BEFORE THE METRO CONTRACT REVIEW BOARD

FOR THE PURPOSE OF AUTHORIZING THE RELEASE OF REQUEST FOR PROPOSALS NO. 03-1038-REM FOR ANALYTICAL LABORATORY SERVICES	))))	RESOLUTION NO. 03-3268 Introduced by: David Bragdon, Council President

WHEREAS, it is in the public interest to monitor environmental quality at St. Johns Landfill and the Smith and Bybee Lakes Wildlife Area; and,

WHEREAS, environmental quality monitoring at St. Johns Landfill and the Smith and Bybee Lakes Wildlife Area (including laboratory analysis) is required under various state and local permits, rules and regulations; and,

WHEREAS, it is desirable to maintain consistent quality and cost in analytical laboratory services required by Metro for this environmental monitoring program; and,

WHEREAS, Metro will solicit and evaluate qualifications and proposals through a competitive process, and on that basis will select the most qualified proposer for analytical laboratory services; and,

WHEREAS, this resolution was submitted to the Acting Chief Operating Officer for consideration and was forwarded to the Council for approval; now therefore,

BE IT RESOLVED,

1. that the Metro Council authorizes the release of a request for proposals substantially similar to RFP 03-1038-REM for analytical laboratory services attached as Exhibit A; and,

2. that the Metro Council, pursuant to Section 2.04.026 of the Metro Code, authorizes the Chief Operating Officer to execute a contract with the most qualified and cost effective proposer for analytical laboratory services, in accordance with requirements of the Metro Code.

ADOPTED by the Metro Council this 13th day of February, 2003.

David Bragdon, Council President

Approved as to Form:

Daniel B. Cooper, Metro Attorney

APPROUVÉ APPROVED METRO COUNCIL CONSEIL MÉTROPOLITAIN METRO

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EXHIBIT A
Resolution No. 03-3268

Request for Proposals for Analytical Laboratory Services

RFP #03-1038-REM

Prepared By:

Regional Environmental Management
Engineering Services Division
600 NE Grand Ave
Portland, OR 97232-2736
(503) 797-1650
Fax (503) 797-1795
www.metro-region.org

February 2003

METRO

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Request for Proposals

for

Analytical Laboratory Services

RFP #03-1038-REM

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TABLE OF CONTENTS

REQUEST FOR PROPOSALS

For

ANALYTICAL LABORATORY SERVICES

I. INTRODUCTION

The Regional Environmental Management Department of Metro, a metropolitan service district organized under the laws of the State of Oregon and the Metro Charter, located at 600 NE Grand Avenue, Portland, OR 97232-2736, is requesting written proposals for analytical laboratory services.

Proposals will be due no later than 3:00 p.m. PST, _____, 2003, in Metro's business offices at 600 NE Grand Avenue, Portland, OR 97232-2736.

Based on Metro's evaluation of received proposals, a contract may be awarded to one of the proposers.

Details concerning the project and proposal submissions are contained in this document.

II. PROJECT BACKGROUND

In fulfillment of various regulations and policies Metro conducts environmental monitoring within the Smith and Bybee Lakes Wildlife Area in North Portland. The wildlife area is a 2,000-acre urban wetland managed by Metro's Parks and Greenspaces Department. It includes the St. Johns Landfill (SJLF), a closed municipal solid waste landfill managed by Metro's Regional Environmental Management Department. Metro stopped accepting municipal waste at SJLF in 1991, after which a multi-layer cover system was installed over the solid waste.

Groundwater and stormwater samples are currently collected twice per year at SJLF in accordance with landfill closure and NPDES permits issued by the Oregon Department of Environmental Quality. Wastewater samples are collected twice per year in accordance with a wastewater discharge permit issued by the City of Portland. Wastewater samples may include landfill leachate and/or landfill gas condensate. On occasion, waste oil samples may also be collected. Surface water and sediment samples are collected in the Columbia Slough around SJLF, and in the lakes, as needed to assess trends in water quality conditions.

Samples will be analyzed in accordance with the anticipated analytical laboratory services contract resulting from this RFP process. Analysis will include

conventional indicators of water quality, heavy metals, and several classes of organics including volatile and semi-volatile compounds, pesticides and polychlorinated biphenyls, and herbicides. Other analytes may be tested as needed, including but not limited to additional organic compounds and biological parameters.

Metro currently budgets $80,000 per year for these analytical laboratory services.

III. PROPOSED SCOPE OF WORK

Metro is seeking proposals from firms to perform the services described generally in Appendix B (Scope of Work), and more specifically in three attachments to Appendix B, including:

- Attachment B-1: Cost Proposal
- Attachment B-2: Report Specifications
- Attachment B-3: Sampling and Analysis Plan -- St. Johns Landfill

The term of the contract for these services will be three (3) years.

IV. PROJECT ADMINISTRATION

Metro's project manager is Paul Vandenberg, Senior Solid Waste Planner.

Metro intends to award this contract to a single firm to provide the services required. Responders must identify a single person as project manager to work with Metro.

The Contractor must assure responsibility for any subcontractor work and shall be responsible for the day-to-day direction and internal management of the project. The prime contractor shall have, or be capable of obtaining general liability insurance, business automobile insurance, and workers compensation insurance covering the services to be performed, as shown in the Sample Standard Personal Services Agreement (Appendix A). Metro shall be named as an additional insured.

V. PROPOSAL: INSTRUCTIONS

Proposals should include items described in Section VI (Proposal Contents).

A. Submission of Proposals

Four (4) copies of the proposal shall be furnished to Metro, addressed to:

Paul Vandenberg
Metro -- Regional Environmental Management Department
600 NE Grand Avenue
Portland, OR 97232-2736

B. Deadline

Proposals will not be considered if received after 3:00 p.m., _____, 2003.

C. RFP as Basis for Proposals

This RFP represents the most definitive statement Metro will make concerning the information upon which proposals are to be based. Any verbal information that is not addressed in this RFP will not be considered by Metro in evaluating proposals. Any questions relating to this RFP should be addressed to Paul Vandenberg at (503) 797-1695. Any questions, which in the opinion of Metro warrant a written reply or RFP amendment, will be furnished to all parties receiving this RFP. Metro will not respond to questions received within 4 working days of the deadline.

