooftop access hatch for interior entry. The reservoir has a level gauge that faces the driveway and three exterior lights. One light is mounted above the level gauge and ladder and the other two are spaced around the reservoir. A water sample stand and an impressed cathodic protection rectifier are at the base of the reservoir. Photographs are provided in Appendix D: Geneva Reservoir Photos.

The roof is accessed by a galvanized ladder with a ladder cage and safety climb device. There is one intermediate platform and the cage extends above the reservoir to the same height at the guardrails that extend out on either side from the cage. Once on the roof, there is a fall restraint cable attached to an anchor near the roof vent for use in fall protection. There are seven cathodic protection ports and one junction box for the connection of the reference anodes to the rectifier.

The interior roof and area above the waterline were inspected by inflatable raft. The inspection equipment was deployed to the roof of the reservoir. A tarp was laid out on the roof, the raft was inflated, and all gear was disinfected utilizing a 200+ ppm bleach solution for approximately 15 minutes. The raft

was deployed inside of the reservoir and the inspection was begun. The interior structure of the roof consists of one center column and dollar plate supporting radial C-channel rafters that connect to the side shell. The rafters are bolted to the dollar plate and are bolted to a tab that is welded to the side shell. Two bolts are missing at the rafter to dollar plate connection. The rust grades of the interior components are provided in Table 6: Geneva Interior and Exterior Surfaces Rust Grades.

Table 6: Geneva Interior and Exterior Surfaces Rust Grades

Interior Surfaces	Rust Grade	Exterior Surfaces	Rust Grade
Roof Plates	0	Roof Plates	0
Rafters	0	Shell Wall	4-S
Shell Wall	4-P	Ladder and Cage	10
Center Column	4-S		
Ladder	5-S		
Overflow Pipe	2-P		
Inlet Pipe	4-S		

The interior shell wall of the reservoir has a lot of rust staining but it did not appear that there was much corrosion on the wall above the waterline. The coatings are severely blistered and pinpoint rusting is starting to appear through some of the blisters. The roof plates, rafter tabs on the shell wall, rafters and dollar plate are covered with a mild to moderate surface corrosion.

The coatings on the exterior shell wall are largely intact even though they have lost significant color and gloss. Streaks of rust staining from the roof are found around the reservoir. The top ring has a number of scratches and other scars where the top coat was removed and the primer mostly remains but some corrosion has begun. Overall, the shell appears to still be protected other than minor corrosion in random locations. The reservoir roof was clean but most of the roof is covered with a light surface rust. The remaining top coat and primer are protecting less than 25% of the roof area. The roof vent appears to comply with DOH requirements and was screened with #24 mesh. The hatch riser has light to moderate surface corrosion over most of it.

The site around the reservoir is generally well kept. The ringwall generally sits 2- to 6-inches above the surrounding grade. The sill plate grout is in fair condition with some broken or missing. There is a gravel driveway that is at least ten feet wide in good condition around the reservoir. There are no trees close to the reservoir. The site appears well drained.

The reservoir is fenced in the same site as the maintenance building. The ladder is protected by a cage and cage guard. The cage could be bypassed for access to the roof without much difficulty. No intrusions alarms were noted on the reservoir.

Adhesion testing was not performed on the Geneva Reservoir due to the condition of the exterior coating system. The interior coating system tested at 26 ppm for lead and the exterior coating system tested at 200 ppm for lead. Dry film thickness testing of the exterior coating system averaged 4.1 mils. As discussed with the District in the field, the interior coating system was not tested due to the condition of that coating system.

ANALYSIS

The analyses of these reservoirs are intended to take the observations from this site investigation, dive reports from H2O Solutions, and the seismic assessment performed by BHC Consultants and provide the District with the current state of their reservoirs.

The degree of corrosion on steel surfaces are rated mild, moderate, and severe. Mild corrosion means that the surface is rusted but steel loss is negligible and pitting of the surface is not likely detrimental. Moderate corrosion means that steel loss is likely negligible; however, pitting of the surface is likely. Severe corrosion means that steel loss has occurred that may require repair and heavy pitting of the surface should be expected.

The cost of abrasive blast cleaning and the longevity of applied coating systems are significantly impacted by the degree of surface pitting and steel roughness caused by corrosion, particularly on interior surfaces. The standard for surface preparation is an SSPC SP-10 Near White Blast which requires all rust, coatings, or other materials to be removed from the surface and only 5% staining may remain. Pits and roughened steel can be very difficult to clean to that standard due to the variety of angles required to attack the surface and the very small crevices in which a tiny bit of rust may be. The degree that a surface is roughened, particularly on edges of steel or in cases of severe pitting, increase the likelihood of thin areas in the coating system, pockets where the coatings do not wet out the surface properly, or holidays. These weaknesses in the coating system combine to allow moisture to get to the substrate quicker and start the corrosion cycle over again.

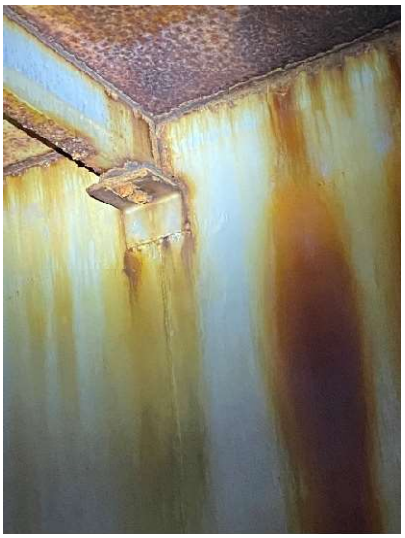
Seal welding is discussed relative to each reservoir and is highly recommended. Seal welding results in a tighter interior reservoir roof and eliminates locations that cannot be blast cleaned and coated. These areas include underneath the roof lap joints and between the rafters and roof plates. The coating system on a seal welded roof will last longer than one on a non-seal welded roof given an equally applied coating system. Examples of the damage to the roof plates from the inaccessible area between rafter and roof plate are included below where excess portions of the rafters were removed during the seal welding process. The steel loss in the deeper pits is more than half of the plate thickness of 1/4-inch. Additionally, there was steel loss on the rafter flange.

Two examples of the corrosion damage to the roof plates above the rafters of a 38-year-old reservoir.

Division 22-1 Reservoir

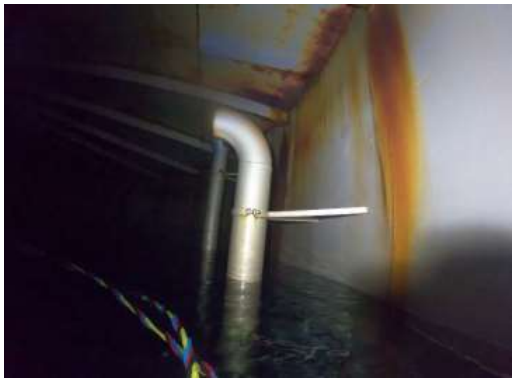
The exterior coating system has numerous repair patches on it and areas of delamination exist around the shell wall and roof. Some of the repair patches are likely due to rock chips but others are likely due to failures of the top coat that was applied over the original coating. A few areas of corrosion exist although most of these areas appears mild in nature. The organic growth on the roof is likely due to a very difficult environment to keep a reservoir clean. The area receives a lot of rainfall and has nearby trees that likely keep the roof covered in wet needles and debris. The adhesion test results were generally positive but two of the six dollies pulled well below the recommended minimum. Comparison to the H2O Solutions report show that on the backside of the reservoir a significant number of repair patches have been made since 2018.

The interior coating system can be broken down into two components above the waterline: The roof structure and the shell wall. The coatings on the roof and rafters have completely failed and aggressive corrosion is occurring. The flanges on the C Channel rafters are severely corroded in places and it can be assumed that the roof plates above the flanges are similarly corroded. The rafters are connected to the shell wall by angle brackets. Most of these brackets and the bolts that connect them to the rafters are moderately to severely corroded. The roof plates have light to moderate corrosion over most of the surface area. The interface between the roof plates and the shell wall at the rim angle also shows significant corrosion.



The cathodic protection system and coatings on the shell wall, while heavily stained, appear to be protecting the substrate. The H2O Solutions report showed minimal corrosion below the waterline even though the coating system was blistered throughout. Staining and corrosion above the waterline appears to have increased significantly since 2018.

Staining on the wall in 2022.



Staining on the wall in 2018.

The BHC report describes the seismic deficiencies of the Division 22-1 Reservoir and recommended that the reservoir be retrofitted with Option A, an external gravity ringwall collar with an estimated project cost of $367,000 in 2016. Using ENR Construction Cost Index (ENR CCI), the cost today is approximately $515,000 based upon the 2016 CCI of 10338, a Nov 2022 CCI of 13175, and an estimated 10% increase from 2022 to 2023 for a CCI of 14493 or an ENR CCI multiplier of 1.402. That option also included the following additional improvements: New 24- and 30-inch manways, level gauge, ladder, and flexible couplings.

As noted in the site investigation, the ladder system is not compliant with WAC 296-876-600 and should be removed and replaced. When replaced, the cage should be extended above the height of the reservoir roof and guardrails constructed out from either side of the cage to facilitate a safe area for crew to work around the access hatch and facilitate the transition from the ladder to the roof and back. Additionally, the site should be graded so that the ring wall sits 6-inches above the surrounding ground and the sill grout needs to be repaired. The District should also consider adding intrusion switches on the ladder guard and access hatch.

It is my opinion that the exterior coating system is not a good candidate to be cleaned and top coated. The coating system should be removed and replaced based upon several factors. First, the reservoir has already been top coated once and the risks of failure generally increase with the more coats of paint that are applied. Second, the two low adhesion test results along with general observations of random delaminations, show that weak areas in the coating exist. Finally, the organic growth on the roof has likely grown roots into the existing coating system and may have damaged it.

The interior of the reservoir has undergone significant corrosion. Abrasive blasting the interior will likely reveal many areas where repair to the structural steel will be required and will expose significant steel loss. Additionally, the remaining surface will be rough and pitted creating a short lifecycle for the coating system. The upper flanges on the rafters and the roof plates above them have likely degraded enough that without significant amounts of flat bar bridging, seal welding is not an option. Some of the lower flanges may also require repair. While the side shell appears to be in good condition, the roof and roof structure should be removed and replaced rather than rehabilitated. Replacing the roof could also provide the District with the opportunity to raise the height of the shell wall for improvement against seismic sloshing wave. The ability to add to the height of the shell wall is dependent upon the thicknesses of the existing shell wall. We recommend having this option evaluated by a structural engineer if desired

by the District.

The District has three alternatives for this reservoir with costs provided in Table 7: Division 22-1 Reservoir Alternative Opinion of Probable Construction Costs.

1. Recoat the reservoir without seal welding and do not seismically upgrade it. This alternative is a stopgap measure meant to keep the reservoir in service until such time as the reservoir can be either demolished and rebuilt or fully rehabilitated. No appurtenance improvements are included in this alternative but the rafter angle brackets and structural deficiencies discovered during abrasive blasting would be repaired. I recommend an AWWA D102 ICS 5 coating system (zinc primer/epoxy/epoxy) for this alternative with an anticipated coating life of 8 to 12 years. For this alternative, I recommend spot repairing and managing the exterior coating system until the useful life of the new interior coating system is expended. The reservoir would remain seismically deficient.
2. Replace the roof, seismically upgrade, and recoat the reservoir. This alternative would include appurtenance upgrades and include seismic upgrades recommended in the BHC Report. Using an ICS 3 interior coating system and an OCS 4 exterior coating system would provide a coating life of approximately 25 to 30 years for each.
3. Demolish existing and construct new reservoir. This alternative would result in a brand new reservoir with anticipated coating lives of 25 to 30 years each with ICS 3 and OCS 4 systems.

Table 7: Division 22-1 Reservoir Alternative Opinion of Probable Construction Costs

Alternative	Total Project Cost
Alternative 1 – Recoat w/o upgrading the reservoir.	$ 640,000
Alternative 2 – Replace roof, seismically upgrade, and recoat reservoir.	$2,120,000
Alternative 3 – Demolish existing and construct new reservoir.	$2,100,000

Division 30 Reservoir

The exterior coating system has numerous repair patches on it and areas of delamination exist around the shell wall and roof. Some of the repair patches at ground level are likely due to rock chips and others are likely due to impacts. A few areas of corrosion exist on the top ring on the left side of the ladder. The organic growth on the roof is likely due to a very difficult environment to keep a reservoir clean. The area receives a lot of rainfall and has nearby trees that keep the roof covered in wet needles and debris. The adhesion test results were positive. Two of the six dollies pulled below the recommended minimum but barely so. Comparison to the H2O Solutions report shows that the top coat and tie coat have delaminated from the original finish coat in a significant number of areas since 2018.

The interior coating system can be broken down into two components above the waterline: The roof and the shell wall. The coatings on the roof plates have light corrosion over approximately 20 percent of the surface area which is approximately double the area in photos from the H2O report in 2018. The shell wall appears to have a little more corrosion. The H2O report indicated that blistering of the coatings below the water line was widespread. The cathodic protection system should be protecting the steel substrate below the water line.

The BHC report describes the seismic deficiencies of the Division 30 Reservoir and recommended that the reservoir be retrofitted with Option C, an anchored supplemental ringwall with an estimated project cost

of $541,000 in 2016 or $758,000 in 2023 using the 1.402 ENR CCI multiplier calculated earlier. That option also included the following additional improvements: 8- and 10-inch flexible couplings.

The ground adjacent to the ringwall should be graded out and lowered so that the ringwall sits 6-inches above the ground. A small rock wall may need to be constructed around the back of the reservoir in order to lower the grade in that area. The sill grout needs to be cleaned and repaired. The District should also consider adding intrusion switches on the ladder guard and access hatch.

It is my opinion that the exterior coating system is currently a good candidate to be cleaned and top coated at this time. If the reservoir is not topcoated within the next 2-3 years, the reservoir should be adhesion tested again during design and reevaluated.

It is my opinion that the interior coatings of the reservoir have 3 to 5 years of life left at this time before steel loss starts to become more of a concern. Abrasive blasting the interior within the next 3 to 5 years will not likely reveal any significant issues or pitting.

The District has three alternatives for this reservoir:

1. Build a new reservoir. To be feasible, the reservoir would need to either be built on land adjacent to the existing reservoir or the existing reservoir would need to be demolished so that this reservoir can be constructed. A 26-foot diameter by 40-foot tall reservoir would provide sufficient storage and hydraulic pressure. It may be possible to clear a large enough area on the existing site to construct a reservoir of that size and then demolish the existing in order to provide working space around the structure. Alternatively, it may be possible to modify the pump station that supplies the Division 30 reservoir to work as a closed zone during construction.

   Constructing a concrete, Baker Silo-style reservoir is significantly cheaper than constructing a welded steel reservoir of the same volume or even seismically upgrading and recoating the existing reservoir. The concrete reservoir will also have a lower lifecycle cost than either the new or rehabilitated welded steel reservoir due to the cost to recoat the steel reservoir over time.
2. Recoat the reservoir and not seismically upgrade it. I would recommend recoating the interior with an AWWA D102 ICS 5 system and topcoating the exterior with an epoxy tie-coat and polyurethane finish coat that would result in a coating life of approximately 15 to 20 years. The reservoir would remain seismically deficient; however, it would preserve the steel of the reservoir. This option would require alternative storage while out of service for approximately two months.
3. Seismically upgrade and recoat the reservoir. This alternative would cause significant damage to the existing exterior coating system and thus require its full removal and replacement. I would recommend replacing the interior coatings with an AWWA D102 ICS 3 system and the exterior with an AWWA D102 OCS 4 system providing a coating life of approximately 25 to 30 years. The reservoir would be seismically stable. This option would require alternative storage while out of service for approximately four months.

Table 8: Division 30 Reservoir Alternative Opinion of Probable Construction Costs

Alternative	Total Project Cost
Alternative 1 – Construct new concrete reservoir.	$1,020,000
Alternative 2 – Recoat the reservoir without seismic upgrades.	$ 630,000
Alternative 3 – Seismically upgrade and recoat reservoir	$1,490,000

Geneva Reservoir

The exterior coating system is in poor condition at this time. The coatings on the roof are largely gone and no longer protecting the steel substrate. The coatings on the shell wall are still intact and protecting the substrate. The openness of the site is helping to keep the reservoir in better condition but corrosion on the roof will continue unabated during the rainy months. Comparison to the H2O Solutions report show that corrosion on the roof has progressed significantly since 2018 with the area actively rusting increasing perhaps 300- to 400-percent.

Roof condition in 2022.

Roof condition in 2018.

The interior coating system can be broken down into two components above the waterline: The roof structure and the shell wall. The coatings on the roof plates have completely failed and corrosion is occurring unabated. At this time, the corrosion largely appears to be mild to moderate surface corrosion. The coatings on the rafters are largely intact the rafters appear to be in fair condition with mostly light surface corrosion. The interface between the roof plates and the shell wall at the rim angle appears to be in good condition.

The impressed current cathodic protection system and coatings on the shell wall, while heavily stained, appear to be protecting the substrate. The H2O Solutions report showed minimal corrosion below the waterline even though the coating system was blistered throughout. Staining and corrosion above the waterline has increased significantly since 2018.

The BHC report describes the seismic deficiencies of the Geneva Reservoir and recommended that the reservoir be retrofitted with Option C, an anchored external ringwall with an estimated project cost of $505,000 in 2016 or $708,000 in 2023 using the 1.402 ENR CCI multiplier calculated earlier. That option also included the following additional improvements: 10- and 12-inch flexible couplings.

The site should be graded so that the ring wall sits 6-inches above the surrounding ground and the sill

grout needs to be repaired. The District should also consider adding intrusion switches on the ladder guard and access hatch.

It is my opinion that the exterior coating system is not a good candidate to be cleaned and top coated. The coating system is non-existent on the roof and because of that, the entire exterior should be abrasive blast cleaned and coated with a new coating system. A new coating system with a fluoropolymer finish coat complying with AWWA D102 OCS 4 would likely provide an exterior coating system that would last 25-30 years.

It is my opinion that the interior coating system has completely failed and is in need of replacement as soon as possible to prevent steel loss from becoming problematic. The steel loss will not likely cause structural deficiencies for five or more years; however, the corrosion will continually roughen the surface and cause future coating systems to have a shorter lifespan. As of now, the corrosion appears to be surficial in nature but given the rate of change in the amount of corrosion since 2018, the degree of corrosion will likely accelerate.

The District has three alternatives for this reservoir with costs provided in Table 9: Geneva Reservoir Alternative Opinion of Probable Project Costs.

1. Recoat the reservoir and do not seismically upgrade or seal weld it. This alternative, if conducted in the next 3 to 4 years, should prevent the reservoir from deteriorating to the point of increasing lifecycle costs. I recommend an AWWA D102 ICS 3 system for the interior and an OCS 4 system for the exterior. These coatings should provide a coating life of approximately 25 to 30 years. Because the roof is not seal welded, corrosion between the rafters and roof plates and within the roof plate lap joints will continue unabated causing rust staining of the interior and replacement or repair of the roof when steel loss becomes too great in those areas. The reservoir would remain seismically deficient.

   The remaining life of the roof of the reservoir if it is not seal welded is unknown and can vary significantly depending upon a number of factors. The way to approximate the remaining life is to measure the steel thickness of the roof plates above the rafters and just inside of the roof lap joints from on top of the roof utilizing a steel thickness gage. A rate of corrosion can be estimated based upon the recorded steel loss and age of the structure. If the corrosion is found to be significant, areas can be permanently marked on the roof so that the rate of steel loss can be monitored utilizing repeatable measurements over time.
2. Seismically upgrade and recoat the reservoir. This alternative would include the seismic upgrades recommended in the BHC Report. I recommend AWWA D102 ICS 3 and OCS 4 system for the interior and exterior to provide a coating life of approximately 25 to 30 years. Seal welding the roof would stop the continuation of steel loss in inaccessible areas; however, the cost to seal weld would increase the project cost to approximately $2,000,000. Given that the cost of a new steel reservoir is approximately $2,100,000, if the District desires a seal welded reservoir, a new reservoir should be constructed.
3. Recoat the reservoir and lower the water level to reduce seismic upgrade requirements. This alternative was not explored thoroughly but based upon the information in the BHC Report and provided by the District in the “Meeting Minutes – Option C Summary”. This alternative would use surplus storage in the Division 22-1 Reservoirs to count against the required storage in the

Geneva Reservoir and allow the water level in Geneva to be lowered to 14-feet. Per the BHC Report, other than the addition of flexible couplings, this would make the seismic upgrades unnecessary and save significant costs. Costs for this alternative were not developed due to the uncertainty of piping and system upgrades that may be required in order to facilitate this alternative.