D. Information Release

All persons submitting proposals are hereby advised that Metro may solicit and secure background information based upon the information, including references, provided in response to this RFP. By submission of a proposal all responders agree to such activity and release Metro from all claims arising from such activity.

E. Minority and Women-Owned Business Program

In the event that any subcontracts are to be utilized in the performance of this agreement, the proposer's attention is directed to Metro Code provisions 2.04.100 & 200.

Copies of that document are available from the Risk and Contracts Management Division of Administrative Services, Metro, 600 NE Grand Avenue, Portland, OR 97232 or call (503) 797-1816.

VI. PROPOSAL CONTENTS

The proposal should contain only those materials requested in items A through C below.

Any paper used in the submittal should be recyclable, double-sided recycled paper (post consumer content). No waxed page dividers or non-recyclable materials should be included.

A. Transmittal Letter

Briefly describe the contents of the materials submitted in the proposal. Identify the person who would be project manager. State that the proposal will be valid for ninety (90) days after the date of the proposal's submission.

B. Project Organization Chart

Provide an organization chart showing roles and relationships of all project personnel identified in the proposal. Identify sub-contractors by firm name, and include their respective roles and relationships.

Note: Include the following Metro staff in the Chart.

Name: Paul Vandenberg
Title: Senior Solid Waste Planner
Function: Primary contact for:

- Scheduling of sampling/analysis
- QA/QC issues
- Notification of changes in analytical methods
- Notification of new certifications
- Reporting of results
- Invoicing

Name: Michael Guebert
Title: Landfill and Environmental Specialist
Function: Field contact for:

- Container requests
- Sample collection
- Shipment of containers and samples
- Chain-of-custody

C. Qualifications

Submit written materials that demonstrate the capability and qualifications to provide the services described in the Appendix B (Scope of Work), including Attachments B-1, B-2 and B-3 to Appendix B.

Qualifications should include the information requested in items 1 through 3 below, and should contain not more than eight (10) pages of written material, excluding resumes. Any other supportive technical information should be included as appendices, where appropriate, and referenced as such.

1. Project Manager / Staffing

Identify the project manager and qualifications s/he brings to the project. Identify all assigned staff and their respective roles. Include resumes.

Provide the following for subcontractors that will be involved in the project:

- Name of firm
- Name of primary contact
- Specific analyses to be performed, and whether subcontractor will perform those analyses routinely or only under special circumstances. Describe circumstances where applicable.

2. Experience

List and briefly describe projects conducted over the past five years that involved services similar to those required per this RFP. For each project, identify the project manager and provide the following customer information: name of the primary contact, title, and telephone number.

3. Quality Assurance Program

Provide the laboratory's quality assurance program (manual or plan). Include the following information:

- Accreditation and Certifications
- Summary of Performance Evaluation Results
- Summary of Qualifications of Key Personnel
- Description of Equipment and Facilities
- Standard Operating Procedures
- Subcontracting Policies and Standards

- Sample Management
- Analytical Quality Control
- Data Generation, Validation and Reporting
- Corrective Actions
- Laboratory Evaluations and Audits
- QA Reports
- Documents and Document Control

D. Cost Proposal

The Cost Proposal Form is provided on the enclosed 3.5-inch disk, in Microsoft Excel 97 format. Instructions for completing and submitting this form are included in Attachment B-1 (of Appendix B).

E. Exceptions and Comments

To facilitate evaluation of proposals, all responding firms will adhere to the format outlined within this RFP. Firms wishing to take exception to, or comment on, any specified criteria within this RFP shall document their concerns in this part of their proposal. Exceptions or comments should be succinct, thorough and organized.

VII. PROPOSAL EVALUATION

A. Evaluation Procedure

Only Proposals that conform to the instructions will be evaluated. Metro will evaluate proposals using the criteria described immediately below.

B. Evaluation Criteria

In evaluating proposals Metro will apply the following weighting (based on 100 percentage points):

(40%) Qualifications
(25%) Cost
(20%) Project Understanding
(10%) References
(5%) Business or Work Force Diversity

VIII. GENERAL PROPOSAL/CONTRACT CONDITIONS

A. Limitation and Award

This RFP does not commit Metro to the award of a contract, nor to pay any costs incurred in the preparation and submission of proposals in anticipation of a contract. Metro reserves the right to waive minor irregularities, accept or reject any or all proposals received as the result of this request, negotiate with all qualified sources, or to cancel all or part of this RFP.

B. Billing Procedures

Proposers are informed that the billing procedures of the selected firm are subject to the review and prior approval of Metro before reimbursement of services can occur. Contractor's invoices shall include an itemized statement of the work done during the billing period, and will not be submitted more frequently than once a month. Metro shall pay Contractor within 30 days of receipt of an approved invoice.

C. Validity Period and Authority

The proposal shall be considered valid for a period of at least ninety (90) days and shall contain a statement to that effect. The proposal shall contain the name, title, address, and telephone number of an individual or individuals with authority to bind any company contacted during the period in which Metro is evaluating the proposal.

D. Conflict of Interest

A Proposer filing a proposal thereby certifies that no officer, agent, or employee of Metro or Metro has a pecuniary interest in this proposal or has participated in contract negotiations on behalf of Metro; that the proposal is made in good faith without fraud, collusion, or connection of any kind with any other Proposer for the same call for proposals; the Proposer is competing solely in its own behalf without connection with, or obligation to, any undisclosed person or firm.

IX. NOTICE TO ALL PROPOSERS -- STANDARD AGREEMENT

The attached personal services agreement (Appendix A) is a standard agreement approved for use by the Metro Office of General Counsel. This is the contract the successful proposer will enter into with Metro; it is included for your review prior to submitting a proposal. Any proposers wishing to take exception to the standard agreement should document these under Section VI E. of their proposal. Exceptions will be considered as part of the evaluation process.

S:\REM\cashj\Paul V\03 1038 RFP.doc

APPENDIX A

Contract No: _____

PERSONAL SERVICES AGREEMENT

THIS AGREEMENT is between Metro, a metropolitan service district organized under the laws of the State of Oregon and the Metro Charter, located at 600 NE Grand Avenue, Portland, OR 97232-2736, and _____ referred to herein as "Contractor," located at _____ _____.

In exchange for the promises and other consideration set forth below, the parties agree as follows:

1. Duration. This personal services agreement shall be effective on the last signature date below and shall remain in effect until and including _____, unless terminated or extended as provided in this Agreement.

2. Scope of Work. Contractor shall provide all services and materials specified in the attached "Exhibit A — Scope of Work," which is incorporated into this Agreement by reference. All services and materials shall be provided by Contractor in accordance with the Scope of Work, in a competent and professional manner. To the extent that the Scope of Work contains additional contract provisions or waives any provision in the body of this Agreement, the Scope of Work shall control.

3. Payment. Metro shall pay Contractor for services performed and materials delivered in the amount(s), manner and at the time(s) specified in the Scope of Work for a maximum sum not to exceed __ _____ AND __ _____/100THS DOLLARS ($_____).

4. Insurance.

a. Contractor shall purchase and maintain at the Contractor's expense, the following types of insurance, covering the Contractor, its employees, and agents:

(1) Broad form comprehensive general liability insurance covering bodily injury and property damage, with automatic coverage for premises, operations, and product liability shall be a minimum of $1,000,000 per occurrence. The policy must be endorsed with contractual liability coverage; and

(2) Automobile bodily injury and property damage liability insurance coverage shall be a minimum of $1,000,000 per occurrence.

b. **Metro, its elected officials, departments, employees, and agents shall be named as ADDITIONAL INSUREDS**. Notice of any material change or policy cancellation shall be provided to Metro 30 days prior to the change or cancellation.

c. Contractor, its subcontractors, if any, and all employers working under this Agreement that are subject employers under the Oregon Workers' Compensation Law shall comply with ORS 656.017, which requires them to provide Workers' Compensation coverage for all their subject workers. Contractor shall provide Metro with certification of Workers' Compensation insurance including employer's liability. If Contractor has no employees and will perform the work without the assistance of others, a certificate to that effect may be attached, as Exhibit B, in lieu of the certificate showing current Workers' Compensation.

d. If required by the Scope of Work, Contractor shall maintain for the duration of this Agreement professional liability insurance covering personal injury and property damage arising from errors, omissions, or malpractice. Coverage shall be in the minimum amount of $1,000,000. Contractor shall provide to Metro a certificate of this insurance, and 30 days' advance notice of material change or cancellation.

e. Contractor shall provide Metro with a certificate of insurance complying with this article and naming Metro as an additional insured within fifteen (15) days of execution of this Contract or twenty-four (24) hours before services under this Contract commence, whichever date is earlier.

5. Indemnification. Contractor shall indemnify and hold Metro, its agents, employees and elected officials harmless from any and all claims, demands, damages, actions, losses and expenses, including attorney's fees, arising out of or in any way connected with its performance of this Agreement, or with any patent infringement or copyright claims arising out of the use of Contractor's designs or other materials by Metro and for any claims or disputes involving subcontractors.

6. Maintenance of Records. Contractor shall maintain all of its records relating to the Scope of Work on a generally recognized accounting basis and allow Metro the opportunity to inspect and/or copy such records at a convenient place during normal business hours. All required records shall be maintained by Contractor for three years after Metro makes final payment and all other pending matters are closed.

7. Ownership of Documents. All documents of any nature including, but not limited to, reports, drawings, works of art and photographs, produced by Contractor pursuant to this Agreement are the property of Metro, and it is agreed by the parties that such documents are works made for hire. Contractor hereby conveys, transfers, and grants to Metro all rights of reproduction and the copyright to all such documents.

8. Project Information. Contractor shall share all project information and fully cooperate with Metro, informing Metro of all aspects of the project including actual or potential problems or defects. Contractor shall abstain from releasing any information or project news without the prior and specific written approval of Metro.

9. Independent Contractor Status. Contractor shall be an independent contractor for all purposes and shall be entitled only to the compensation provided for in this Agreement. Under no circumstances shall Contractor be considered an employee of Metro. Contractor shall provide all tools or equipment necessary to carry out this Agreement, and shall exercise complete control in achieving the results specified in the Scope of Work. Contractor is solely responsible for its performance under this Agreement and the quality of its work; for obtaining and maintaining all licenses and certifications necessary to carry out this Agreement; for payment of any fees, taxes, royalties, or other expenses necessary to complete the work except as otherwise specified in the Scope of Work; and for meeting all other requirements of law in carrying out this Agreement. Contractor shall identify and certify tax status and identification number through execution of IRS form W-9 prior to submitting any request for payment to Metro.

10. Right to Withhold Payments. Metro shall have the right to withhold from payments due to Contractor such sums as necessary, in Metro's sole opinion, to protect Metro against any loss, damage, or claim which may result from Contractor's performance or failure to perform under this Agreement or the failure of Contractor to make proper payment to any suppliers or subcontractors.

11. State and Federal Law Constraints. Both parties shall comply with the public contracting provisions of ORS chapter 279, and the recycling provisions of ORS 279.545 - 279.650, to the extent those provisions apply to this Agreement. All such provisions required to be included in this Agreement are incorporated herein by reference. Contractor shall comply with all applicable requirements of federal and state civil rights and rehabilitation statutes, rules and regulations including those of the Americans with Disabilities Act.

12. Situs. The situs of this Agreement is Portland, Oregon. Any litigation over this agreement shall be governed by the laws of the State of Oregon and shall be conducted in the Circuit Court of the state of Oregon for Multnomah County, or, if jurisdiction is proper, in the U.S. District Court for the District of Oregon.

13. Assignment. This Agreement is binding on each party, its successors, assigns, and legal representatives and may not, under any circumstance, be assigned or transferred by either party.

14. Termination. This Agreement may be terminated by mutual consent of the parties. In addition, Metro may terminate this Agreement by giving Contractor seven days prior written notice of intent to terminate, without waiving any claims or remedies it may have against Contractor. Termination shall not excuse payment for expenses properly incurred prior to notice of termination, but neither party shall be liable for indirect or consequential damages arising from termination under this section.

15. No Waiver of Claims. The failure to enforce any provision of this Agreement shall not constitute a waiver by Metro of that or any other provision.