Table 9: Geneva Reservoir Alternative Opinion of Probable Project Costs

Alternative	Total Project Cost
Alternative 1 – Recoat without seismic upgrades	$ 920,000
Alternative 2 – Seismically upgrade and recoat reservoir	$1,780,000
Alternative 3 – Recoat the reservoir and lower the water level	N/A

Conclusions and Recommendations

Based upon the results of the condition assessment and a review of supporting documentation provided by the District, Evergreen Coating Engineers is presenting the following recommendations:

1. The Geneva Reservoir should be the District's first priority to recoat. Surprisingly, even with the degree of corrosion inside and out on the reservoir, the corrosion appears to have remained largely surficial and reservoir is still in good condition. This window of opportunity will not likely last long before the corrosion progresses and becomes more moderate and severe and thus increases the overall lifecycle costs of the reservoir by shortening the coating life of both coating systems.

2. The Division 22-1 Reservoir is likely beyond the point of economical repair. The cost to replace the roof, raise the shell wall, and seismically upgrade is approximately the same cost as to demolish and rebuild the reservoir. The condition of the angle brackets connecting the rafters to the shell wall are of concern and should be evaluated as soon as possible.

   At a minimum, the District should consider abrasive blast cleaning the interior roof plates, rafters, angle brackets, and the shell wall to a point below the high waterline to determine the extent of required repairs and apply a new coating system. The cathodic protection system would protect the steel below the waterline. While this option would only be slightly less expensive than the cost provided in Alternative 1 in Table 7, it would extend the life of the reservoir and provide the District with time to plan for its replacement.

3. If land is available or can be obtained to construct a new Baker Silo-style reservoir, the Division 30 Reservoir should be planned to be replaced rather than seismically upgraded. The lifecycle costs to upgrade and/or recoat the existing reservoir are too significant compared to constructing a new reservoir and the reservoir is already half way through its design life. Additionally, storage would have to be provided, or the zone would need to be operated as a closed zone, for the duration of the project which may prove difficult.

A minor project should be immediately undertaken address the corrosion on the interior of the roof access hatch riser and exterior shell wall of the Division 30 Reservoir. Repair of these areas will extend

the life of the existing coating systems and prevent further steel loss.

APPENDIX A

METALS TESTING LABORATORY RESULTS

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-118122-1
Client Project/Site: Lake Whatcom Condition Assessment

For:
Evergreen Coating Engineers
6925 37th Ave SW
Seattle, Washington 98126

Attn: Lance Stevens

Authorized for release by:
10/9/2022 9:42:03 PM

Pauline Matlock, Project Manager
(253)922-2310
Pauline.Matlock@et.eurofinsus.com

Table of Contents

Case Narrative

Client: Evergreen Coating Engineers
Project/Site: Lake Whatcom Condition Assessment

Job ID: 580-118122-1

Job ID: 580-118122-1

Laboratory: Eurofins Seattle

Narrative

Job Narrative
580-118122-1

Comments
No additional comments.

Receipt
The samples were received on 9/21/2022 10:40 AM. Unless otherwise noted below, the samples arrived in good condition. The temperature of the cooler at receipt was 19.7º C.

Receipt Exceptions
The Chain-of-Custody (COC) was incomplete as received and/or improperly completed: There are no sample times on the COC. The default time of 00:01 has been used for these samples.

Insufficient sample volume was provided for these samples for all analyses requested. The Lead testing was prioritized per client comment on the COC, and there was not enough sample remaining for the Mercury testing, so that has been cancelled.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Client: Evergreen Coating Engineers
Project/Site: Lake Whatcom Condition Assessment

Job ID: 580-118122-1

Qualifiers

Metals

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: DIVISION 22 INT
Lab Sample ID: 580-118122-1
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		14	1.2	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Barium	**79**		2.3	0.37	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Cadmium	**0.30**	**J**	4.7	0.23	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Chromium	**3000**		6.1	1.0	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Lead	**4500**		7.0	1.0	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Selenium	ND		23	1.9	mg/Kg		09/26/22 12:23	09/26/22 21:32	1
Silver	ND		12	2.6	mg/Kg		09/26/22 12:23	09/26/22 21:32	1

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: DIVISION 22 EXT
Lab Sample ID: 580-118122-2
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		24	2.0	mg/Kg		09/26/22 12:23	09/26/22 21:36	1
Barium	4700		3.9	0.62	mg/Kg		09/26/22 12:23	09/26/22 21:36	1
Cadmium	0.83	J	7.9	0.39	mg/Kg		09/26/22 12:23	09/26/22 21:36	1
Chromium	6900		10	1.7	mg/Kg		09/26/22 12:23	09/26/22 21:36	1
Lead	16000		120	17	mg/Kg		09/26/22 12:23	09/27/22 17:02	10
Selenium	ND		39	3.1	mg/Kg		09/26/22 12:23	09/26/22 21:36	1
Silver	ND		20	4.4	mg/Kg		09/26/22 12:23	09/26/22 21:36	1

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: DIVISION 30 INT
Lab Sample ID: 580-118122-3
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.7	J	30	2.5	mg/Kg		09/26/22 12:23	09/26/22 21:39	1
Barium	1300		5.0	0.78	mg/Kg		09/26/22 12:23	09/26/22 21:39	1
Cadmium	ND		9.9	0.49	mg/Kg		09/26/22 12:23	09/26/22 21:39	1
Chromium	36		13	2.1	mg/Kg		09/26/22 12:23	09/26/22 21:39	1
Lead	18000		150	22	mg/Kg		09/26/22 12:23	09/27/22 17:05	10
Selenium	ND		50	3.9	mg/Kg		09/26/22 12:23	09/26/22 21:39	1
Silver	ND		25	5.6	mg/Kg		09/26/22 12:23	09/26/22 21:39	1

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: DIVISION 30 EXT
Lab Sample ID: 580-118122-4
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	11	J	49	4.0	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Barium	770		8.1	1.3	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Cadmium	ND		16	0.80	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Chromium	2400		21	3.5	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Lead	11000		24	3.6	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Selenium	ND		81	6.4	mg/Kg		09/26/22 12:23	09/26/22 21:43	1
Silver	ND		41	9.1	mg/Kg		09/26/22 12:23	09/26/22 21:43	1

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: GENEVA INT
Lab Sample ID: 580-118122-5
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		13	1.0	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Barium	**450**		2.1	0.33	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Cadmium	**0.25**	**J**	4.2	0.21	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Chromium	**45**		5.4	0.91	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Lead	**26**		6.3	0.93	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Selenium	ND		21	1.7	mg/Kg		09/26/22 12:23	09/26/22 21:47	1
Silver	ND		10	2.3	mg/Kg		09/26/22 12:23	09/26/22 21:47	1

Client Sample Results

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: GENEVA EXT
Lab Sample ID: 580-118122-6
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	5.4	J	25	2.0	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Barium	3200		4.1	0.65	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Cadmium	0.70	J	8.2	0.40	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Chromium	20		11	1.8	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Lead	200		12	1.8	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Selenium	ND		41	3.2	mg/Kg		09/26/22 12:23	09/26/22 21:50	1
Silver	ND		20	4.6	mg/Kg		09/26/22 12:23	09/26/22 21:50	1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 580-405003/20-A
Matrix: Solid
Analysis Batch: 405108

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 405003

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	ND		3.0	0.25	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Barium	ND		0.50	0.079	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Cadmium	ND		1.0	0.049	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Chromium	ND		1.3	0.22	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Lead	ND		1.5	0.22	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Selenium	ND		5.0	0.40	mg/Kg		09/26/22 12:23	09/26/22 20:24	1
Silver	ND		2.5	0.56	mg/Kg		09/26/22 12:23	09/26/22 20:24	1

Lab Sample ID: LCS 580-405003/21-A
Matrix: Solid
Analysis Batch: 405108

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 405003

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	50.0	48.0		mg/Kg		96	80 - 120
Barium	50.0	47.3		mg/Kg		95	80 - 120
Cadmium	50.0	46.6		mg/Kg		93	80 - 120
Chromium	50.0	46.8		mg/Kg		94	80 - 120
Lead	50.0	49.9		mg/Kg		100	80 - 120
Selenium	50.0	49.3		mg/Kg		99	80 - 120
Silver	50.0	48.8		mg/Kg		98	80 - 120

Lab Sample ID: LCSD 580-405003/22-A
Matrix: Solid
Analysis Batch: 405108

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 405003

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	50.0	48.1		mg/Kg		96	80 - 120	0	20
Barium	50.0	47.4		mg/Kg		95	80 - 120	0	20
Cadmium	50.0	46.6		mg/Kg		93	80 - 120	0	20
Chromium	50.0	46.8		mg/Kg		94	80 - 120	0	20
Lead	50.0	49.7		mg/Kg		99	80 - 120	0	20
Selenium	50.0	49.4		mg/Kg		99	80 - 120	0	20
Silver	50.0	48.4		mg/Kg		97	80 - 120	1	20

Lab Chronicle

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Client Sample ID: DIVISION 22 INT
Lab Sample ID: 580-118122-1
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:32

Client Sample ID: DIVISION 22 EXT
Lab Sample ID: 580-118122-2
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:36
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		10	405288	JLS	EET SEA	09/27/22 17:02

Client Sample ID: DIVISION 30 INT
Lab Sample ID: 580-118122-3
Date Collected: 09/14/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:39
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		10	405288	JLS	EET SEA	09/27/22 17:05

Client Sample ID: DIVISION 30 EXT
Lab Sample ID: 580-118122-4
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:43

Client Sample ID: GENEVA INT
Lab Sample ID: 580-118122-5
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:47

Client Sample ID: GENEVA EXT
Lab Sample ID: 580-118122-6
Date Collected: 09/15/22 00:01
Matrix: Solid
Date Received: 09/21/22 10:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			405003	ABP	EET SEA	09/26/22 12:23
Total/NA	Analysis	6010D		1	405108	JLS	EET SEA	09/26/22 21:50

Lab Chronicle

Client: Evergreen Coating Engineers
Project/Site: Lake Whatcom Condition Assessment

Job ID: 580-118122-1

Laboratory References:

EET SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Accreditation/Certification Summary

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Laboratory: Eurofins Seattle

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Washington	State	C788	07-13-23

Sample Summary

Client: Evergreen Coating Engineers
Job ID: 580-118122-1
Project/Site: Lake Whatcom Condition Assessment

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-118122-1	DIVISION 22 INT	Solid	09/14/22 00:01	09/21/22 10:40
580-118122-2	DIVISION 22 EXT	Solid	09/14/22 00:01	09/21/22 10:40
580-118122-3	DIVISION 30 INT	Solid	09/14/22 00:01	09/21/22 10:40
580-118122-4	DIVISION 30 EXT	Solid	09/15/22 00:01	09/21/22 10:40
580-118122-5	GENEVA INT	Solid	09/15/22 00:01	09/21/22 10:40
580-118122-6	GENEVA EXT	Solid	09/15/22 00:01	09/21/22 10:40

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Regulatory Program: ☐ DW ☐ NPDES ☑ RCRA ☐ Other:

TestAmerica Laboratories, Inc. d/b/a Eurofins TestAmerica

Client Contact	Project Manager: Lance Stevens	Site Contact:	Date:	COC No:
Evergreen Coating Engineers	Email: lance@coating-engineers.com	Lab Contact:	Carrier:	_____ of _____ COCs
6925 37th Ave SW	Tel/Fax: 206.450.6243			TALS Project #:
Seattle, WA 98126	Analysis Turnaround Time			Sampler:
206.450.6243	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
(xxx) xxx-xxxx FAX	TAT if different from Below _____			Walk-in Client:
Project Name: Lake Whatcom Condition Assessment	☐ 2 weeks			Lab Sampling:
Site: Varies	☐ 1 week			Job / SDG No.:
P O # N/A	☐ 2 days ☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	Sample Specific Notes:
Division 22 Int	9/14/22	NA				n	n	Test for RCRA 8 Total Metals Lead is the contaminant of highest concern
Division 22 Ext	9/14/22	NA						
Division 30 Int	9/14/22	NA						
Division 30 Ext	9/15/22	NA						
Geneva Int	9/15/22	NA						
Geneva Ext	9/15/22	NA						

580-118122 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments: RCRA 8 Total metals test. Lead is the contaminant of highest concern. Eliminate mercury testing first if sample size is too small.

19.7 / 19.1 IR8/ENJ/Name/Name/MM

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:			Received by:	EETN	9/21/22 10:40
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.33, dated 5/4/2020

Login Sample Receipt Checklist

Client: Evergreen Coating Engineers

Job Number: 580-118122-1

Login Number: 118122
List Number: 1
Creator: Vallelunga, Diana L

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX B

DIVISION 22 RESERVOIR PHOTOS

General condition.

General condition.

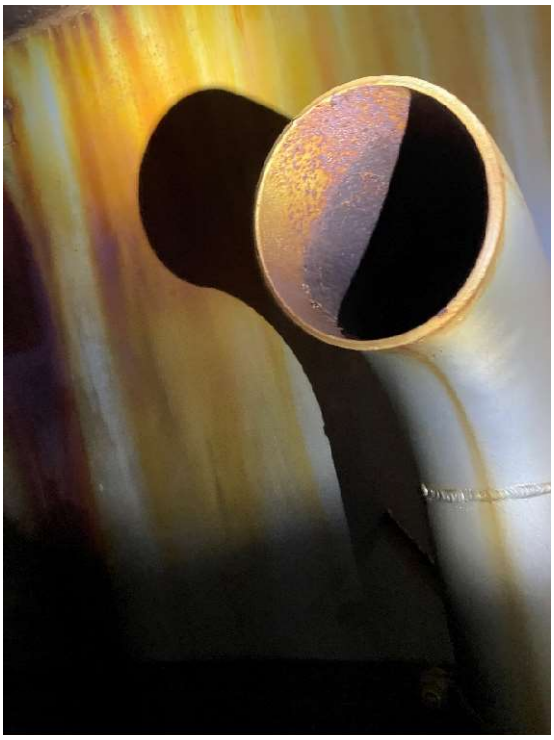
Inlet and Overflow

General condition.

Severe corrosion of the upper flange.

Severe corrosion of the upper and lower flanges.

Overflow.



Inlet pipe.

Corrosion on upper and lower flanges.

Corroded angle bracket, rim angle, and rafter.

Severe corrosion on upper and lower flanges.

Bolts to the angle bracket have corroded away.

Corroded angle bracket, rim angle, and rafter.

Severe corrosion of the roof plates and rafters.

Rafter corrosion.

Rafter and roof plate corrosion.

Rafter and roof plate corrosion.

Rafter and roof plate corrosion.

Rafter corrosion at the dollar plate.

Rafter and roof plate corrosion.

General exterior.

General exterior.

Delamination and repair areas.

Delamination and repair areas.

Delamination and repair areas.

Delamination and repair areas.

General exterior.

Ladder, cage, and level gauge.

Access hatch.

General roof condition.

General roof condition.

General roof condition.

General roof condition.

Ladder transition area.

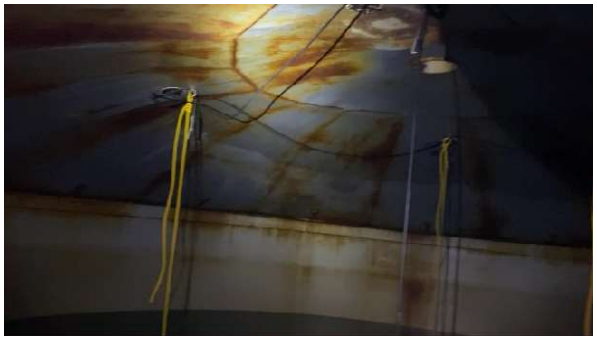
Roof vent and anchor.

Nameplate.

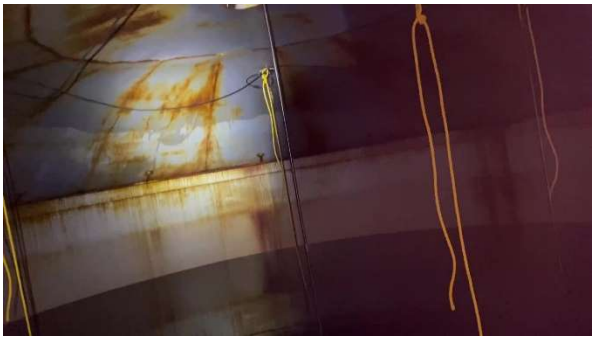
APPENDIX C

DIVISION 30 RESERVOIR PHOTOS

Mild corrosion and rust staining on the shell wall.



General rusting of the roof plates.

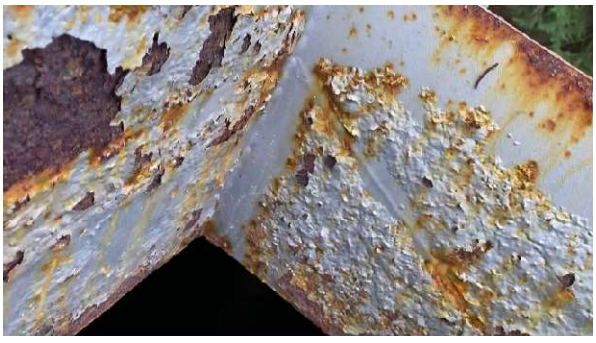


General rusting of the roof plates.

General rusting of the roof plates.

General rusting of the roof plates.

Overflow.



Moderate corrosion on the access hatch riser.

Moderate corrosion on the access hatch riser.

Moderate corrosion under the hatch riser.

Moderate corrosion under the hatch riser.

General exterior.

General exterior.

General exterior.

Ringwall below grade.

Ringwall below grade.

Moss growth on the shell wall.

General exterior.

Driveway.

Access hatch and delamination areas.

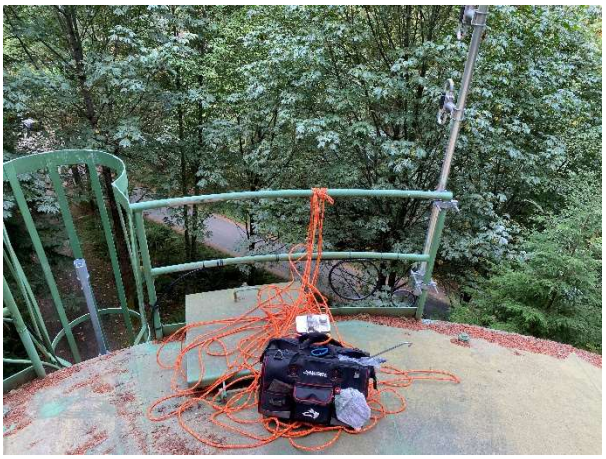
Shell wall delamination.

Mildew growth and ringwall below grade.

Grade behind reservoir.

General exterior.

Ladder transition area.



Access hatch.

Roof vent and anchor.

General roof condition.

General roof condition.

General roof condition.

Nameplate.

APPENDIX D

GENEVA RESERVOIR PHOTOS

General condition.

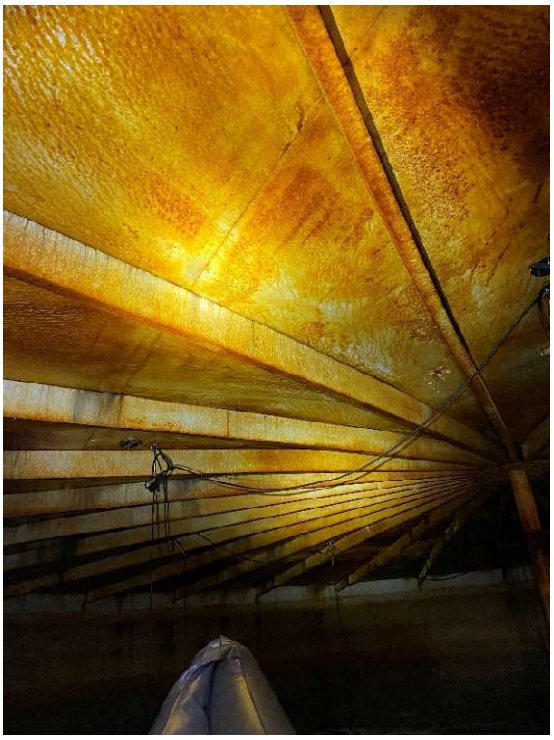
General condition.