16. Modification. Notwithstanding and succeeding any and all prior agreement(s) or practice(s), this Agreement constitutes the entire Agreement between the parties, and may only be expressly modified in writing(s), signed by both parties.

CONTRACTOR	METRO
By_____	By_____
Title_____	Title_____
Date_____	Date_____

Attachment A

Contract No: _____

Scope of Work

1. **Statement of Work.**

2. **Payment, Billing and Term.**

Contractor shall provide services for a maximum price not to exceed _____AND NO/100 DOLLARS ($0,000.00). The maximum price includes all fees, costs and expenses of whatever nature. Each of Metro's payments to Contractor shall equal the percentage of the work Contractor accomplished during the billing period. Contractor's billing statements will include an itemized statement of unit prices for labor, materials, and equipment, will include an itemized statement of work done and expenses incurred during the billing period, will not be submitted more frequently than once a month, and will be sent to Metro, Attention Regional Environmental Management Department. Metro will pay Contractor within 30 days of receipt of an approved billing statement.

In the event Metro wishes for Contractor to provide services or materials after the maximum contract price has been reached, Contractor shall provide such services or materials pursuant to amendment at the same unit prices that Contractor utilized as of the date of this Agreement, and which Contractor utilizes to submit requests for payment pursuant to this Scope of Work. Metro may, in its sole discretion and upon written notice to Contractor, extend the term of this contract for a period not to exceed 12 months. During such extended term all terms and conditions of this contract shall continue in full force and effect.

APPENDIX B

SCOPE OF WORK

Metro is seeking proposals from qualified firms to perform the analytical services described below. The Contractor shall provide these services for water, sediment and oil samples collected by Metro and submitted to the Contractor.

1. The Contractor shall fulfill the laboratory responsibilities described in Metro's Sampling & Analysis Plan for St. Johns Landfill (Attachment B-3) and shall not exceed the analytical method reporting limits specified in Tables 3 through 6 of that Plan.

2. As requested by Metro, the Contractor shall perform analysis for those analytes listed in the Cost Proposal (Attachment B-1) using the analytical methods specified, and procedures consistent with the Contractor's Quality Assurance Program incorporated in this agreement.

3. Metro may request analysis of analytes not listed in the Cost Proposal, and will negotiate a unit cost with the Contractor for such analysis at the time of the request.

4. Where the Contractor believes that substitutions to analytical methods specified in the Cost Proposal are necessary, a written request for the desired change shall be submitted to Metro for approval, and shall include a justification for the change.

5. Where any sample submitted by Metro is considered by the Contractor to be inadequate for analysis, the Contractor shall immediately notify Metro, and shall request additional information or advise Metro as necessary.

6. Where any sample submitted by Metro fails to be analyzed based on circumstances surrounding the handling or preparation of the sample by the Contractor, the Contractor shall immediately notify and confer with Metro about corrective action required to achieve a timely result.

7. Reports of analytical results shall be submitted by the Contractor according to the specifications in Attachment B-2, within 15 working days of receipt of sample(s) by the laboratory. Where results are submitted later than 15 working days, billing statements associated with those results shall be subjected to a penalty fee equal to one percent (1%) of the total amount due, per late day.

8. The Contractor shall notify Metro in writing of all performance evaluations, new accreditation or certification, within 30 days of receipt of such.

Attachment B-1
Cost Proposal

General Requirements

Cost proposals must be submitted in the Microsoft Excel 97 spreadsheet file named **Cost Proposal Form.xls** (Form) provided on disk in this RFP. The proposer must include a disk containing the completed file in the proposal submitted to Metro.

The proposer must provide the following information to complete the form:

- "Unit Cost Year 1" for each analyte identified in column G.
- "Multiplier" for Year 2 (cell H4). This figure represents an inflation factor applied to Year 1 unit costs. The adjusted costs are effective for the second year of the contract term.
- "Multiplier" for Year 3 (cell I4), represents an inflation factor applied to Year 2 units costs. The adjusted costs are effective for the third year of the contract term.

Upon entry of this information, the Form automatically computes the following:

- Unit Cost for Years 2 and 3, respectively, per analyte
- Annual Cost for Years 1, 2 and 3, respectively, per analyte
- Total Cost for Contract Term, per analyte class (e.g. metals, herbicides)
- Cost Summary for Contract Term, per sample type (e.g., stormwater, waste oil)
- Grand Total for Contract Term

Note that unit costs shall reflect all costs associated with the services to be provided per the Scope of Work, including but not limited to the following:

- Administration
- Labor
- Supplies
- Equipment operation and maintenance
- Container shipment and sample pickup
- Sub-consultant fees

To complete the Form, refer to the details provided below, which include explanations and instructions for each field.

Spreadsheet Field Detail

Analytical Method No. Provided by Metro. Preferred method of analysis, by analyte or analyte class.

Method Reference. Provided by Metro. Code for Method Reference is as follows:

- SM = Standard Methods for the Examination of Water and Wastewater (18th edition)
- SW-846 = Test Methods for Evaluating Solid Waste Physical/Chemical Methods
- EPA = Methods for Chemical Analysis of Water and Wastes (1983).

Alternative Method. Provided by proposer, if desired. Where an alternative method is proposed, it must be an EPA approved equivalent to the method specified by Metro in the previous two fields, and the unit cost must reflect use of the alternative.

Units of Measure. Provided by Metro. Corresponds to specified analyte and method.

Estimated Samples per year. Provided by Metro. Includes field duplicates, transport and field blanks. Remains constant for the 3-year contract term.

Unit Cost Year 1. Provided by proposer. Represents cost per specified analyte.

Multiplier (for Unit Cost Year 2). Provided by proposer. Represents percent increase of Unit Cost Year 1. Enter as whole number. For example, if a two- percent increase is desired, enter 2, as opposed to .02

Unit Cost Year 2. Computed by Form using "Multiplier" (i.e., inflation factor) provided by proposer. Represents cost per specified analyte. Note that minor discrepancies may result from this computation due to rounding.

Multiplier (for Unit Cost Year 3). Provided by proposer. Represents percent increase of Unit Cost Year 2. Enter as whole number. For example, if a two- percent increase is desired, enter 2, as opposed to .02

Unit Cost Year 3. Computed by Form using "Multiplier" (i.e., inflation factor) provided by proposer. Represents cost per specified analyte. Note that minor discrepancies may result from this computation due to rounding.