Inlet and Overflow

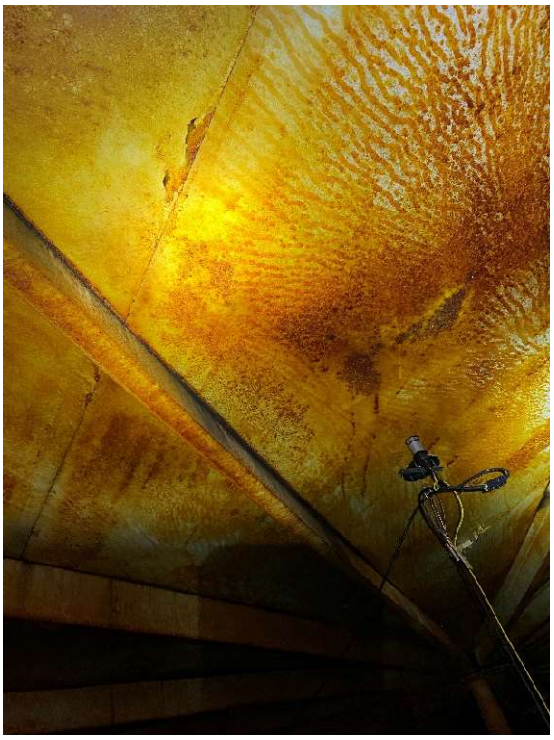
General condition.

Mild to moderate general corrosion of the roof plates.

Overflow.



Mild corrosion of the roof plates and rafters.



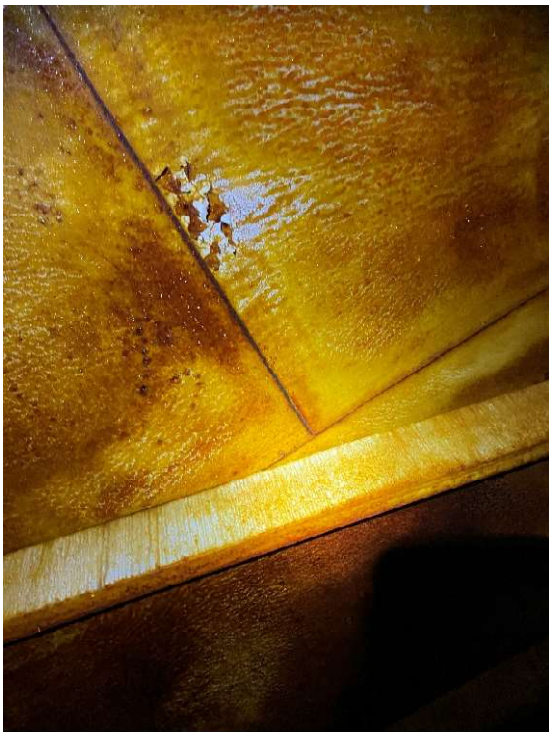
Mild corrosion of the roof plates and rafters.

Coatings on the shell wall heavily blistered.

Moderate corrosion on the rafter and roof plate.

Dollar plate.

Dollar plate.



Roofplate and rafters.

Rafter and rafter tab.

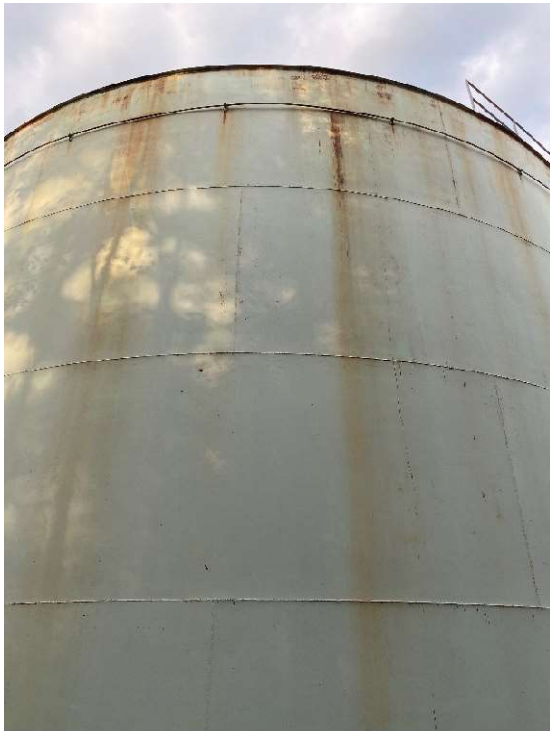
Inlet.

Dollar plate.

General exterior.

General exterior.

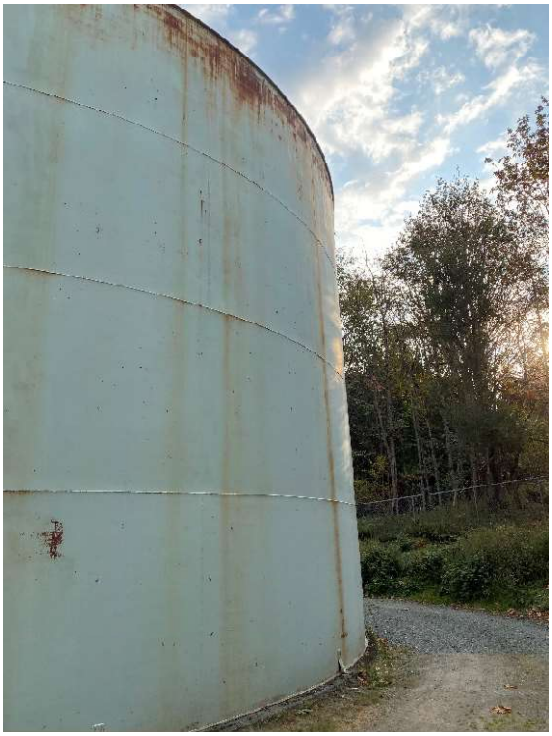
General exterior.



Corrosion beginning at the top of the shell wall.

General exterior.

Corrosion beginning at the top of the shell wall.



Corrosion beginning at the top of the shell wall.

General exterior.

Manway.

Nameplate.

General roof condition.

General roof condition.

General roof condition.

Ladder transition area.

Roof vent and anchor.

Underside of roof vent.

APPENDIX E

DRY FILM THICKNESS TEST RESULTS

Division 22 Exterior

Created:	2022-09-14 11:52:12
PosiTector Body S/N:	853527
Probe Type:	PosiTector 6000 FNDS
Probe S/N:	390538

Calibration

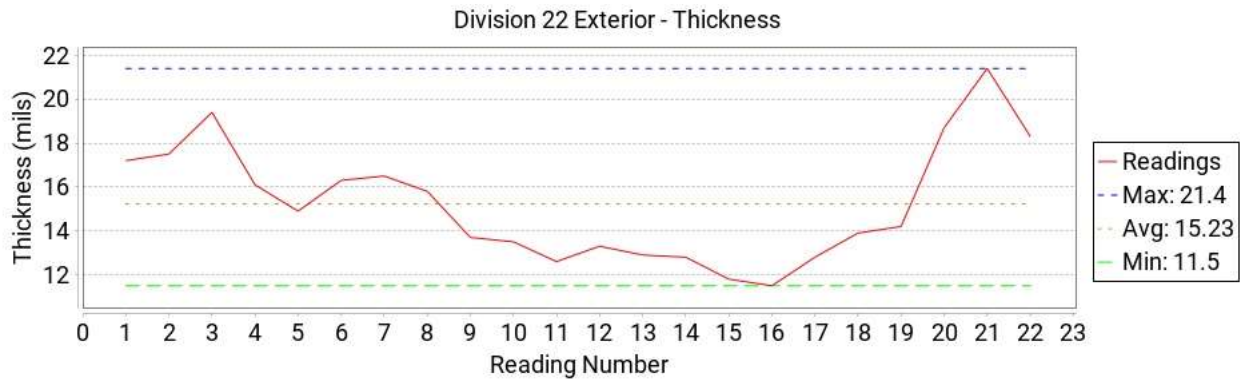
Cal Name:	Cal 1

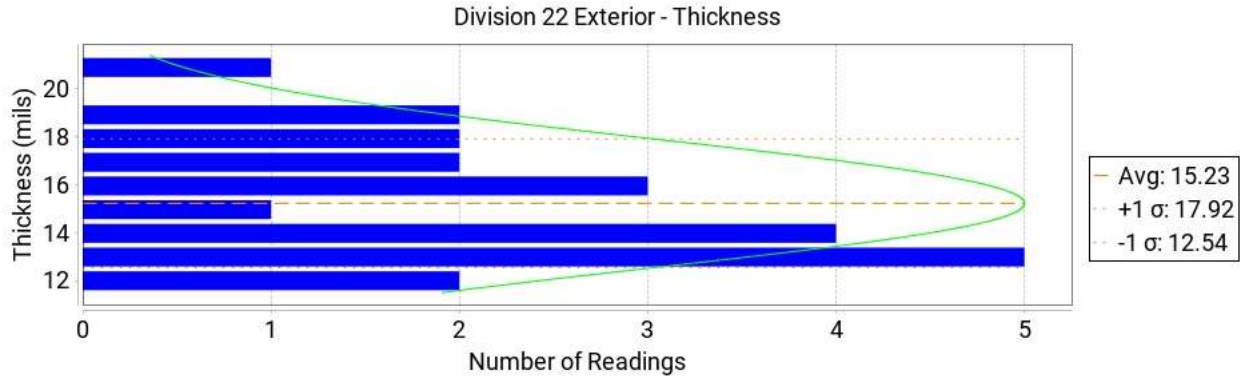
Summary

	#	$\bar{x}$	σ	$\underline{\downarrow}$	$\overline{\uparrow}$
Coating Thickness (mils)	22	15.23	2.69	11.5	21.4

Readings

#	Thickness (mils)	Time 2022-09-14
1	17.2	11:52:15
2	17.5	11:52:17
3	19.4	11:52:19
4	16.1	11:52:26
5	14.9	11:52:27
6	16.3	11:52:29
7	16.5	11:52:37
8	15.8	11:52:38
9	13.7	11:52:45
10	13.5	11:52:47
11	12.6	11:52:48
12	13.3	11:52:54
13	12.9	11:52:56
14	12.8	11:52:57
15	11.8	11:53:05
16	11.5	11:53:07
17	12.8	11:53:08
18	13.9	11:53:15
19	14.2	11:53:17
20	18.7	11:53:23
21	21.4	11:53:24
22	18.3	11:53:26


Division 22 Exterior - Thickness
Thickness (mils)
22
20
18
16
14
12
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
Reading Number
Readings
Max: 21.4
Avg: 15.23
Min: 11.5


Division 22 Exterior - Thickness
Thickness (mils)
20
18
16
14
12
0 1 2 3 4 5
Number of Readings
Avg: 15.23
+1 σ: 17.92
-1 σ: 12.54

Division 30 Interior

Created:	2022-09-14 13:42:25
PosiTector Body S/N:	853527
Probe Type:	PosiTector 6000 FNDS
Probe S/N:	390538

Calibration

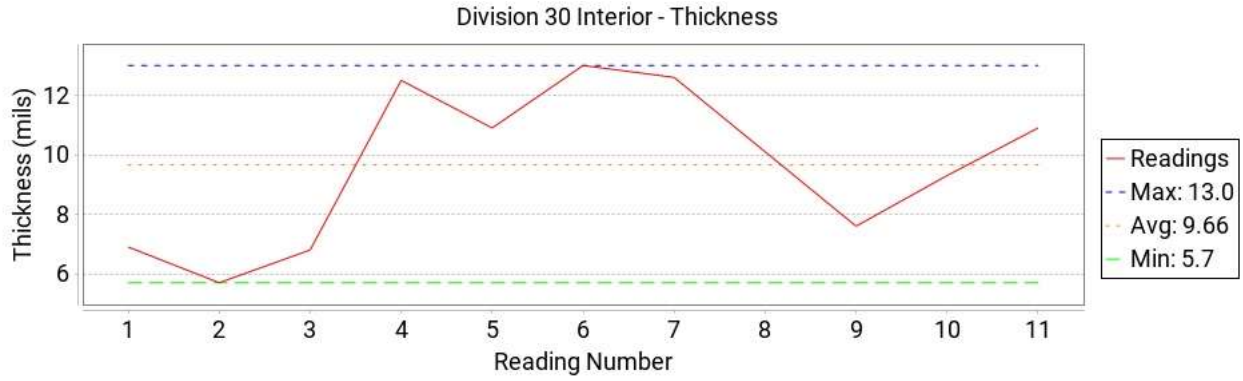
Cal Name:	Cal 1

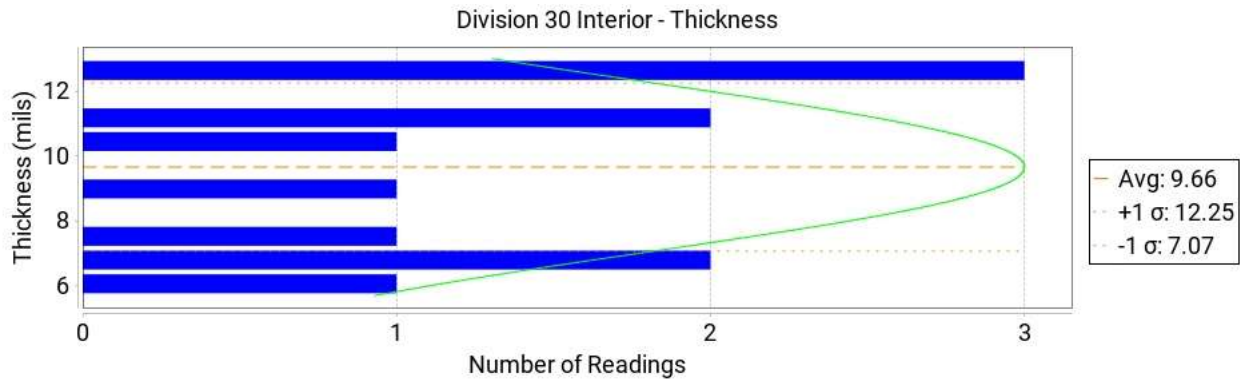
Summary

	#	$\bar{x}$	σ	$\underline{\downarrow}$	$\overline{\uparrow}$
Coating Thickness (mils)	11	9.66	2.59	5.7	13.0

Readings

#	Thickness (mils)	Time
		2022-09-14
1	6.9	13:42:39
2	5.7	13:42:41
3	6.8	13:42:42
4	12.5	13:42:55
5	10.9	13:42:57
6	13.0	13:42:59
7	12.6	13:43:02
8	10.1	13:43:14
9	7.6	13:43:16
10	9.3	13:43:19
11	10.9	13:43:23




Division 30 Interior - Thickness
Thickness (mils)
12
10
8
6
0
1
2
3
Number of Readings
Avg: 9.66
+1 σ: 12.25
-1 σ: 7.07

Division 30 Exterior

Created:	2022-09-14 12:40:09
PosiTector Body S/N:	853527
Probe Type:	PosiTector 6000 FNDS
Probe S/N:	390538

Calibration

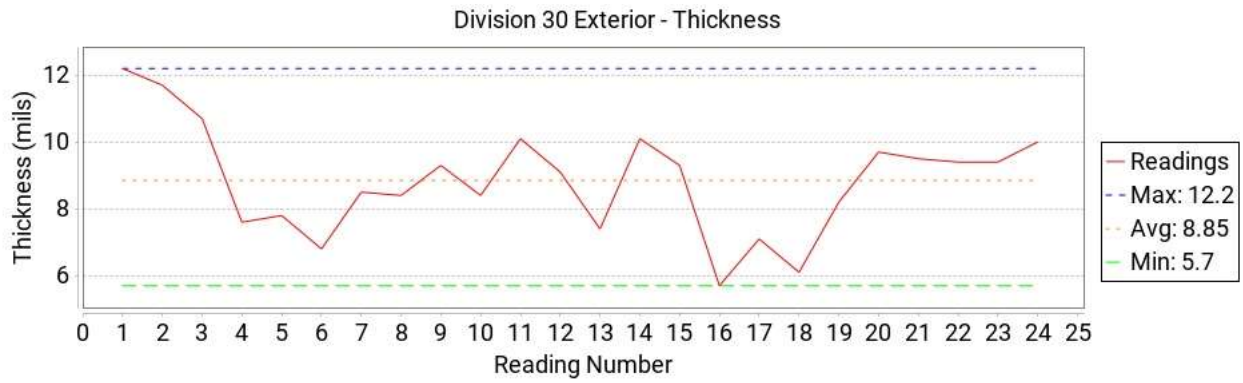
Cal Name:	Cal 1

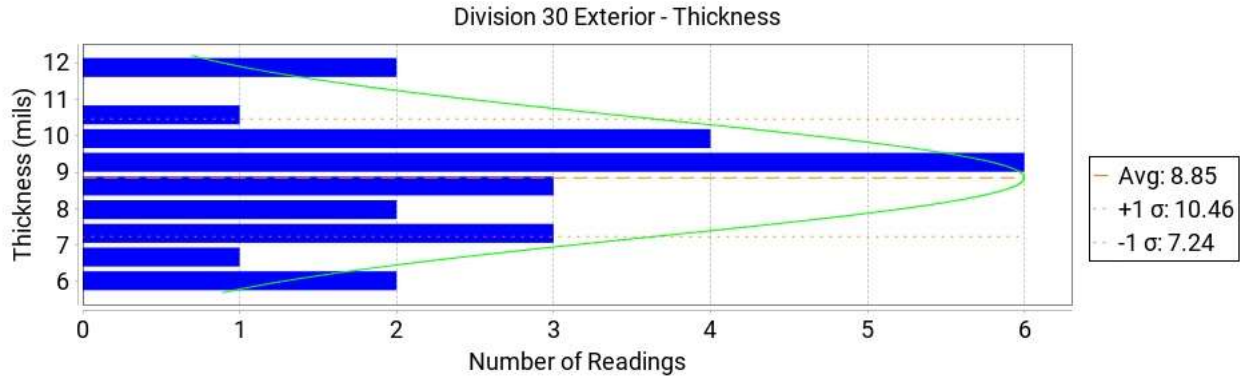
Summary

	#	$\bar{x}$	σ	$\underline{\downarrow}$	$\overline{\uparrow}$
Coating Thickness (mils)	24	8.85	1.61	5.7	12.2

Readings

#	Thickness (mils)	Time
		2022-09-14
1	12.2	12:40:13
2	11.7	12:40:14
3	10.7	12:40:16
4	7.6	12:40:20
5	7.8	12:40:21
6	6.8	12:40:23
7	8.5	12:40:26
8	8.4	12:40:27
9	9.3	12:40:29
10	8.4	12:40:33
11	10.1	12:40:34
12	9.1	12:40:36
13	7.4	12:40:41
14	10.1	12:40:43
15	9.3	12:40:44
16	5.7	12:40:51
17	7.1	12:40:53
18	6.1	12:40:54
19	8.2	12:41:00
20	9.7	12:41:02
21	9.5	12:41:03
22	9.4	12:41:08
23	9.4	12:41:10
24	10.0	12:41:11


Division 30 Exterior - Thickness
Thickness (mils)
12
10
8
6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
Reading Number
Readings
Max: 12.2
Avg: 8.85
Min: 5.7


Division 30 Exterior - Thickness
Thickness (mils)
12
11
10
9
8
7
6
0 1 2 3 4 5 6
Number of Readings
Avg: 8.85
+1 σ: 10.46
-1 σ: 7.24

Geneva Exterior

Created:	2022-09-15 11:35:16
PosiTector Body S/N:	853527
Probe Type:	PosiTector 6000 FNDS
Probe S/N:	390538

Calibration

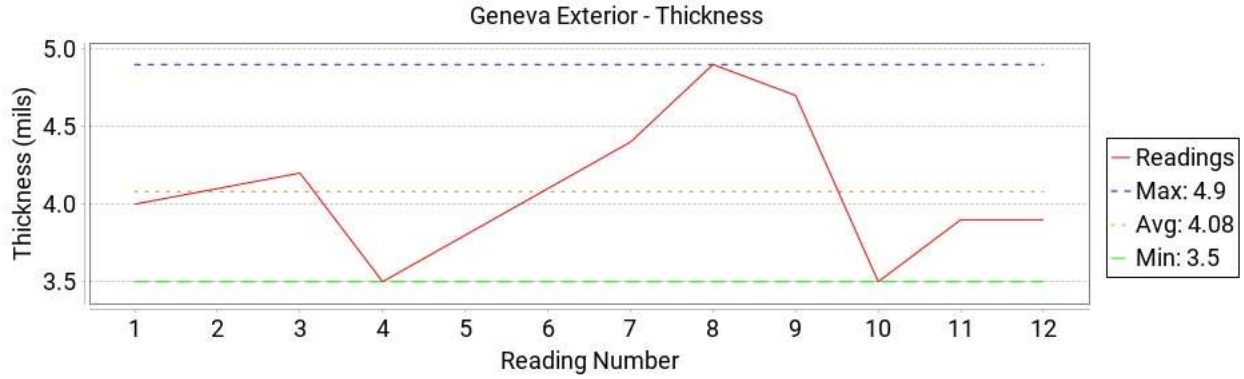
Cal Name:	Cal 1

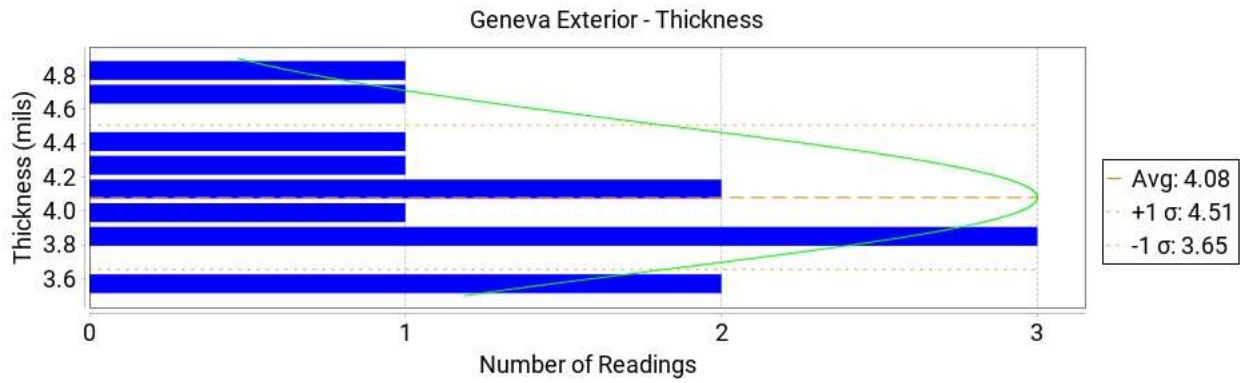
Summary

	#	$\bar{x}$	σ	$\underline{\downarrow}$	$\overline{\uparrow}$
Coating Thickness (mils)	12	4.08	0.43	3.5	4.9

Readings

#	Thickness (mils)	Time
		2022-09-15
1	4.0	11:35:30
2	4.1	11:35:32
3	4.2	11:35:34
4	3.5	11:35:38
5	3.8	11:35:40
6	4.1	11:35:42
7	4.4	11:35:58
8	4.9	11:36:00
9	4.7	11:36:01
10	3.5	11:36:13
11	3.9	11:36:15
12	3.9	11:36:17




Geneva Exterior - Thickness
Thickness (mils)
4.8
4.6
4.4
4.2
4.0
3.8
3.6
0
1
2
3
Number of Readings
Avg: 4.08
+1 σ: 4.51
-1 σ: 3.65

APPENDIX F

ADHESION TEST RESULTS

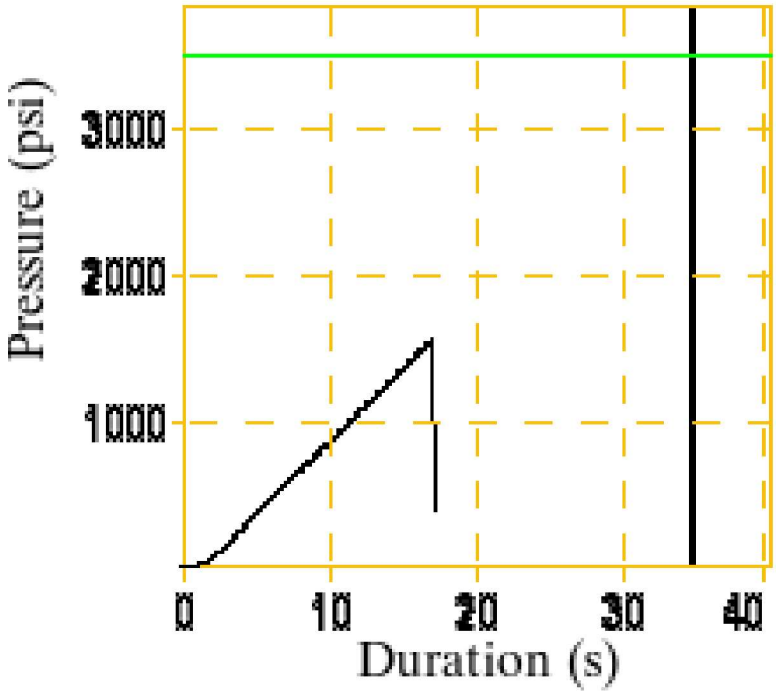
Division 22

Created: 2012-02-21 23:54:02
PosiTest AT-A S/N: 17275

Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
1	1591 3500	17.1 0.0/0.0	20	100	Pulled	X 23:58:34

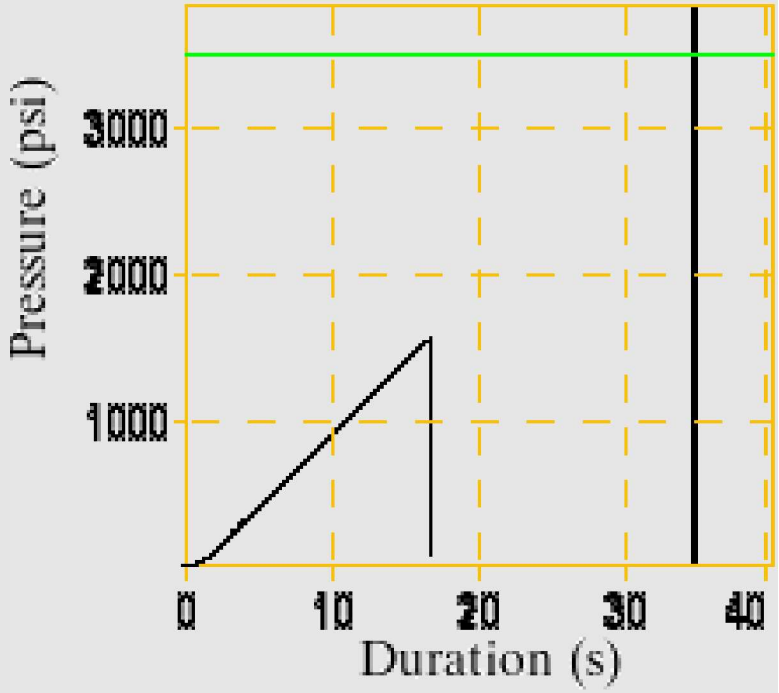
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 22 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
2	1592 3500	16.7 0.0/0.0	20	100	Pulled	X 00:03:23

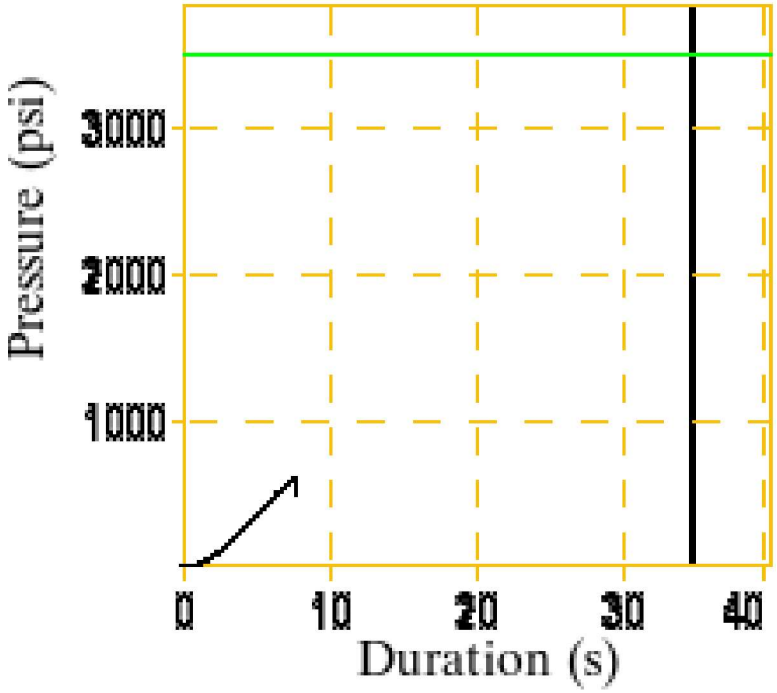
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 22 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
3	661 3500	7.8 0.0/0.0	20	100	Pulled	X 00:37:20

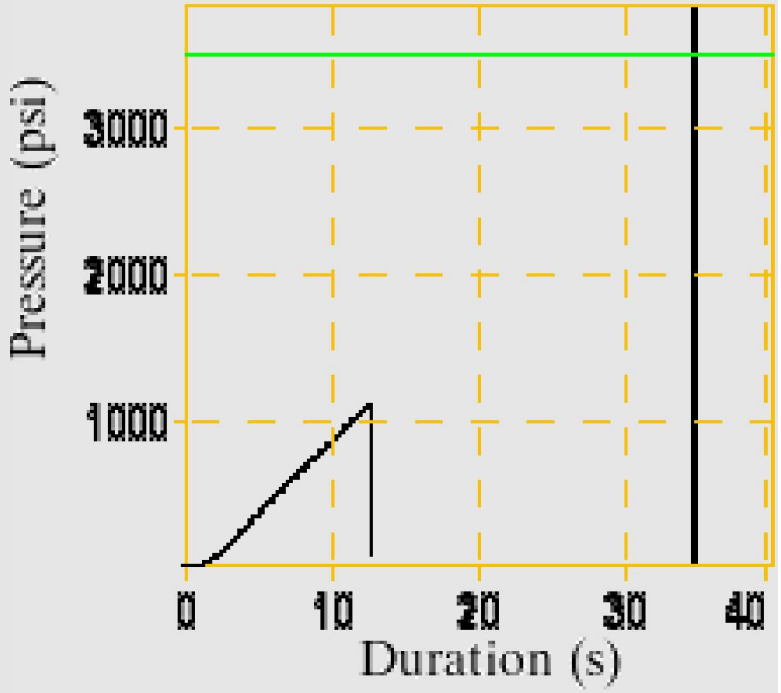
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 22 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
4	1152 3500	12.7 0.0/0.0	20	100	Pulled	X 00:39:26

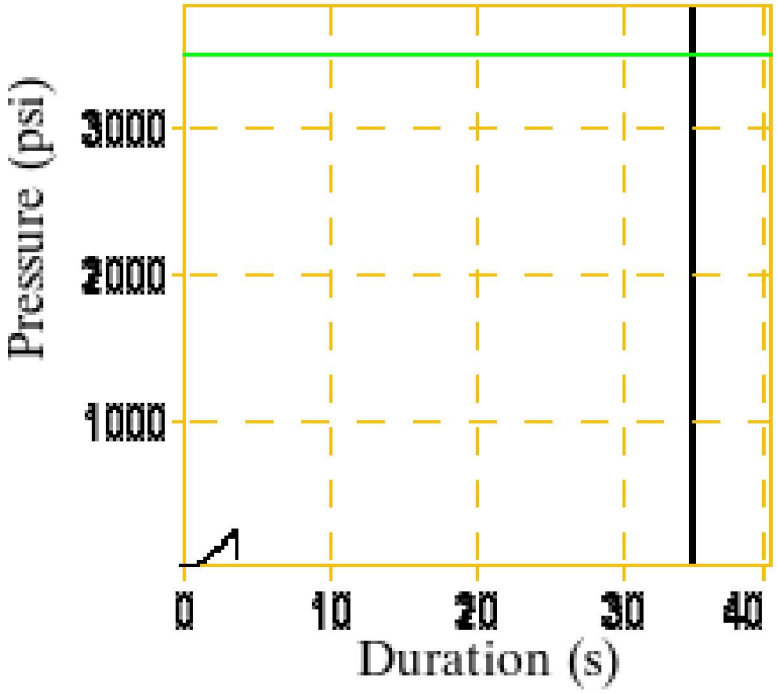
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0

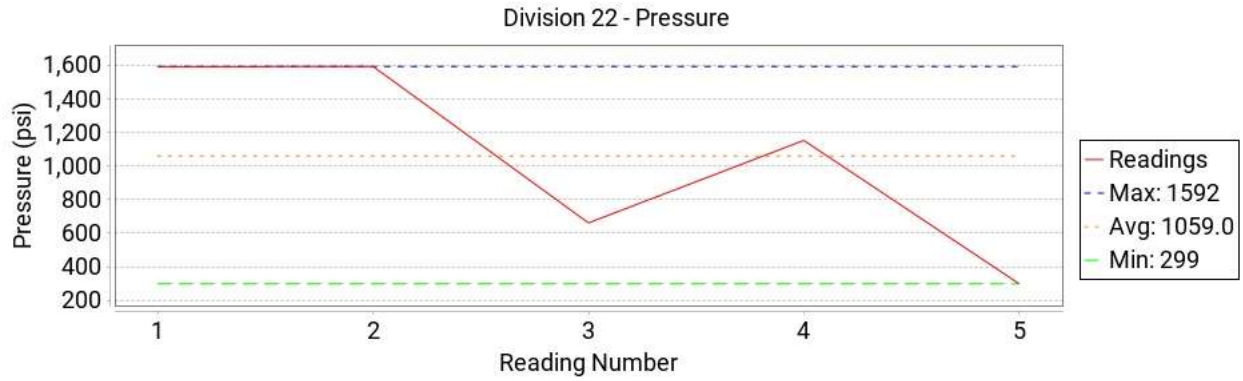


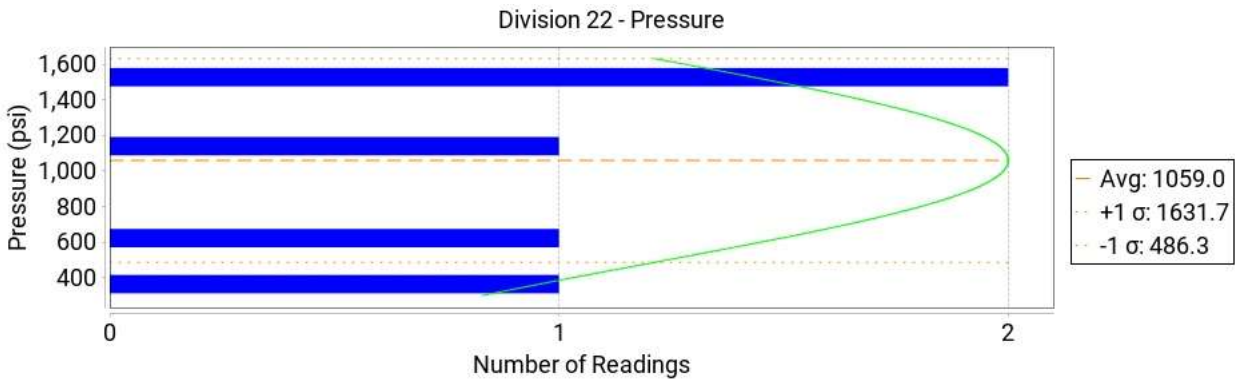
Division 22 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
5	299 3500	3.8 0.0/0.0	20	100	Pulled	X 00:40:44

Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0






Division 22 - Pressure
Pressure (psi)
1,600
1,400
1,200
1,000
800
600
400
0
1
2
Number of Readings
Avg: 1059.0
+1 σ: 1631.7
-1 σ: 486.3

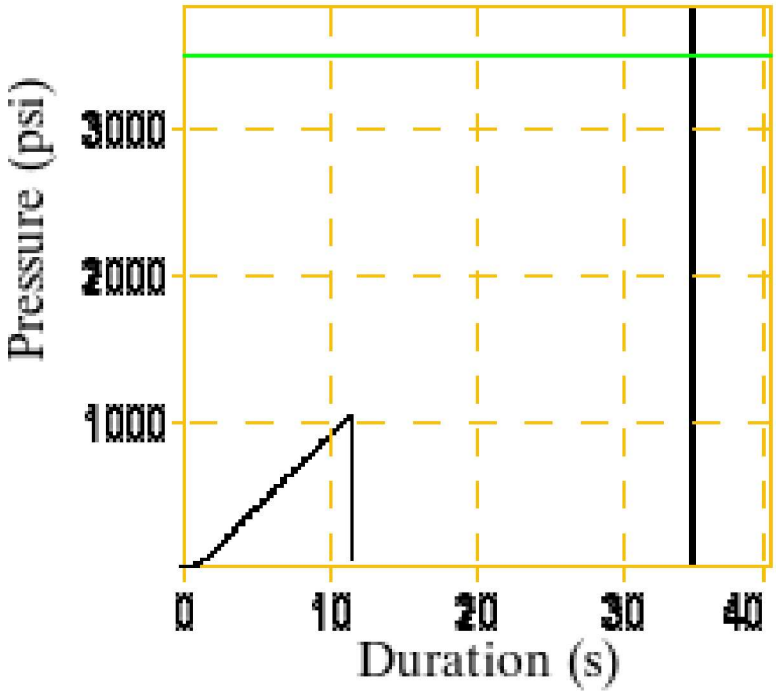
Division 30

Created: 2012-02-22 01:57:50
PosiTest AT-A S/N: 17275

Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
1	1082 3500	11.5 0.0/0.0	20	100	Pulled	X 01:58:30

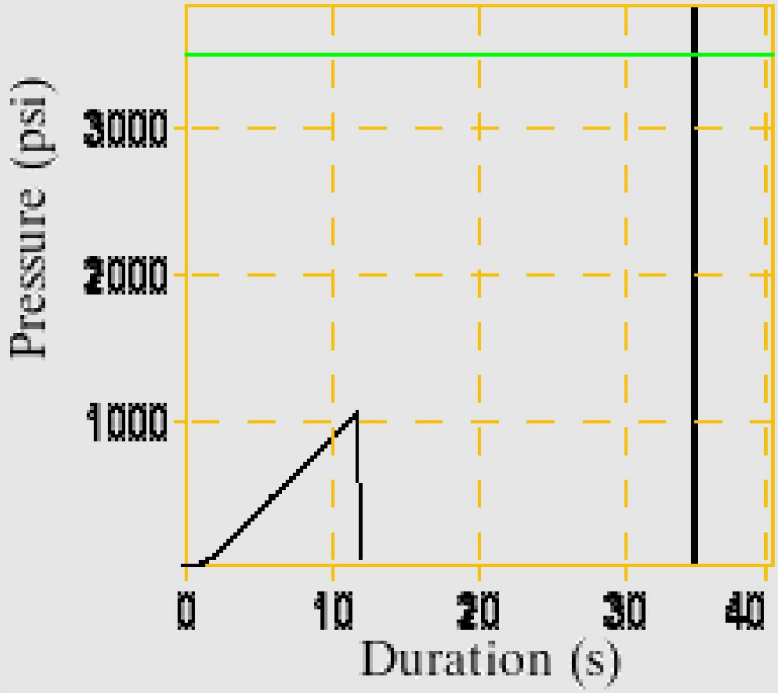
Glue Y: 0 Y/Z Interface: 0
Layer 1: B 0 B/Y Interface: 0
Substrate: A 0 A/B Interface: 0



Division 30 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
2	1089 3500	11.9 0.0/0.0	20	100	Pulled	X 01:59:54

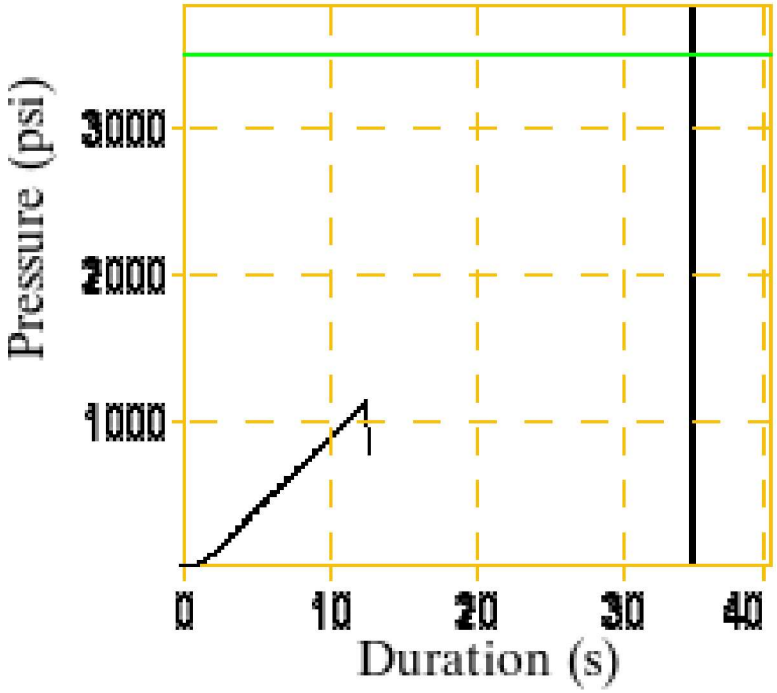
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 30 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
3	1161 3500	12.6 0.0/0.0	20	100	Pulled	X 02:01:13