Annual Cost (Years 1, 2 and 3). Computed by Form (unit cost multiplied by estimated samples per year). Represents annual cost per specified analyte.

Total Cost Contract Term. Computed by Form (sum of annual costs for Years 1, 2 and 3). Represents total cost per specified analyte or analyte grouping.

Attachment B-2
Report Specifications

Each report of analytical results to Metro by the Contractor shall include the following two items. These items shall be submitted as computer files via e-mail or computer disk (zip disk or CD-RW).

1. Adobe Acrobat file of complete report, including the following elements:
   - Signed letter of transmittal [a]
   - Project summary [b]
   - Analytical results [c]
   - Quality Control documentation
   - Chain-of-Custody

2. Microsoft Access 97 file of analytical results only, provided in the format described in Exhibit 1 of this attachment.

[a] Transmittal Letter. The transmittal letter shall identify the sample collection site, sample matrix, and the total number of samples analyzed. It should briefly summarize any QA/QC issues of significance associated with the reported results, including any corrective actions taken. The scanned signature of the project manager shall be included in the letter.

[b] Project Summary. For each sample submitted, provide sample identification, date received, and date reported, in tabular format.

[c] Analytical Results. For each individual analysis, provide the analytical result, reporting limit, units, dilution (if applicable), method, date prepared, date analyzed, and any note regarding the analysis (e.g., qualifier code).

Exhibit 1

(of Attachment B-2)

File Naming / Structure / Field Requirements
(Software: Microsoft Access 97)

File naming

Files of analytical results shall be provided to Metro as tables within a Microsoft Access database. Each database should be named using the format **ppppmmyy.mdb**, where the prefix **pppp** identifies the sample matrix (as shown in table below), and **mm** and **yy** are month and year of the sample submittal date. Tables within this database should be named using the same format. For example, the table **GRND0504** in database **GRND0504.mdb** would be results of groundwater analysis for samples submitted in May 2004.

Prefix	Results Contained in Table
COND	Landfill Gas Condensate
GRND	Groundwater
SEDM	Surface Water Sediment
SOIL	Soil
STOR	Stormwater
SURF	Surface Water
WWDC	Wastewater Discharge

File Structure and Field Format

Files shall be structured in one of two ways, depending on the sample type, as follows:

File Structure A
File Name Prefix: GRND, SURF, STOR, WWDC, COND

Name	Type	Size
Station	Text	14
Parameter	Text	12
SampDate	Date/Time	8
SampTime	Text	5
AnalyDate	Date/Time	8
Concentration	Number (Double)	8
Unit	Text	10
Limit	Number (Double)	8
Source	Number (Integer)	2
Quality	Text	2
Class	Text	11
Method	Text	20

File Structure B
File Name Prefix: SEDM, SOIL

Field Name	Type	Size
Station	Text	14
Parameter	Text	12
SampDate	Date/Time	8
SampTime	Text	5
AnalyDate	Date/Time	8
W/D	Text	1
Concentration	Number (Double)	8
Unit	Text	10
%Moisture	Number (Double)	8
Limit	Number (Double)	8
Source	Number (Integer)	2
Quality	Text	2
Class	Text	11
Method	Text	20

File record key

The following "key" fields shall ensure that each record included in a report file is unique (i.e. no duplicate records): Station / Parameter / Sample Date / Sample Time

Field Requirements

Station: Enter sample ID from sample container label / chain-of-custody.

Parameter: Enter analyte CAS number. For each analyte without a CAS number, Contractor will provide Metro with a unique code, to be used in this field.

SampDate: Enter sample date from sample container label / chain-of-custody.

SampTime: Enter time of sample collection from sample container label / chain-of-custody.

AnalyDate: Enter date of sample analysis.

W/D (Note: Applies only to sediment / soil samples): Enter "D" (dry weight basis), unless analysis was otherwise performed on a wet weight basis ("W"), as requested by Metro.

Concentration: Enter the analytical result. Where the analyte is not detected and is below the analytical reporting limit, enter the code number "-9".

Units: Enter the analytical units of measure, consistent with the units specified in the Cost Proposal Form.

%Moisture (Note: Applies only to sediment / soil samples): Enter percent moisture of sample; one decimal place with no % symbol (e.g. 72.5).

Limit: Enter the value of the analytical reporting limit.

Source: Enter the number 140.

Quality: Leave this field blank.

Class: Leave this field blank.

Method: Enter the analytical method number; reference not required (e.g., where method is EPA 200.7, enter 200.7).

Exhibit 2

(of Attachment B-2)

Analyte Code

Biological Parameters	**CAS Number**
Chlorophyll-a	479-61-8
Phaeophytin	*
E. Coli	*
Enterococcus	*
Fecal Coliforms	*
Conventional Parameters	
% Solids	*
Alkalinity - Total	*
Ammonia-Nitrogen	*
Bicarbonate Alkalinity	*
Biochemical Oxygen Demand	*
Calcium	7440-70-2
Carbonate Alkalinity	*
Chemical Oxygen Demand	*
Chloride	16887-00-6
Dissolved Organic Carbon	*
Hardness	*
Hydroxide Alkalinity	*
Iron	7439-89-6
Magnesium	7439-95-4
Magnesium	7439-95-4
Manganese	7439-96-5
Nitrate	*
Nitrite	*
Nitrate + Nitrite	*
Nitrogen-Total Kjeldahl	*
Oil & Grease	*
Orthophosphate	*
Phosphorus	7723-14-0
Potassium	7440-09-7
Silica (SiO2)	7631-86-9
Sodium	7440-23-5
Specific Conductivity	*
Sulfate	14808-79-8
Sulfide	18496-25-8
Total Dissolved Solids	*
Total Organic Carbon	*
Total Solids	*
Total Suspended Solids	*
Heavy Metals - Total	
Aluminum	7429-90-5
Antimony	7440-36-0
Arsenic	7440-38-2
Barium	7440-39-3
Beryllium	7440-41-7
Cadmium	7440-43-9
Calcium	7440-70-2
Chromium	7440-47-3
Cobalt	7440-48-4
Copper	7440-50-8
Iron	7439-89-6
Lead	7439-92-1