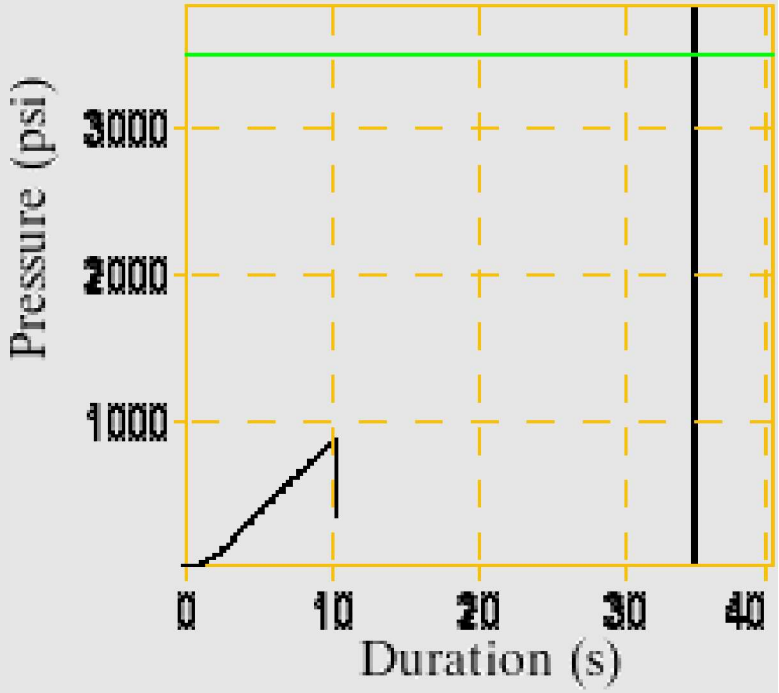
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 30 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
4	915 3500	10.3 0.0/0.0	20	100	Pulled	X 02:24:19

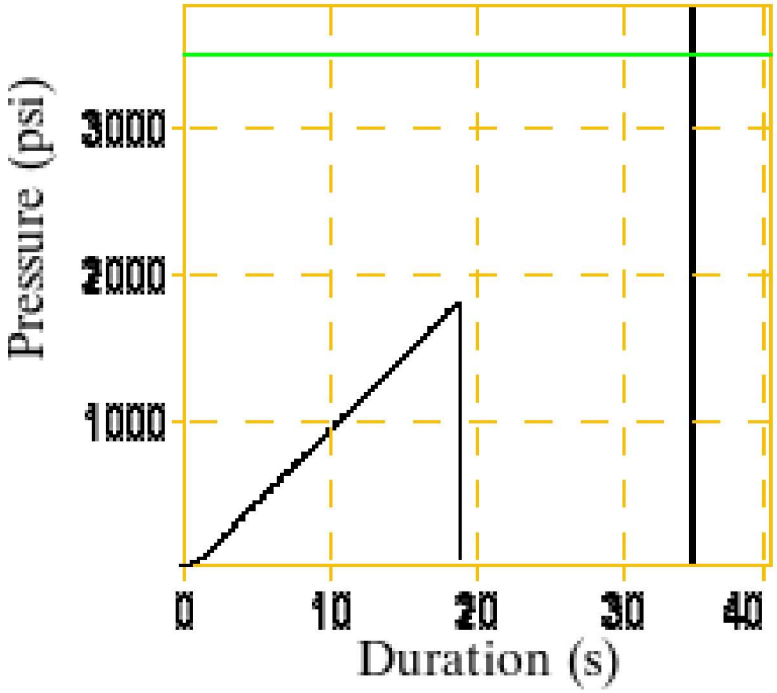
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0



Division 30 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
5	1837 3500	18.9 0.0/0.0	20	100	Pulled	X 02:26:20

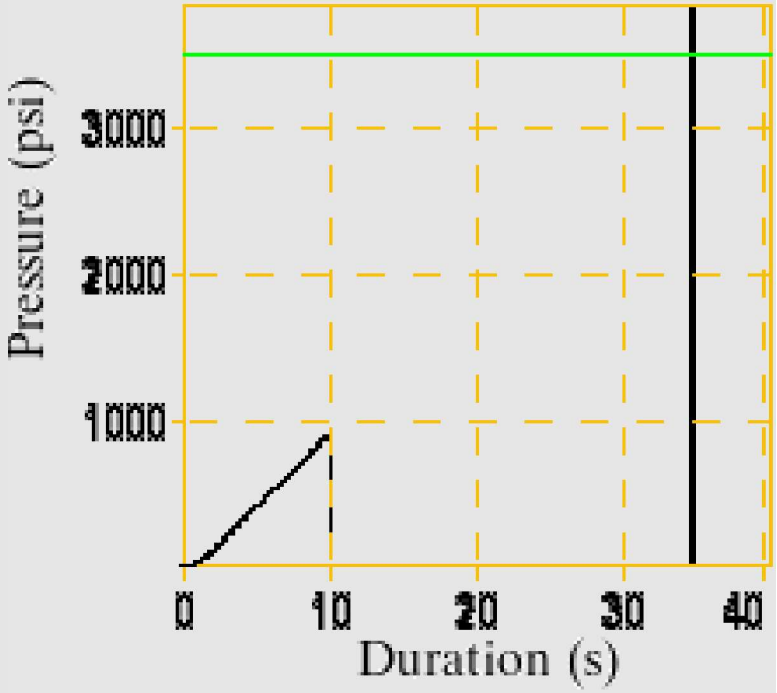
Glue Y:	0	Y/Z Interface:	0
Layer 1: B	0	B/Y Interface:	0
Substrate: A	0	A/B Interface:	0

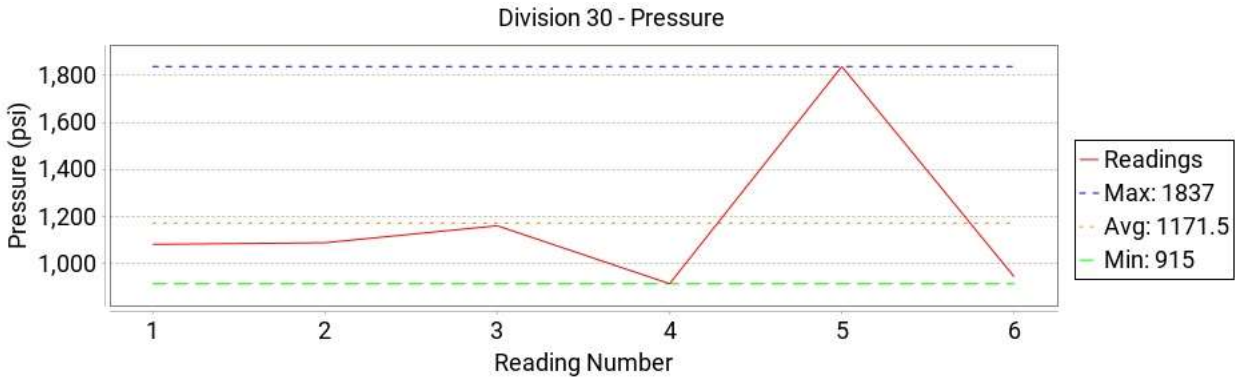


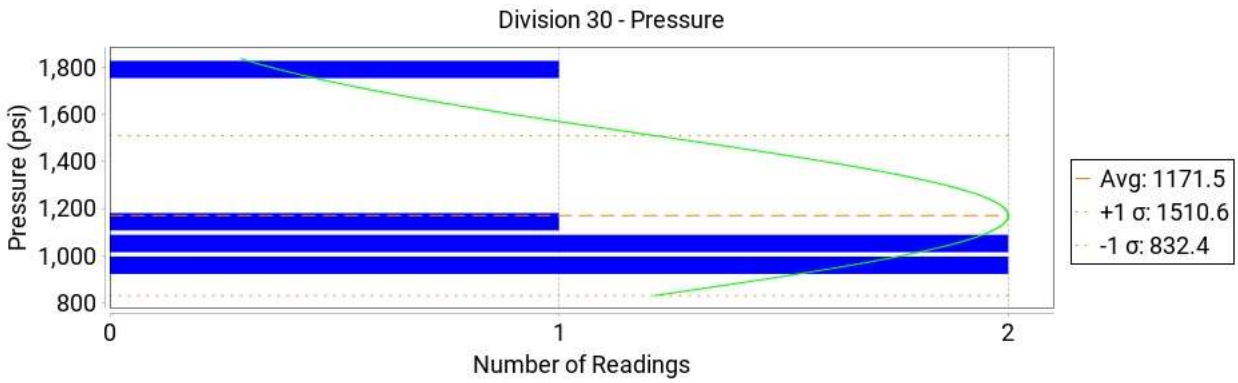
Division 30 Readings

#	Pressure Limit (psi)	Duration Hold Time (s)	Dolly (mm)	Rate (psi/s)	Result	Pass/Fail Time
6	945 3500	10.1 0.0/0.0	20	100	Pulled	X 02:28:51

Glue Y: 0 Y/Z Interface: 0
Layer 1: B 0 B/Y Interface: 0
Substrate: A 0 A/B Interface: 0






Division 30 - Pressure
Pressure (psi)
1,800
1,600
1,400
1,200
1,000
800
0
1
2
Number of Readings
Avg: 1171.5
+1 σ: 1510.6
-1 σ: 832.4

APPENDIX G

OPINIONS OF PROBABLE PROJECT COSTS

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 22-1
PRELIMINARY COST ESTIMATE
Alternative 1: Recoat without Upgrading the Reservoir
October 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$15,000	$15,000
2.	Mobilization and Demobilization	1	LS	$29,250	$29,250
3.	Angle Bracket Replacement	25	EA	$500	$12,500
4.	Miscellaneuos Metal Repair	25	LF	$500	$12,500
5.	Interior Recoating	1	LS	$250,000	$250,000
6.	Exterior Coating Spot Repairs	1	LS	$40,000	$40,000
7.	Removal of Mill Scale	2,000	SF	$4	$8,000
8.	Surface Restoration	1	LS	$2,000	$2,000
	Subtotal				$369,250
	Contingency @ 30%				$110,775
	Construction Subtotal				$480,025
	Sales Tax at 8.6%				$41,282
	Engineering Design, CM, and Inspection @ 25%				$120,006
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$640,000**

NOTES:

1.) No seismic or appurtenance upgrades included.

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 22-1
PRELIMINARY COST ESTIMATE
Alternative 2: Replace Roof, Seismically Upgrade, and Recoat Reservoir
December 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$74,070	$74,070
3.	Ladder, Landing, and Guardrail	1	LS	$45,000	$45,000
4.	Manway	1	EA	$20,000	$20,000
5.	Roof Vent	1	LS	$30,000	$30,000
6.	New Reservoir Roof and Side Shell Extension	1	LS	$400,000	$400,000
7.	Foundation Seal Grout Replacement	1	LS	$7,000	$7,000
8.	Interior Recoating	1	LS	$135,000	$135,000
9.	Exterior Recoating	1	LS	$98,000	$98,000
10.	Reservoir Containment	1	LS	$60,000	$60,000
11.	Removal of Mill Scale	2,000	SF	$4	$8,000
12.	Level Gauge Board	1	LS	$10,000	$10,000
13.	Surface Restoration	1	LS	$10,000	$10,000
	Subtotal				$922,070
	Contingency @ 30%				$276,621
	Construction Subtotal				$1,198,691
	Sales Tax at 8.6%				$103,087
	Engineering Design, CM, and Inspection @ 25%				$299,673
	Seismic Upgrade Total Project Costs				$515,000
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$2,120,000**

NOTES:

1.) Assumes built in Reservoir No. 1 location.
2.) Seismic upgrade costs in the BHC Report included engineering, contingency, and tax at unknown rates so the total provided in their report is included without additional markup.
3.) Interior and Exterior Recoating costs are only for side shell and bottom of reservoir. Coating costs are included in roof cost.

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 22-1
PRELIMINARY COST ESTIMATE
Alternative 3: Demolish and Construct New Reservoir
October 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$97,650	$97,650
3.	Temporary Erosion and Sediment Control	1	LS	$10,000	$10,000
4.	Site Earthwork	1	LS	$20,000	$20,000
5.	Demolition of Existing Reservoir and Foundation	1	LS	$80,000	$80,000
6.	500,000 Gallon Steel Reservoir and Foundation	1	LS	$825,000	$825,000
7.	Site Piping	1	LS	$45,000	$45,000
8.	Electrical, Telemetry, and Instrumentation	1	LS	$60,000	$60,000
9.	Cathodic Protection	1	LS	$35,000	$35,000
10.	Surface Restoration	1	LS	$10,000	$10,000
	Subtotal				$1,207,650
	Contingency @ 30%				$362,295
	Construction Subtotal				$1,569,945
	Sales Tax at 8.6%				$135,015
	Engineering Design, CM, and Inspection @ 25%				$392,486
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$2,100,000**

NOTES:

1.) Assumes built in Reservoir No. 1 location.

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 30
PRELIMINARY COST ESTIMATE
Alternative 1: Construct a New Concrete Reservoir
October 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$46,350	$46,350
3.	Temporary Erosion and Sediment Control	1	LS	$10,000	$10,000
4.	Site Earthwork	1	LS	$60,000	$60,000
5.	Demolition of Existing Reservoir and Foundation	1	LS	$80,000	$80,000
6.	158,000 Gal. Concrete Reservoir and Foundation	1	LS	$250,000	$250,000
7.	Site Piping	1	LS	$45,000	$45,000
8.	Electrical, Telemetry, and Instrumentation	1	LS	$60,000	$60,000
9.	Surface Restoration	1	LS	$10,000	$10,000
	Subtotal				$586,350
	Contingency @ 30%				$175,905
	Construction Subtotal				$762,255
	Sales Tax at 8.6%				$65,554
	Engineering Design, CM, and Inspection @ 25%				$190,564
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$1,020,000**

NOTES:

1.) Assumes reservoir is constructed in same location as existing reservoir.
2.) 26' Diam. x 40' Tall Baker Silo-style reservoir.

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 30
PRELIMINARY COST ESTIMATE
Alternative 2: Recoat the Reservoir Without Seismic Upgrades
October 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$26,910	$26,910
3.	Manway	1	EA	$20,000	$20,000
4.	Roof Vent	1	LS	$30,000	$30,000
5.	Foundation Seal Grout Replacement	1	LS	$7,000	$7,000
6.	Interior Recoating	1	LS	$86,000	$86,000
7.	Exterior Recoating	1	LS	$76,000	$76,000
8.	Reservoir Containment	1	LS	$60,000	$60,000
9.	Removal of Mill Scale	2,000	SF	$4	$8,000
10.	Level Gauge Board	1	LS	$10,000	$10,000
11.	Surface Restoration	1	LS	$2,000	$2,000
	Subtotal				$350,910
	Contingency @ 30%				$105,273
	Construction Subtotal				$456,183
	Sales Tax at 8.6%				$39,232
	Engineering Design, CM, and Inspection @ 30%				$136,855
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$630,000**

NOTES:

1.) A new manway would be required to recoat the interior of the reservoir.

LAKE WHATCOM WATER & SEWER DISTRICT
DIVISION 30
PRELIMINARY COST ESTIMATE
Alternative 3: Seismically Upgrade and Recoat the Reservoir
December 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$31,680	$31,680
3.	Circumferential Guardrail	1	LS	$45,000	$45,000
4.	Manway	1	EA	$20,000	$20,000
5.	Roof Vent	1	LS	$30,000	$30,000
6.	Foundation Seal Grout Replacement	1	LS	$7,000	$7,000
7.	Interior Recoating	1	LS	$86,000	$86,000
8.	Exterior Recoating	1	LS	$76,000	$76,000
9.	Reservoir Containment	1	LS	$60,000	$60,000
10.	Removal of Mill Scale	2,000	SF	$4	$8,000
11.	Level Gauge Board	1	LS	$10,000	$10,000
12.	Surface Restoration	1	LS	$10,000	$10,000
	Subtotal				$408,680
	Contingency @ 30%				$122,604
	Construction Subtotal				$531,284
	Sales Tax at 8.6%				$45,690
	Engineering Design, CM, and Inspection @ 30%				$159,385
	Seismic Upgrade Total Project Costs				$758,000
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$1,490,000**

NOTES:

1.) Seismic upgrade costs in the BHC Report included engineering, contingency, and tax at unknown rates so the total provided in their report is included without additional markup.

LAKE WHATCOM WATER & SEWER DISTRICT
GENEVA RESERVOIR
PRELIMINARY COST ESTIMATE
Alternative 1: Reservoir Recoat Without Seismic Upgrades
October 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$41,760	$41,760
3.	Manway	1	EA	$20,000	$20,000
4.	Roof Vent	1	LS	$30,000	$30,000
5.	Foundation Seal Grout Replacement	1	LS	$7,000	$7,000
6.	Interior Recoating	1	LS	$187,000	$187,000
7.	Exterior Recoating	1	LS	$146,000	$146,000
8.	Reservoir Containment	1	LS	$54,000	$54,000
9.	Removal of Mill Scale	2,000	SF	$4	$8,000
10.	Level Gauge Board	1	LS	$10,000	$10,000
11.	Surface Restoration	1	LS	$2,000	$2,000
	Subtotal				$530,760
	Contingency @ 30%				$159,228
	Construction Subtotal				$689,988
	Sales Tax at 8.8%				$60,719
	Engineering Design, CM, and Inspection @ 25%				$172,497
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$920,000**

NOTES:

1.) Manway is optional.

LAKE WHATCOM WATER & SEWER DISTRICT
GENEVA RESERVOIR
PRELIMINARY COST ESTIMATE
Alternative 2: Seismically Upgrade and Recoat the Reservoir
December 2022

NO.	ITEM	QUANTITY		UNIT PRICE	AMOUNT
1.	Minor Change	1	LS	$25,000	$25,000
2.	Mobilization and Demobilization	1	LS	$47,070	$47,070
3.	Circumferential Guardrail	1	LS	$45,000	$45,000
4.	Manway	1	EA	$20,000	$20,000
5.	Roof Vent	1	LS	$30,000	$30,000
6.	Foundation Seal Grout Replacement	1	LS	$7,000	$7,000
7.	Interior Recoating	1	LS	$187,000	$187,000
8.	Exterior Recoating	1	LS	$146,000	$146,000
9.	Reservoir Containment	1	LS	$60,000	$60,000
10.	Removal of Mill Scale	2,000	SF	$4	$8,000
11.	Level Gauge Board	1	LS	$10,000	$10,000
12.	Surface Restoration	1	LS	$10,000	$10,000
	Subtotal				$595,070
	Contingency @ 30%				$178,521
	Construction Subtotal				$773,591
	Sales Tax at 8.8%				$68,076
	Engineering Design, CM, and Inspection @ 30%				$232,077
	Seismic Upgrade Total Project Costs				$708,000
	TOTAL ESTIMATED PROJECT COST (ROUNDED):				**$1,780,000**

NOTES:

1.) Seismic upgrade costs in the BHC Report included engineering, contingency, and tax at unknown rates so the total provided in their report is included without additional markup.

LAKE WHATCOM WATER AND SEWER DISTRICT

Geneva Reservoir Inspection Report

April 2, 2024

H2O SOLUTIONS, LLC

Standards

The inspection report of this tank was preformed by H2O Solutions, LLC using surface supplied air, totally encapsulated in a sealed dry suit mated to a sealed dry divers hard hat and conducted in accordance with all applicable OSHA, EPA, AWWA,NACE,SSPC and ADC Requirements and recommendations.

The inspection consisted of a visual observation of the tanks exterior and interior components and coating system. The tank was not drained for the inspection and all interior assessment data was recorded using real time video with live voice narration as well as still photographs.

Condition Observations

Conditions noted during the inspection are documented in the following pages and are supplemented with color photographs. Condition ratings used to describe the inspection findings are annotated as follows:

Excellent: No deficiencies noted.

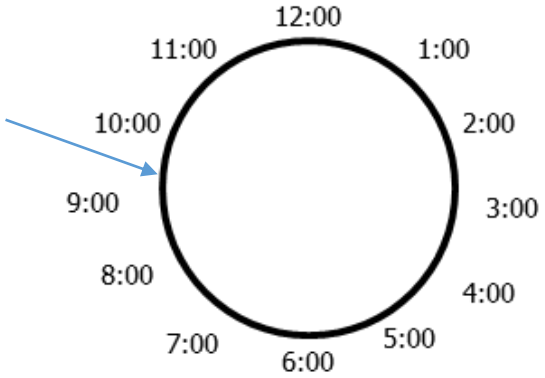
Good: Minor deficiencies noted. Item is functioning as designed.

Fair: Major deficiencies noted. Item is in need of repairs to continue functioning as designed.

Poor: Repair or replacement required immediately. Item may no longer function as designed.

Date of Cleaning & Inspection :	April 2, 2024	Tank Name :	Geneva Reservoir
Water Loss from Cleaning:	4,500 Gallons	Diameter :	53′
Construction Type:	Welded Steel	Height :	32′
Capacity(gal):	519,210	Year Built :	1970

Exterior Wall



Description

Appeared to be in fair condition with areas of surface corrosion present.

Corrosion Present

15%

Rust Grade

4

Coating System

Appeared to be in fair condition with signs of staining, chalking and rust staining present.

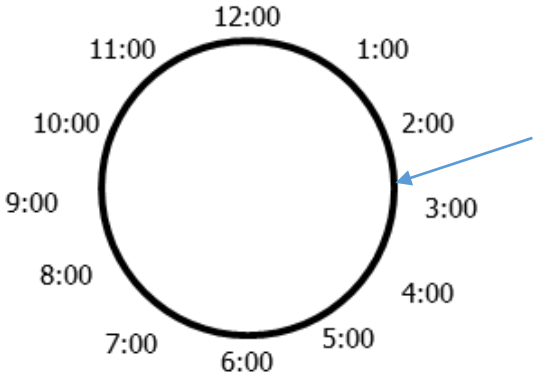
Coating Failure

15%

Recommendations

None at this time.

Exterior Wall



Description

Appeared to be in fair condition with areas of surface corrosion present.

Corrosion Present

15%

Rust Grade

4

Coating System

Appeared to be in fair condition with signs of staining, chalking and rust staining present.

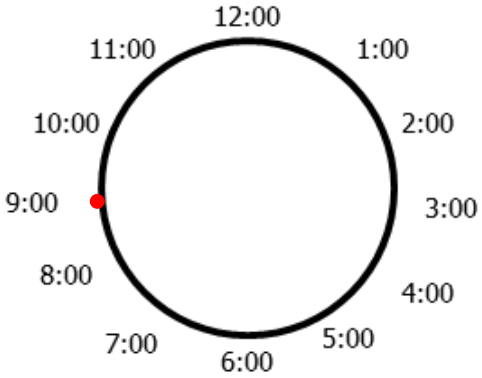
Coating Failure

15%

Recommendations

None at this time.

Exterior Drain



Description

Appeared to be in good working condition with minor corrosion present.

Corrosion Present

< 5%

Rust Grade

5

Coating System

N/A

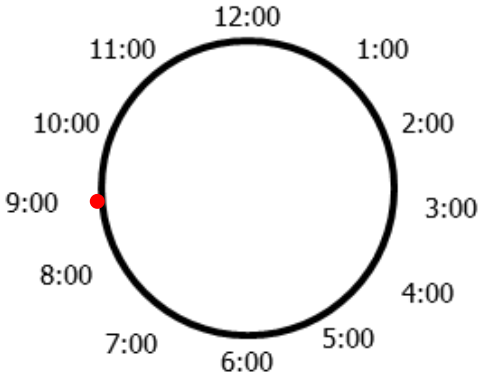
Coating Failure

N/A

Recommendations

None at this time.

Exterior Drain



Description

Appeared to be in good working condition with minor corrosion present.

Corrosion Present

< 5%

Rust Grade

5

Coating System

N/A

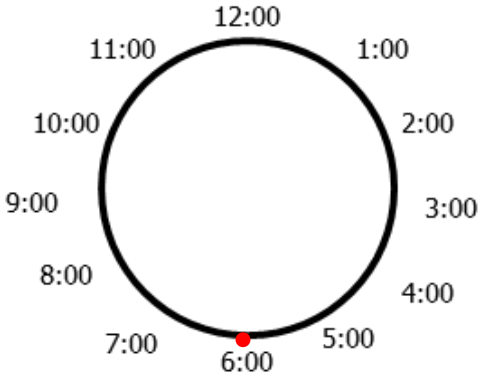
Coating Failure

N/A

Recommendations

None at this time.

Exterior Manway



Description

The gasket appeared to be fully intact and the hatch appeared to be in good working condition with corrosion present.

Corrosion Present

5%

Rust Grade

5

Coating System

Appeared to be in good condition with signs of staining, delamination and fading.

Coating Failure

10%

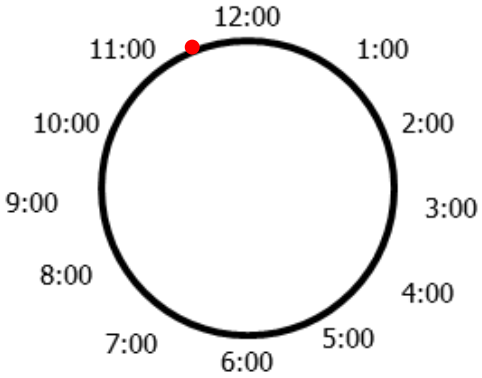
Recommendations

None at this time.

Exterior Manual Level Indicator

Description

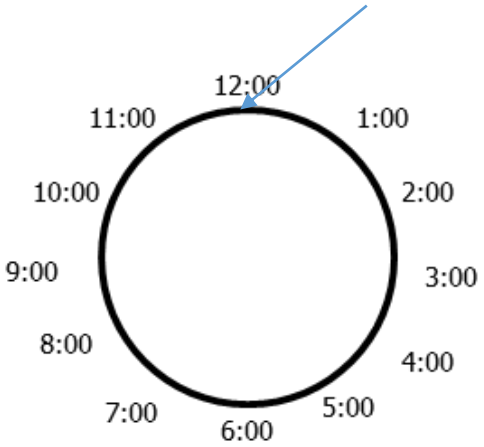
Appeared to be in fair working condition.



Recommendations

None at this time.

Exterior Ladder



Description

Appeared to be structurally sound and in good condition with no visible signs of corrosion.

Corrosion Present

0%

Rust Grade

10

Coating System

N/A

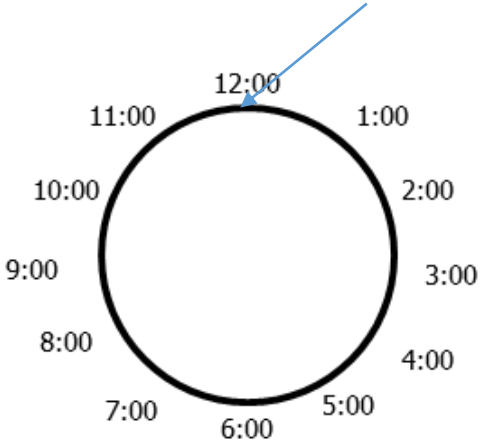
Coating Failure

N/A

Recommendations

None at this time.

Exterior Safety Rail



Description

Appeared to be structurally sound and in good condition with no visible signs of corrosion.

Corrosion Present

0%

Rust Grade

10

Coating System

N/A

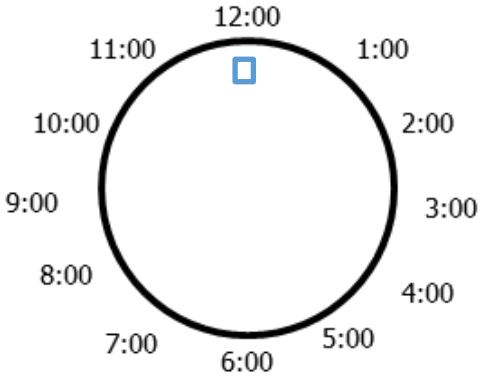
Coating Failure

N/A

Recommendations

None at this time.

Exterior Hatch



Description

Appeared to be in poor condition with heavy corrosion present.

Corrosion Present

33%

Rust Grade

2

Coating System

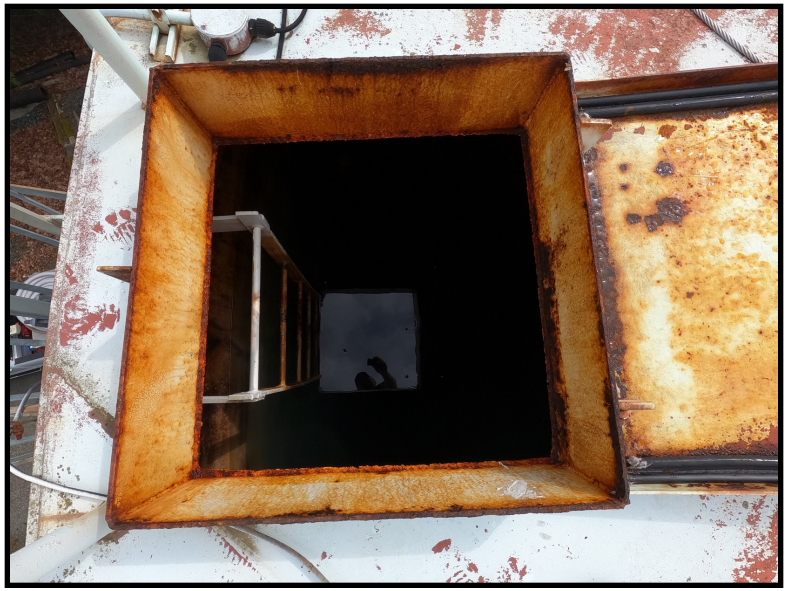
Appeared to be in poor condition with heavy delamination and rust staining present.

Coating Failure

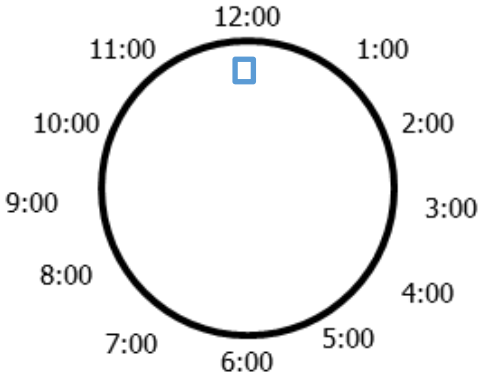
33%

Recommendations

Blast and re-coat the hatch.



Exterior Hatch Lid



Description

Appeared to be in poor working condition with heavy corrosion present.

Corrosion Present

33%

Rust Grade

2

Coating System

Appeared to be in poor condition with heavy delamination and rust staining present.

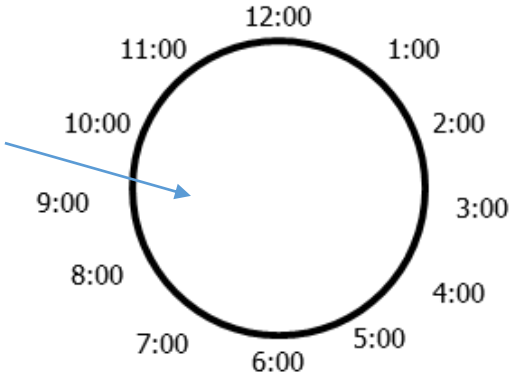
Coating Failure

33%

Recommendations

Replace or blast and re-coat the hatch lid.

Exterior Roof



Description

Appeared to be in poor condition with heavy surface corrosion.

Corrosion Present

> 50%

Rust Grade

1

Coating System

Appeared to be in poor condition with heavy delamination present.

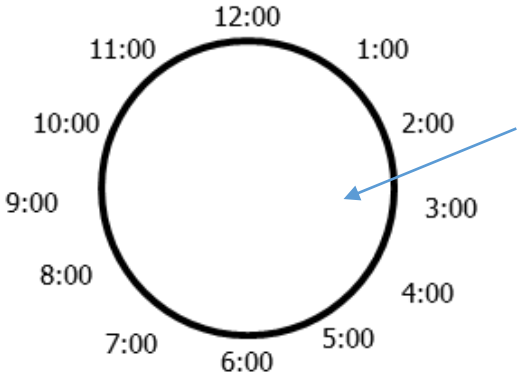
Coating Failure

> 50%

Recommendations

Blast and re-coat the roof.

Exterior Roof



Description

Appeared to be in poor condition with heavy surface corrosion.

Corrosion Present

> 50%

Rust Grade

1

Coating System

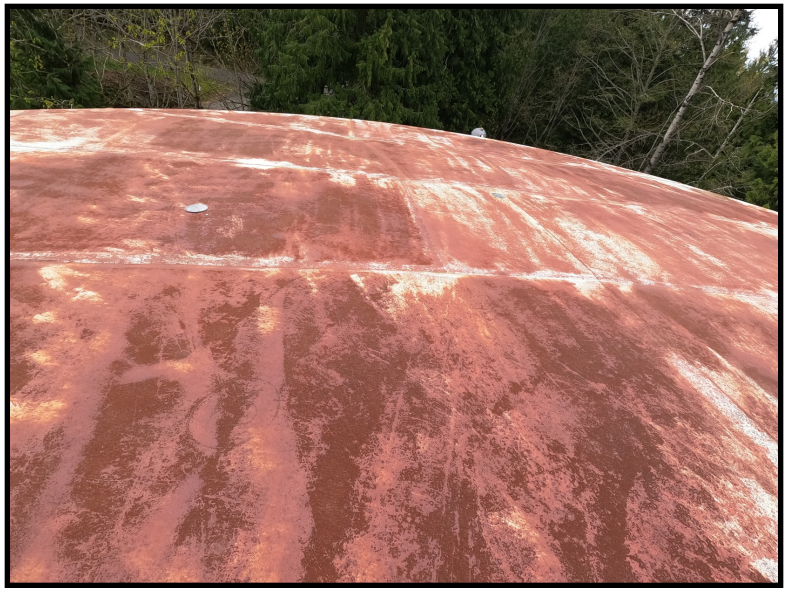
Appeared to be in poor condition with heavy delamination present.

Coating Failure

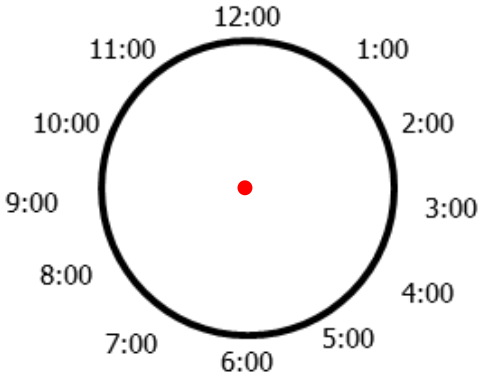
> 50%

Recommendations

Blast and re-coat the roof.



Exterior Vent



Description

Appeared to be in poor working condition with corrosion present.

Corrosion Present

33%

Rust Grade

2

Coating System

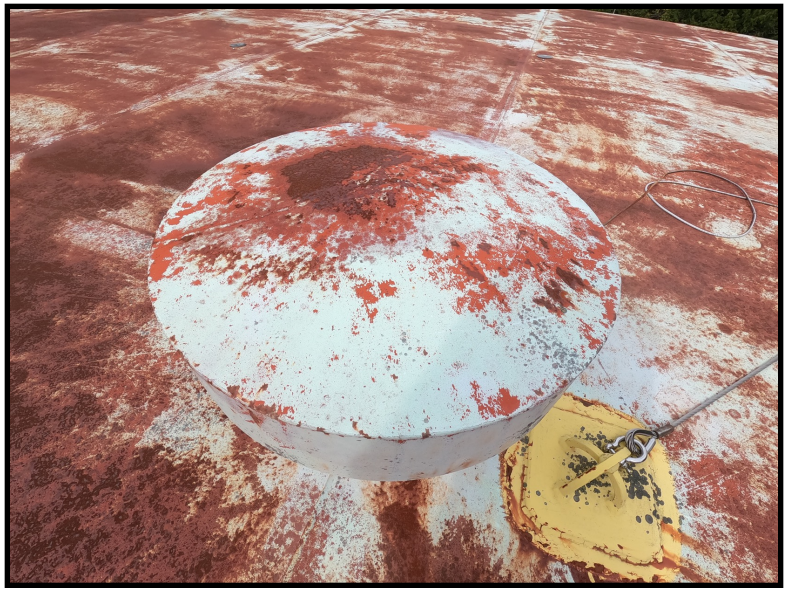
Appeared to be in poor condition with heavy delamination present.

Coating Failure

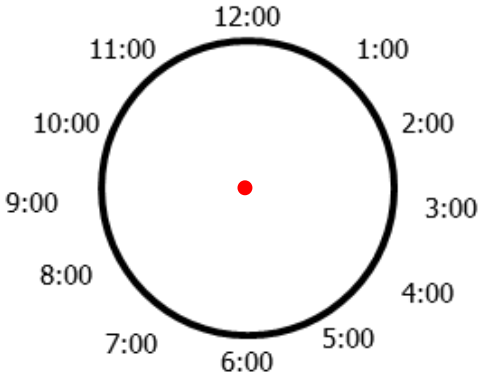
33%

Recommendations

Replace or blast and re-coat the vent.



Exterior Vent Screen



Description

Appeared to be fully intact and in fair condition with corrosion present.

Corrosion Present

15%

Rust Grade

4

Coating System

N/A

Coating Failure

N/A

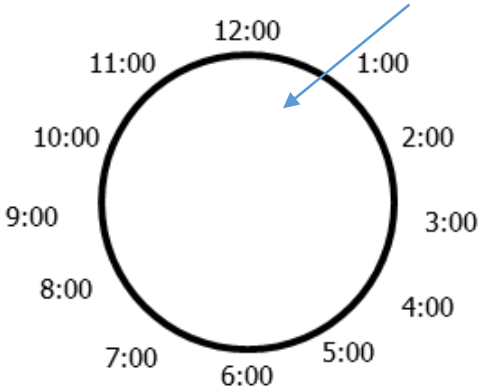
Recommendations

None at this time.

Interior Sediment

Description

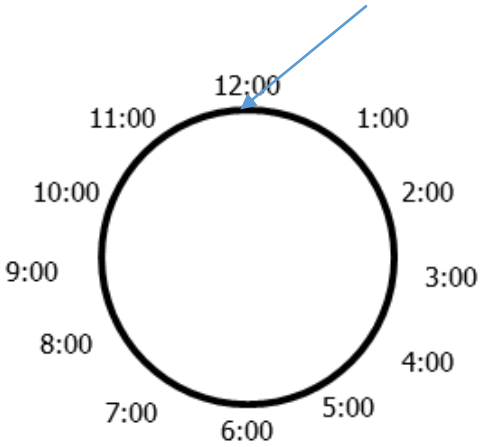
¼” of sediment.



Recommendations

None at this time.

Interior Ladder



Description

Appeared to be structurally sound and in poor condition with heavy corrosion present.

Corrosion Present

33%

Rust Grade

2

Coating System

Appeared to be in poor condition with heavy delamination present.

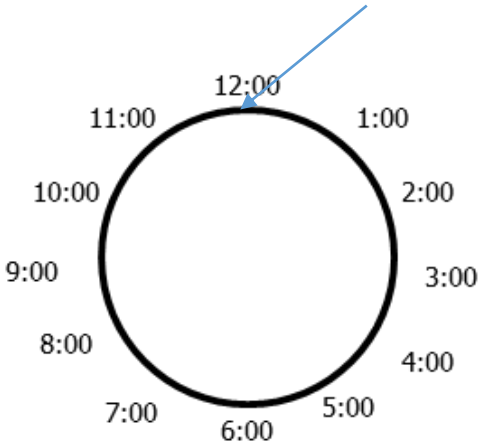
Coating Failure

33%

Recommendations

None at this time.