Exhibit 2

(of Attachment B-2)

Analyte Code

Manganese	7439-96-5
Mercury	7439-97-6
Molybdenum	7439-98-7
Nickel	7440-02-0
Selenium	7782-49-2
Silver	7440-22-4
Thallium	7440-28-0
Vanadium	7440-62-2
Zinc	7440-66-6
Heavy Metals - Dissolved	
Aluminum-D	**7429-90-5(D)**
Antimony-D	**7440-36-0(D)**
Arsenic-D	**7440-38-2(D)**
Barium-D	**7440-39-3(D)**
Beryllium-D	**7440-41-7(D)**
Cadmium-D	**7440-43-9(D)**
Chromium-D	**7440-47-3(D)**
Cobalt-D	**7440-48-4(D)**
Copper-D	**7440-50-8(D)**
Lead-D	**7439-92-1(D)**
Mercury-D	**7439-97-6(D)**
Molybdenum-D	**7439-98-7(D)**
Nickel-D	**7440-02-0(D)**
Selenium-D	**7782-49-2(D)**
Silver-D	7440-22-4(D)
Thallium-D	**7440-28-0(D)**
Vanadium-D	**7440-62-2(D)**
Zinc-D	**7440-66-6(D)**
Simultaneously-Extracted Metals	
Antimony-SEM	7440-36-0(S)
Chromium-SEM	**7440-47-3(S)**
Cobalt-SEM	**7440-48-4(S)**
Lead-SEM	**7439-92-1(S)**
Selenium-SEM	**7782-49-2(S)**
Silver-SEM	**7440-22-4(S)**
Herbicides	
2,4,5-T	93-76-5
2,4,5-TP (Silvex)	93-72-1
2,4-D	94-75-7
2,4-DB	94-82-6
Dalapon	75-99-0
Dicamba	1918-00-9
Dichlorprop	120-36-5
Dinoseb	88-85-7
MCPA	94-74-6
MCPP	93-65-2
Pesticides	
4,4´-DDD	72-54-8
4,4´-DDE	72-55-9
4,4´-DDT	50-29-3
Aldrin	309-00-2
alpha-BHC	319-84-6
alpha-Chlordane	5103-71-9

Exhibit 2

(of Attachment B-2)

Analyte	Code
beta-BHC	319-85-7
Chlordane (tech)	57-74-9
delta-BHC	319-86-8
Dieldrin	60-57-1
Endosulfan I	959-98-8
Endosulfan II	33213-65-9
Endosulfan sulfate	1031-07-8
Endrin	72-20-8
Endrin aldehyde	7421-93-4
Endrin ketone	53494-70-5
gamma-BHC (Lindane)	58-89-9
gamma-Chlordane	5103-74-2
Heptachlor	76-44-8
Heptachlor epoxide	1024-57-3
Methoxychlor	72-43-5
Toxaphene	8001-35-2
Polychlorinated Biphenyls	
Aroclor 1016	12674-11-2
Aroclor 1221	11104-28-2
Aroclor 1232	11141-16-5
Aroclor 1242	53469-21-9
Aroclor 1248	12672-29-6
Aroclor 1254	11097-69-1
Aroclor 1260	11096-82-5
Volatile Organic Compounds	
1,1,1,2-Tetrachloroethane	630-20-6
1,1,1-Trichloroethane	71-55-6
1,1,2,2-Tetrachloroethane	79-34-5
1,1,2-Trichloroethane	79-00-5
1,1-Dichloroethane	75-34-3
1,1-Dichloroethene	75-35-4
1,1-Dichloropropene	563-58-6
1,2,3-Trichlorobenzene	87-61-6
1,2,3-Trichloropropane	96-18-4
1,2,4-Trimethylbenzene	95-63-6
1,2-Dibromo-3-chloropropane	96-12-8
1,2-Dibromoethane	106-93-4
1,2-Dichloroethane	107-06-2
1,2-Dichloropropane	78-87-5
1,3,5-Trimethylbenzene	108-67-8
1,3-Dichloropropane	142-28-9
2,2-Dichloropropane	594-20-7
2-Butanone	78-93-3
2-Chlorotoluene	95-49-8
2-Chlorotoluene	95-49-8
2-Hexanone	591-78-6
4-Chlorotoluene	106-43-4
4-Chlorotoluene	106-43-4
4-Methyl-2-pentanone	108-10-1
Acetone	67-64-1
Benzene	71-43-2
Bromobenzene	108-86-1
Bromochloromethane	74-97-5

Exhibit 2

(of Attachment B-2)

Analyte	Code
Bromodichloromethane	75-27-4
Bromoform	75-25-2
Bromomethane	74-83-9
Carbon disulfide	75-15-0
Carbon tetrachloride	56-23-5
Chlorobenzene	108-90-7
Chloroethane	75-00-3
Chloroform	67-66-3
Chloromethane	74-87-3
cis-1,2-Dichloroethene	156-59-2
cis-1,3-Dichloropropene	10061-01-5
Dibromochloromethane	124-48-1
Dibromomethane	74-95-3
Dichlorodifluoromethane	75-71-8
Ethylbenzene	100-41-4
Isopropylbenzene	98-82-8
m,p-Xylene	1330-20-7
Methyl tert-butyl ether	1634-04-4
Methylene chloride	75-09-2
Naphthalene	91-20-3
n-Butylbenzene	104-51-8
n-Propylbenzene	103-65-1
o-Xylene	95-47-6
p-Isopropyltoluene	99-87-6
sec-Butylbenzene	135-98-8
Styrene	100-42-5
tert-Butylbenzene	98-06-6
Tetrachloroethene	127-18-4
Toluene	108-88-3
trans-1,2-Dichloroethene	156-60-5
trans-1,3-Dichloropropene	10061-02-6
Trichloroethene	79-01-6
Trichlorofluoromethane	75-69-4
Vinyl chloride	75-01-4
Semi-Volatile Organic Compounds	
1,2 Diphenylhydrazine (as Azobenzene)	103-33-3
1,2,4-Trichlorobenzene	120-82-1
1,2-Dichlorobenzene	95-50-1
1,3-Dichlorobenzene	541-73-1
1,4-Dichlorobenzene	106-46-7
2,4,5-Trichlorophenol	95-95-4
2,4,6-Trichlorophenol	88-06-2
2,4-Dichlorophenol	120-83-2
2,4-Dimethylphenol	105-67-9
2,4-Dinitrophenol	51-28-5
2,4-Dinitrotoluene	121-14-2
2,6-Dinitrotoluene	606-20-2
2-Chloronaphthalene	91-58-7
2-Chlorophenol	95-57-8
2-Methylnaphthalene	91-57-6
2-Methylphenol	95-48-7
2-Nitroaniline	88-74-4
2-Nitrophenol	88-75-5