Interior Ladder



Description

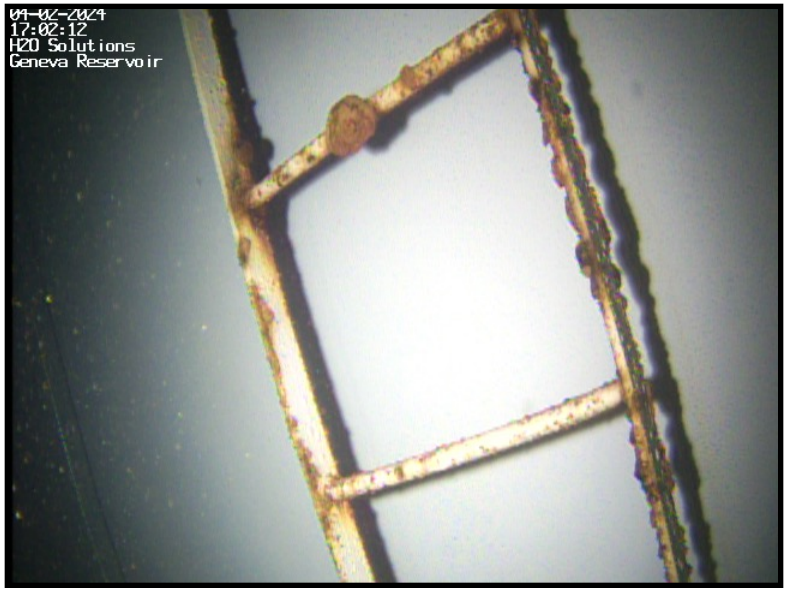
Appeared to be structurally sound and in poor condition with heavy corrosion present.

Corrosion Present

33%

Rust Grade

2



Coating System

Appeared to be in poor condition with heavy delamination present.

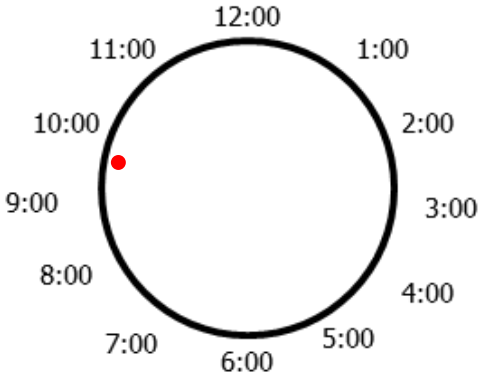
Coating Failure

33%

Recommendations

None at this time.

Interior High-Fill Inlet



Description

Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4

Coating System

Appeared to be in good condition with rust staining and delamination present.

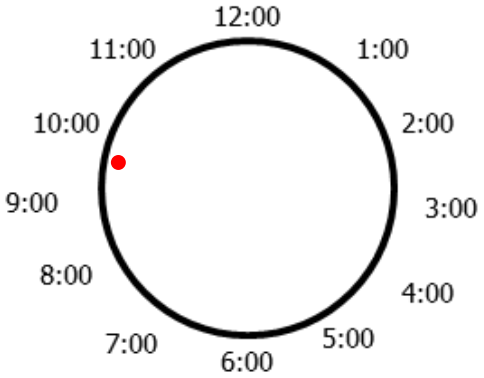
Coating Failure

10%

Recommendations

None at this time.

Interior High-Fill Inlet



Description

Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4

Coating System

Appeared to be in good condition with rust staining and delamination present.

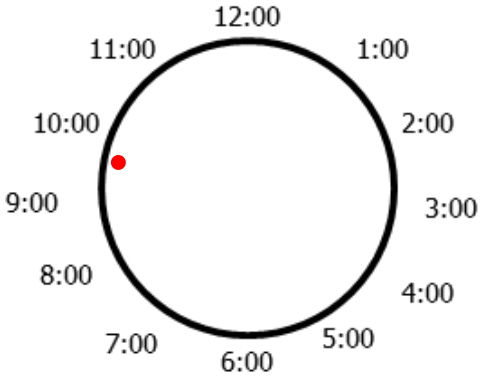
Coating Failure

10%

Recommendations

None at this time.

Interior High-Fill Inlet



Description

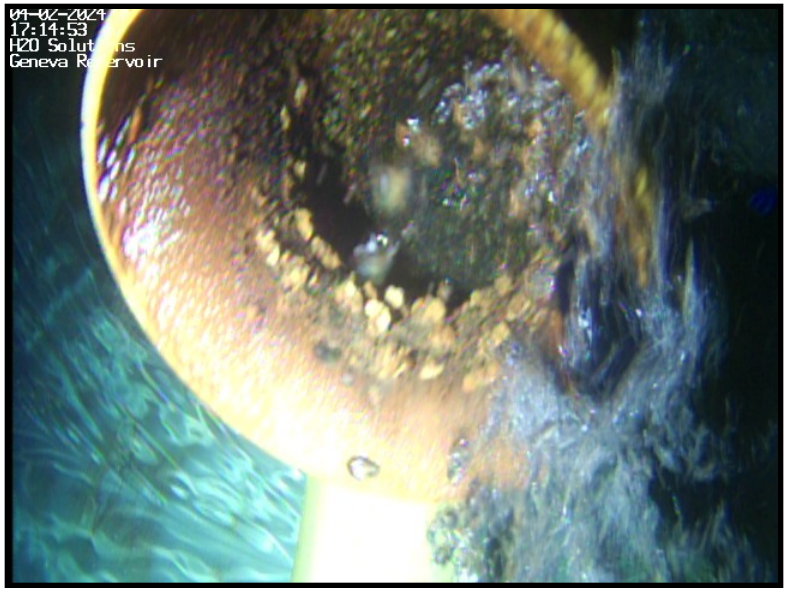
Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining and delamination present.

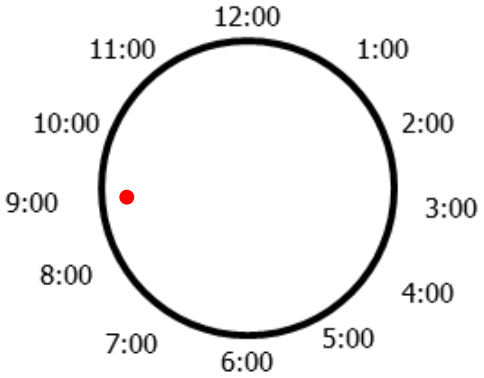
Coating Failure

10%

Recommendations

None at this time.

Interior Outlet



Description

Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4

Coating System

Appeared to be in good condition with rust staining and delamination present.

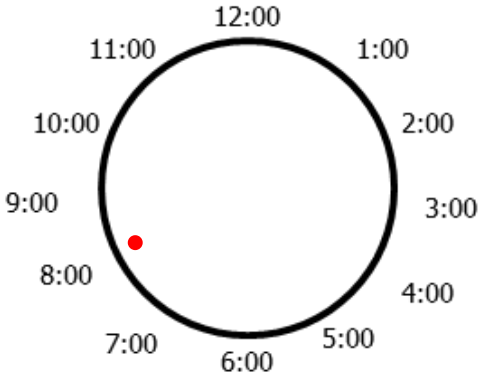
Coating Failure

10%

Recommendations

None at this time.

Interior Drain



Description

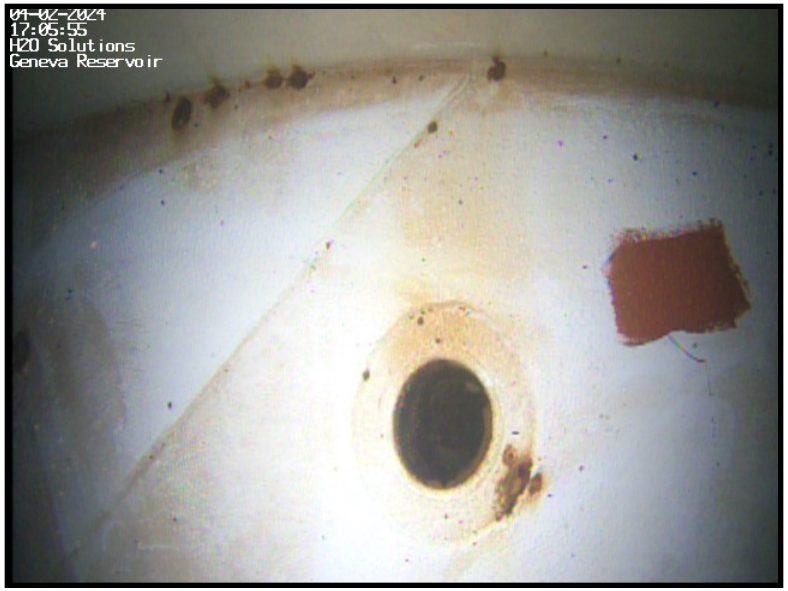
Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining and delamination present.

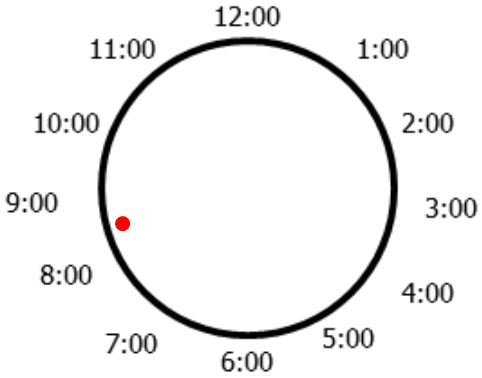
Coating Failure

10%

Recommendations

None at this time.

Interior Overflow



Description

Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4

Coating System

Appeared to be in good condition with rust staining and delamination present.

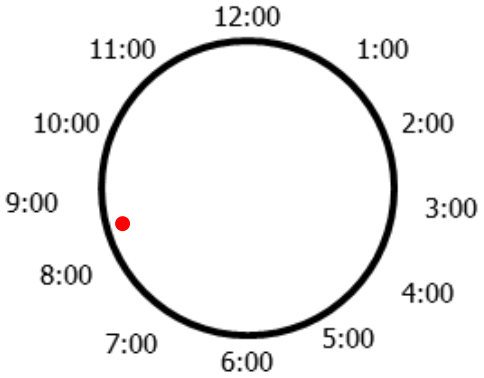
Coating Failure

10%

Recommendations

None at this time.

Interior Overflow



Description

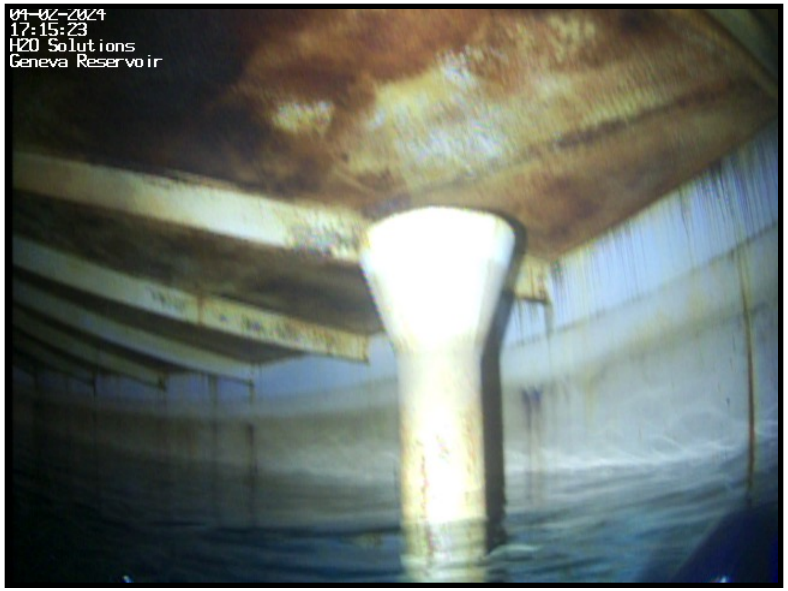
Appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining and delamination present.

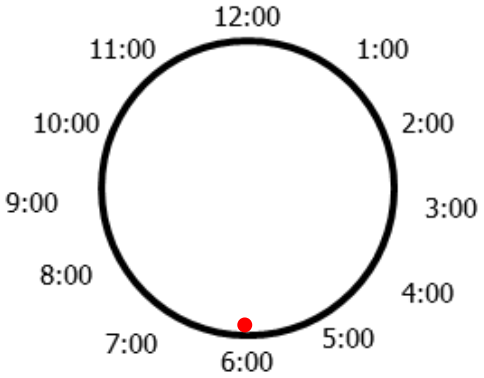
Coating Failure

10%

Recommendations

None at this time.

Interior Manway



Description

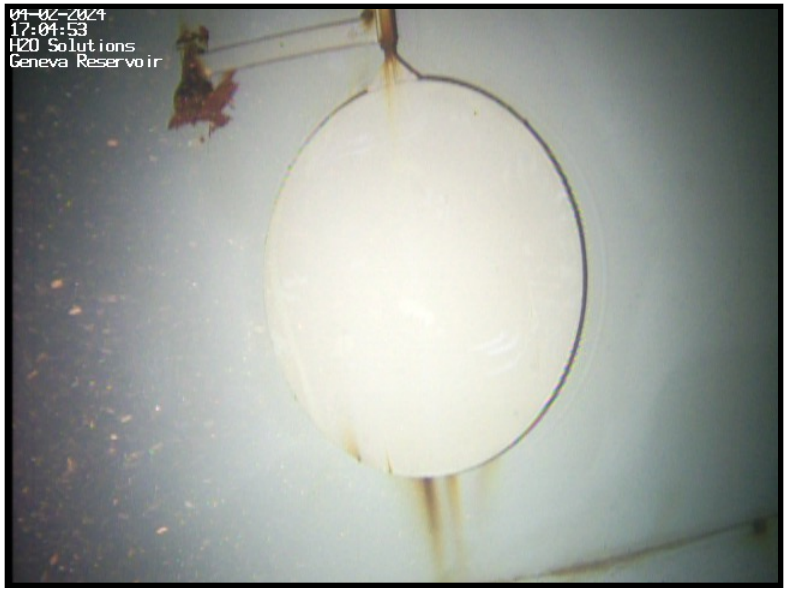
The gasket appeared to be fully intact and the hatch appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining present.

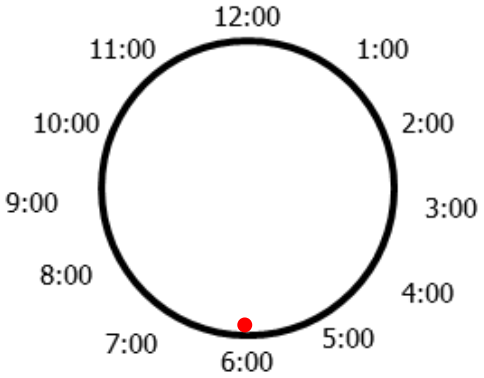
Coating Failure

5%

Recommendations

None at this time.

Interior Manway



Description

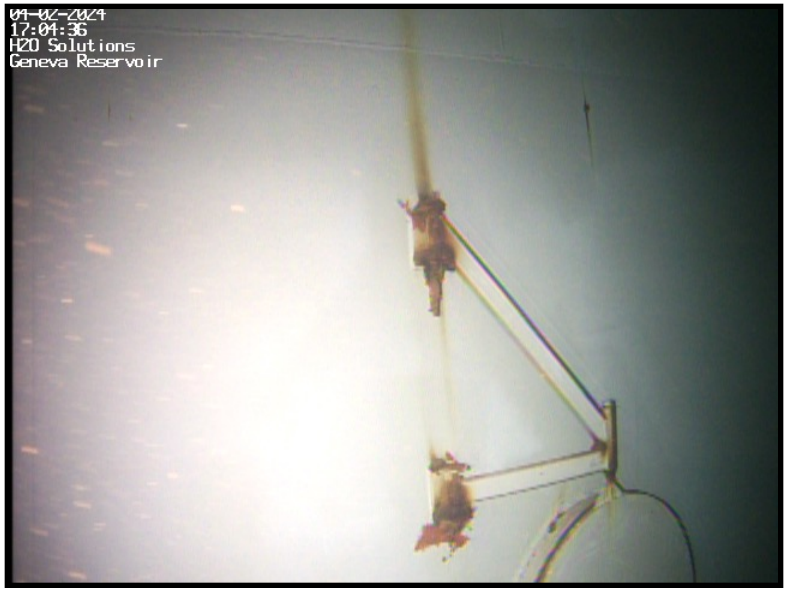
The gasket appeared to be fully intact and the hatch appeared to be in good working condition with corrosion present.

Corrosion Present

10%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining present.

Coating Failure

5%

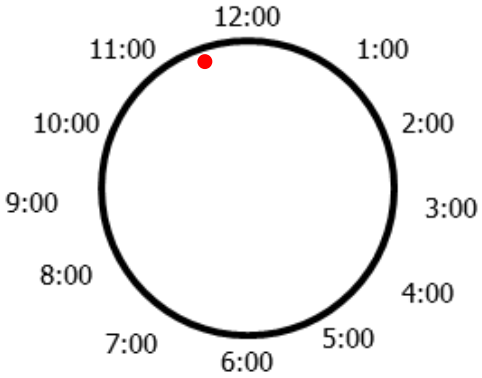
Recommendations

None at this time.

Interior Manual Level Indicator

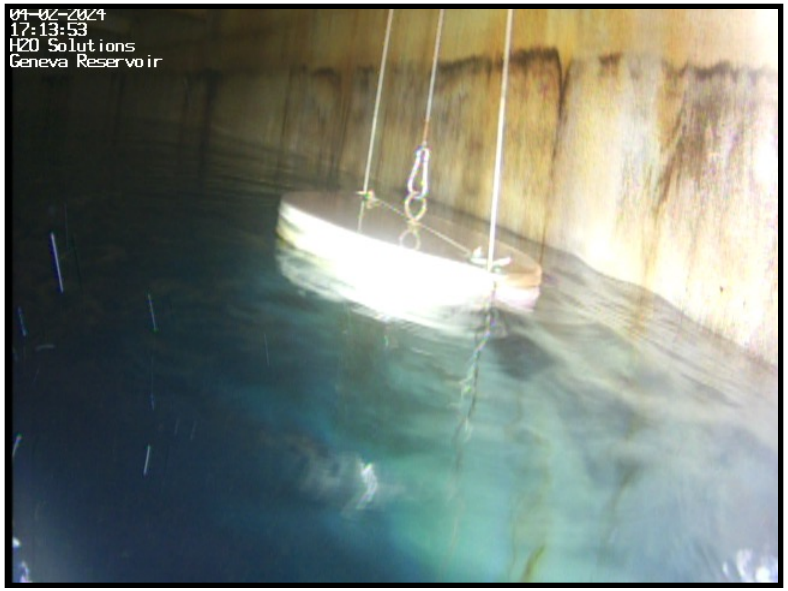
Description

Appeared to be in good working condition with no visible discrepancies.

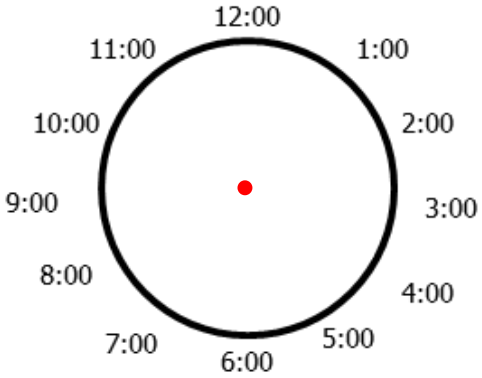


Recommendations

None at this time.



Interior Column Base



Description

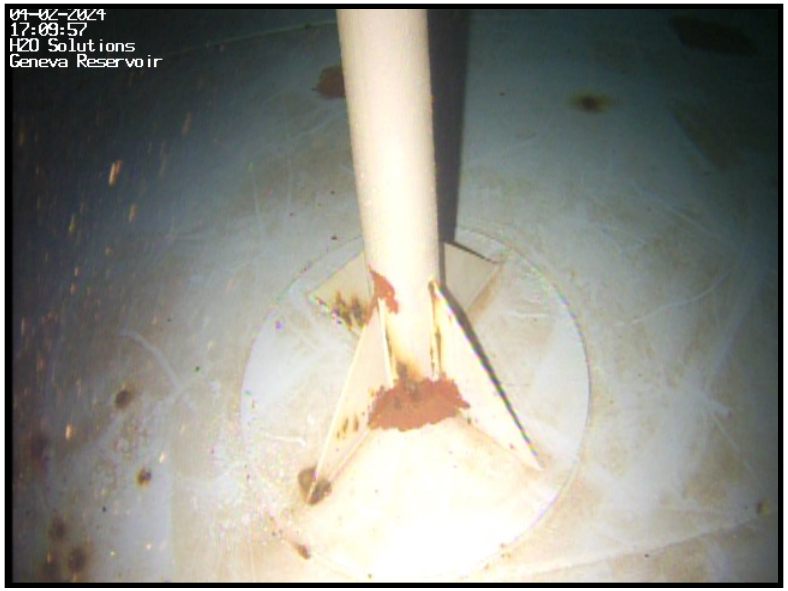
Appeared to be structurally sound and in fair condition with corrosion present.