Exhibit 2

(of Attachment B-2)

Analyte	Code
3,3´-Dichlorobenzidine	91-94-1
3-,4-Methylphenol	1319-77-3
3-Nitroaniline	99-09-2
4,6-Dinitro-2-methylphenol	534-52-1
4-Bromophenyl phenyl ether	101-55-3
4-Chloro-3-methylphenol	59-50-7
4-Chloroaniline	106-47-8
4-Chlorophenyl phenyl ether	7005-72-3
4-Nitroaniline	100-01-6
4-Nitrophenol	100-02-7
Acenaphthene	83-32-9
Acenaphthylene	208-96-8
Anthracene	120-12-7
Benzidine	92-87-5
Benzo (a) anthracene	56-55-3
Benzo (a) pyrene	50-32-8
Benzo (b) fluoranthene	205-99-2
Benzo (ghi) perylene	191-24-2
Benzo (k) fluoranthene	207-08-9
Benzoic Acid	65-85-0
Benzyl alcohol	100-51-6
Bis(2-chloroethoxy)methane	111-91-1
Bis(2-chloroethyl)ether	111-44-4
Bis(2-chloroisopropyl)ether	108-60-1
Bis(2-ethylhexyl)phthalate	117-81-7
Butyl benzyl phthalate	85-68-7
Chrysene	218-01-9
Dibenzo (a,h) anthracene	53-70-3
Dibenzofuran	132-64-9
Diethyl phthalate	84-66-2
Dimethyl phthalate	131-11-3
Di-n-butyl phthalate	84-74-2
Di-n-octyl phthalate	117-84-0
Fluoranthene	206-44-0
Fluorene	86-73-7
Hexachlorobenzene	118-74-1
Hexachlorobutadiene	87-68-3
Hexachlorocyclopentadiene	77-47-4
Hexachloroethane	67-72-1
Indeno (1,2,3-cd) pyrene	193-39-5
Isophorone	78-59-1
Naphthalene	91-20-3
Nitrobenzene	98-95-3
N-Nitrosodimethylamine	62-75-9
N-Nitrosodi-n-propylamine	621-64-7
N-Nitrosodiphenylamine	86-30-6
Pentachlorophenol	87-86-5
Phenanthrene	85-01-8
Phenol	108-95-2
Pyrene	129-00-0

Notes

*** Code to be provided by Contractor**

Bold CAS No.: Metro added a character to No. to indicate a variation of the analyte

ATTACHMENT B-3

SAMPLING AND ANALYSIS PLAN
ST. JOHNS LANDFILL
PORTLAND, OREGON

1. INTRODUCTION

This Sampling and Analysis Plan (SAP) details field and laboratory procedures that will be used to implement the interim Environmental Monitoring Plan (EMP) for St. Johns Landfill. This SAP is submitted as an attachment (Attachment A) to the interim EMP and describes the procedures recommended for obtaining, preparing, documenting, preserving, and shipping groundwater quality samples collected at the site. This SAP establishes Quality Assurance/Quality Control (QA/QC) requirements for sample acquisition and handling. The objective of the SAP is to optimize the accuracy and precision of collected data through effective and controlled field measurements, sampling, and laboratory analysis. Procedures meeting those criteria will allow for accurate evaluation of data and any associated environmental effects.

The SAP includes an attachment that contains the DEQ's criteria for sampling and field measurements, per their letter to Metro dated October 28, 1997 (see Attachment 1 to Sampling and Analysis Plan: DEQ Baseline Criteria). Metro personnel will follow those criteria for all relevant fieldwork.

The term "sampling" herein means field measurements in addition to the collection of samples for laboratory analysis. "Laboratory" refers to any entity that has contracted with Metro to perform analytical laboratory services.

In addition to complete and effective laboratory QA/QC, a key function of the plan is to employ procedures that provide field data and samples for laboratory analysis that are representative of environmental conditions (e.g., hydrologic and hydrogeologic) at the time and location of sampling.

The following functions are described in this SAP:

- Sample Storage, Labeling and Transport
- Field QA/QC
- Laboratory QA/QC
- Groundwater Sampling Procedures
- Water Level Data Logging & Processing

Metro personnel implementing the sampling function of the plan will adhere to the specifications described in this plan, unless unspecified measures are warranted based on unanticipated conditions. Where this occurs, any alternative measures employed will be fully explained and documented.

Where required when sampling, Metro personnel will wear personal protective clothing, use equipment and employ measures consistent with OSHA, EPA, and DEQ standard operating safety guidelines and procedures.

2. SITE LOCATION AND CONDITIONS

This section presents an overview regarding the site's location, operating history, and subsurface conditions. This information is provided to give individuals that are not familiar with the site a general sense of site conditions. Further detail regarding site location and conditions is presented in the EMP.

2.1 Site Setting

The St. Johns landfill (SJLF) is owned and operated by Metro. It is a closed municipal solid waste landfill, located in Section 36 of Township 2 north, Range 1 west of the Willamette Meridian, in the Rivergate Industrial District of north Portland, Multnomah County, Oregon (Figure 1). The site address is 9363 North Columbia Blvd.

The SJLF is over 240 acres in area, and is situated on a floodplain near the confluence of the Columbia and Willamette rivers (Figure 1). Before its development, the site was an unnamed wetland and seasonal lake that was part of an extensive interconnected network of lakes, marshes, wetlands, and sloughs.

Its boundaries are currently defined by the Columbia Slough to the south and southwest, the North Slough [arm of the Columbia Slough] and Bybee Lake to the north, and Smith Lake to the east. It is within the boundary of the Smith-Bybee Lakes Wildlife Area (SBWA). Properties surrounding SBWA are predominantly commercial and industrial.