Corrosion Present

15%

Rust Grade

4



Coating System

Appeared to be in good condition with rust staining and delamination present.

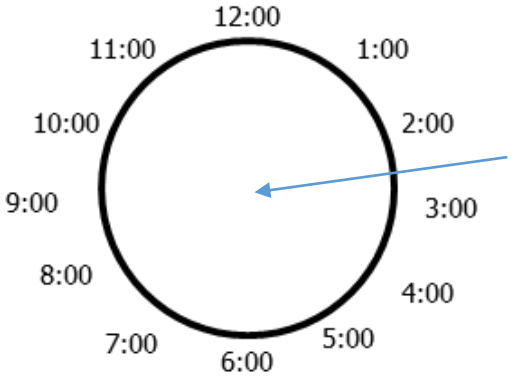
Coating Failure

10%

Recommendations

None at this time.

Interior Ceiling



Description

Appeared to be in poor condition with heavy surface corrosion.

Corrosion Present

> 50%

Rust Grade

1

Coating System

Appeared to be in poor condition with heavy delamination and rust staining.

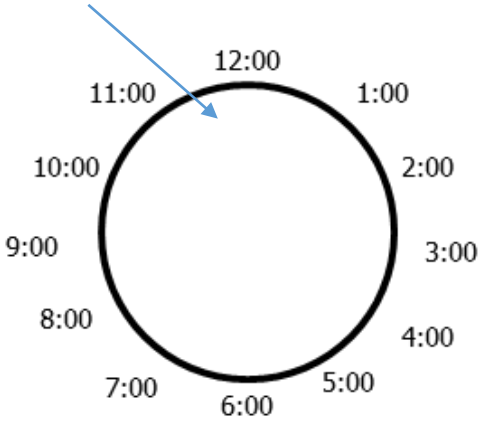
Coating Failure

> 50%

Recommendations

Blast and re-coat the ceiling.

Interior Ceiling



Description

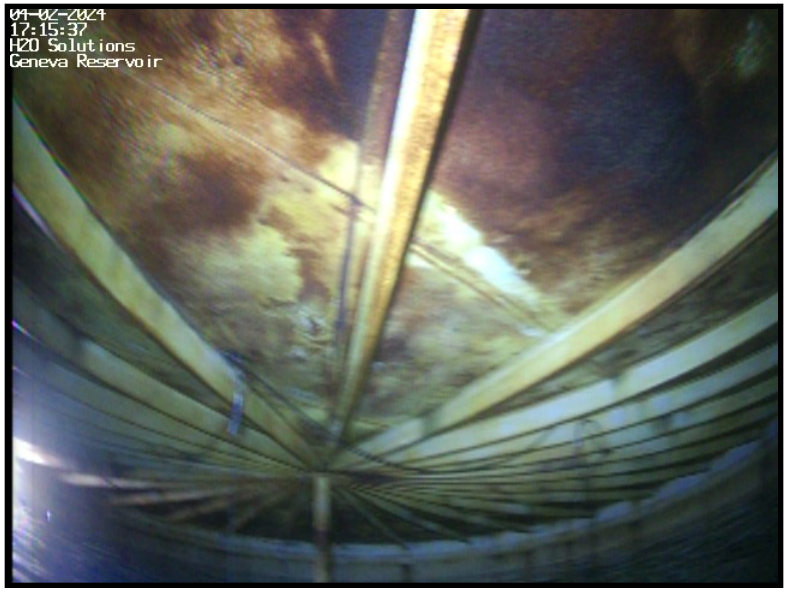
Appeared to be in poor condition with heavy surface corrosion.

Corrosion Present

> 50%

Rust Grade

1



Coating System

Appeared to be in poor condition with heavy delamination and rust staining.

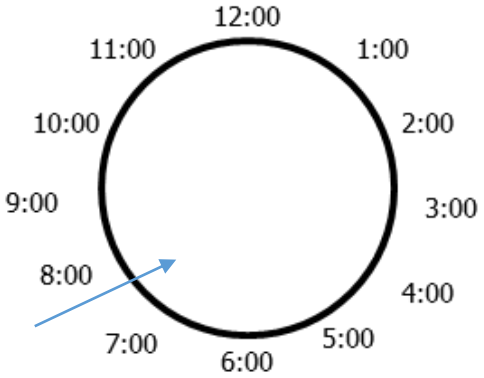
Coating Failure

> 50%

Recommendations

Blast and re-coat the ceiling.

Interior Ceiling



Description

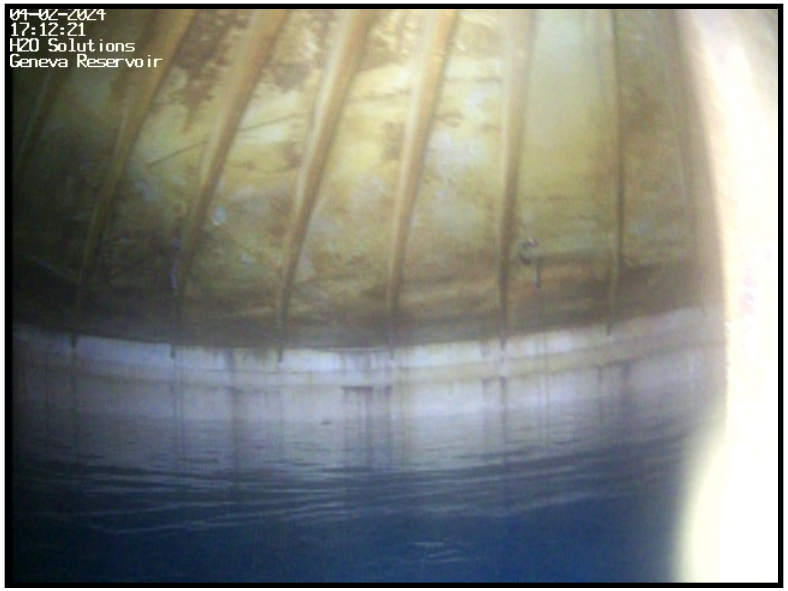
Appeared to be in poor condition with heavy surface corrosion.

Corrosion Present

> 50%

Rust Grade

1



Coating System

Appeared to be in poor condition with heavy delamination and rust staining.

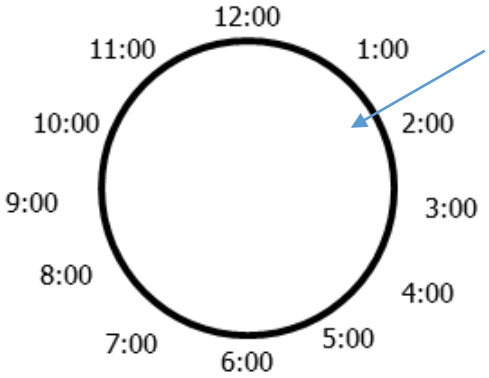
Coating Failure

> 50%

Recommendations

Blast and re-coat the ceiling.

Interior Wall



Description

Appeared to be in good condition with areas of corrosion along the floor seam.

Corrosion Present

5%

Rust Grade

5

Coating System

Appeared to be in good condition with signs of rust staining and blistering.

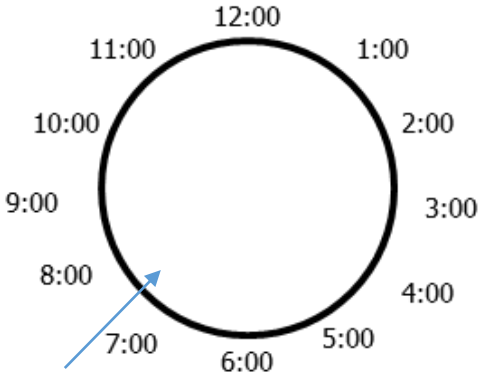
Coating Failure

10%

Recommendations

None at this time.

Interior Wall



Description

Appeared to be in good condition with areas of corrosion along the floor seam.

Corrosion Present

5%

Rust Grade

5

Coating System

Appeared to be in good condition with signs of rust staining and blistering.

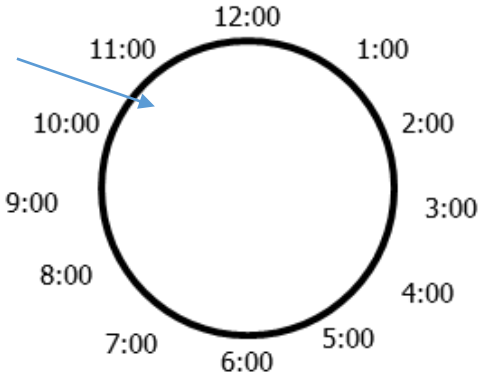
Coating Failure

10%

Recommendations

None at this time.

Interior Wall



Description

Appeared to be in good condition with areas of corrosion along the floor seam.

Corrosion Present

5%

Rust Grade

5

Coating System

Appeared to be in good condition with signs of rust staining and blistering.

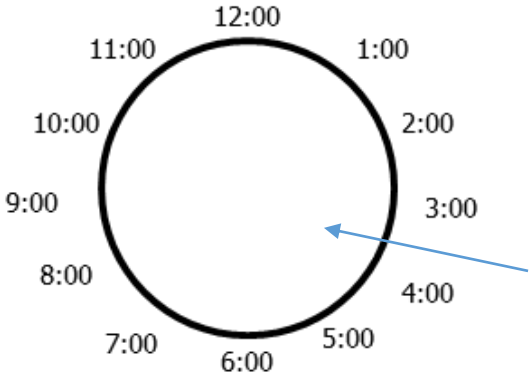
Coating Failure

10%

Recommendations

None at this time.

Interior Floor



Description

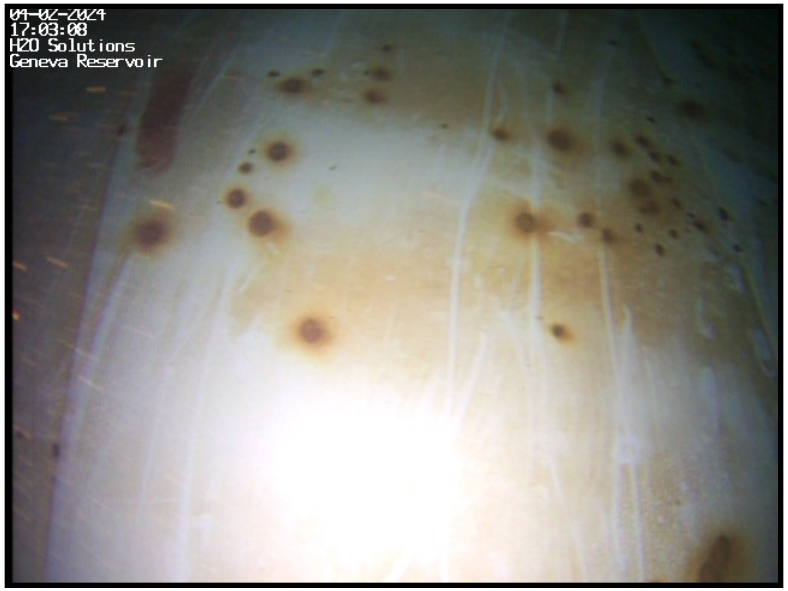
Appeared to be in poor condition with corrosion present.

Corrosion Present

33%

Rust Grade

2



Coating System

Appeared to be in fair condition with rust staining present.

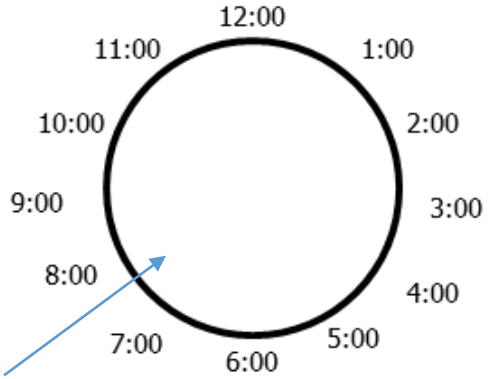
Coating Failure

15%

Recommendations

None at this time.

Interior Floor



Description

Appeared to be in poor condition with corrosion present.

Corrosion Present

33%

Rust Grade

2

Coating System

Appeared to be in fair condition with rust staining present.

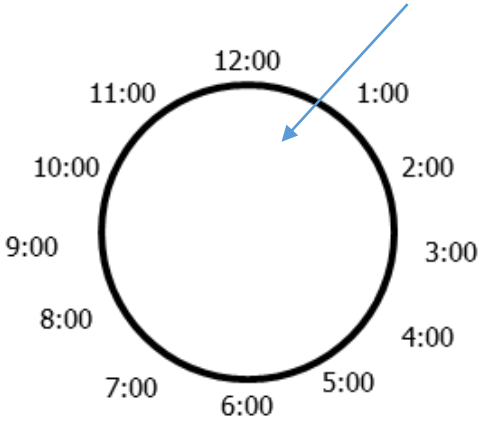
Coating Failure

15%

Recommendations

None at this time.

Interior Floor



Description

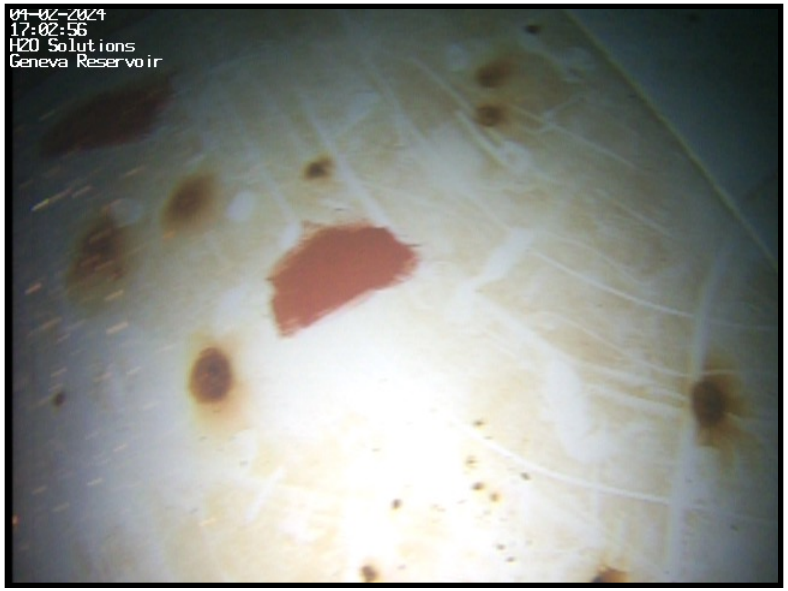
Appeared to be in poor condition with corrosion present.

Corrosion Present

33%

Rust Grade

2



Coating System

Appeared to be in fair condition with rust staining present.

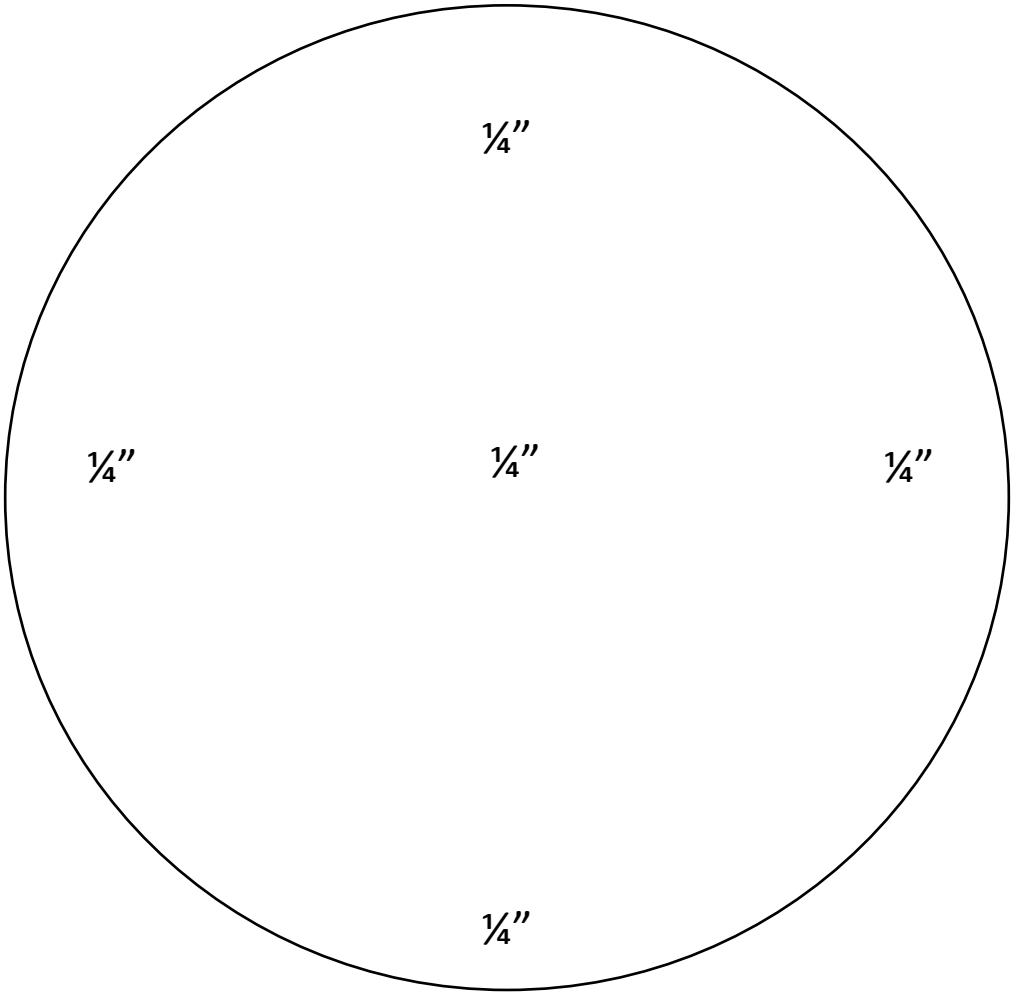
Coating Failure

15%

Recommendations

None at this time.

Sediment Depth



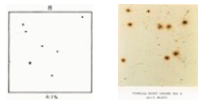
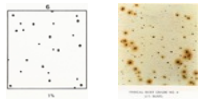
References

Standard Method of Evaluating Degree of Rusting on Painted Steel Surfaces – SSPC-Vis 2-82 & ASTM D 610-85 (1989)

The graphical representations show examples of area percentages, which may be helpful in rust grading. The use of photographical reference standards requires the following precautions:

- Some finishes are stained by rust. This staining must not be confused with the actual rusting involved.
- Accumulated dirt or other material may make accurate determination of the degree of rusting difficult.
- Certain types of deposited dirt that contain iron or iron compounds may cause surface discoloration that should not be mistaken for corrosion.
- It must be realized that failure may vary over a given area and discretion must therefore be used in applying these reference standards.
- In evaluating surfaces, consideration shall be given to the color of the finish coating, since failures will be more apparent on a finish that shows color contrast with rust, such as white, than on a similar color, such as iron oxide finish.
- The photographic reference standards are not required for use of the rust-grade scale since the scale is based upon the percent of the area rusted and any method of assessing area rusted may be used to determine the rust grade.

A	Similar to European Scale of Degree of rusting for Anti-Corrosive Paints (1961) (Black & White)
B	Corresponds to SSPC Initial Surface Conditions E (0 - 0.1%) and BISRA (British Iron and Steel Research Association) 0.1%
C	Corresponds to SSPC Initial Surface Conditions F (0.1%-1%) and BISRA 1%
D	Corresponds to SSPC Initial Surface Conditions G (1 - 10%)
E	Rust grades below 4 are of no practical importance in grading performance of paints
F	Corresponds to SSPC Initial Surface Condition H (50 - 100%)

Rust Grades [A]	Description	Graphical Representation
10	No rusting or less than 0.01% of surface rusted	Unnecessary
9	Minute rusting less than 0.03% of surface rusted	
8[B]	Few isolated rust spots less than 0.1% of surface rusted	
7	Less than 0.3% of surface rusted	
6[C]	Extensive rust spots but less than 1% of surface rusted	
5	Rusting to the extent of 3% of surface rusted	
4[D]	Rusting to the extent of 10% of surface rusted	
3[E]	Approximately on sixth of the surface rusted 16%	
2	Approximately one third of the surface rusted 33%	
1	Approximately one half of the surface rusted 50%