The SJLF is located on a peninsula that is bounded by the Columbia River to the north, the Willamette River to the south and southwest, and the North Portland Road to the east (Figure 1). The landfill is bordered on all sides by surface waters. The Columbia Slough is located to the west and south, the North Slough [arm of the Columbia Slough] and Bybee Lake are located to the north, and Smith Lake is to the east.

2.2 Operations History

For approximately 60 years, the landfill was one of the largest municipal waste disposal sites in the Portland area. From the early 1930's to the late 1960's, the landfill was operated as an open dump with no daily covering or compaction. During the early years of operation, ash from a nearby garbage burner and unburned waste were placed directly into the lake and wetlands that occupied the landfill site. The lake was filled by the mid-1950's and converted to a sanitary landfill in 1969. A 55-acre expansion on the northeast side was added and enclosed within an engineered earth dike in 1980, bringing the total area of the landfill site to approximately 240 acres. Metro stopped accepting non-inert waste at the site in 1991, upon completion of transfer stations needed to send the solid waste to an eastern Oregon landfill, and currently accepts no waste.

2.3 Subsurface Conditions

Based on subsurface investigations completed at the site, three unconsolidated geologic units have been encountered/are present beneath the solid waste fill. In descending order, these units include:

1. the Overbank Silts (OBS) on which the solid waste overlies,
2. the Columbia River Sands (CRS), and
3. the Pleistocene Gravel (PG).

Three more geologic units are present beneath the PG, including from top to bottom, the Troutdale Formation, undifferentiated sediments, and the Columbia River Basalt.

The OBS (or "silt") are the result of intermittent flooding of the Columbia River. Each flood left a layer of sediment, causing stratification in the floodplain deposits. This unit consists mostly of low permeability, fine-grained silty clays, clayey silts, and sands. Thickness of silt at the site is highly non-uniform. It is thickest to the west of the landfill, with a maximum thickness of approximately 200-feet, and is thinnest in the lake area.

The CRS are present mostly beneath the Columbia and Willamette Rivers. A thin layer of sand is present beneath the landfill. However, at other locations in the area there is no discernable sand unit. This unit consists primarily of fine to coarse sand locally containing minor amounts of silt. Boring logs show that the CRS may comprise of two layers: an upper silty sand to fine sand unit locally overlying a clean medium to coarse sand. The upper unit occurs beneath the southern and northwest sides of the landfill, where it ranges in thickness from less than 1-foot to up to 35-feet. The lower unit is generally absent below the silty sand along the southern and northwest sides of the landfill.

The PG layer was formed from as many as 40 Pleistocene catastrophic floods of the Columbia River. Near the present channel of the Columbia River is a coarser grained unit of

the PG, which consists of a basaltic sand and gravel unit with varied amounts of cobbles and boulders that range up to 12 feet in diameter.

The groundwater flow system at SJLF and vicinity exhibits rather complex spatial and temporal dynamics, and is determined by precipitation recharge, groundwater/surface water interaction, upwelling, and pumping. The flow system is basically defined by the presence of the thick silt unit located to the west of the landfill the gravel trough below the landfill, and the gravel ridge to the north of the landfill below the northwest portion of Bybee Lake.

3. GROUNDWATER QUALITY MONITORING LOCATIONS

This section describes the established groundwater quality monitoring and water level measurement locations at the site. Groundwater quality monitoring locations at the SJLF consists of 30 monitoring and six leachate wells. Continuous water levels are collected at nine multi-port piezometers equipped with pressure transducers and are supplemented by six wells equipped with pressure transducers. Table 1 identifies these groundwater quality and water level measurement locations. The locations of these wells and piezometers are identified in this section.

3.1 Monitoring Well Locations

The existing active site groundwater quality network consists of 30 monitoring wells. These wells provide water quality monitoring of the three unconsolidated lithologic units identified in Section 2.3 and can be grouped in the following manner:

- Overbank Silt unit:
  1) upper units wells: D-1a, D-2a, D-3a, D-4a, D-6a, G-4a, G-5a, K-1, K-2, K-3, K-4, and K-6a. Twelve (12) wells total.
  2) middle unit wells: D-1b, D-3b, F-1, and G-2. Four (4) wells total.
  3) lower unit wells: D-1c, D-6b, G-1, G-3R, G-8a, and K-6b. Seven (7) wells total.

- Columbia River Sand unit: wells: D-4b, G-4b, and G-7. Three (3) wells total

- Pleistocene Gravel unit: 5 wells: D-6c, G-5b, G-6, G-8b, and G-8c.

Figure 2 shows the location of the above active groundwater quality monitoring wells. These wells are sampled on a semi-annual basis during the compliance periods presented in Section 4.1.

Table 1 presents a monitoring schedule for these wells. The analyte groups indicated in Table 1 are further identified in Table 2.

3.2 Water Level Monitoring Locations

There are three type of water level monitoring locations that have been established at the site. These three location types of monitoring locations are: continuous, monthly, and semi-annual. These water level locations are identified on Table 1 under piezometers, shown on Figure 2, and are briefly described below.

Continuous water level measurements are collected at six multi-port piezometers and six monitoring wells that are equipped with pressure transducers. The multi-level piezometers are equipped with strip pressure transducer installed in a string allowing for multiple depths at a given location. A total of 22 points are continuously monitored by the six multi-port piezometers. The six transducer equipped monitoring wells utilize a removable type device.

Monthly water level measurements are collected at three multi-port piezometers that are also equipped with strip pressure transducer installed in a string allowing for multiple depths at a given location. A total of 10 depth-specific locations are monitored on a monthly basis by the three multi-port piezometers.

Water levels will also be measured from the six leachate monitoring wells on a monthly basis. Water level measurements from the leachate wells will assist in evaluating mounding conditions in the landfill waste.

Water level measurements are also collected at all active monitoring wells on a semi-annual basis during a water quality monitoring event.

3.3 Leachate Monitoring Locations

Six leachate wells have been established at the site as identified in Table 1. The locations of these wells are shown on Figure 3. The wells are located in each of the five subareas of the landfill, which was delineated for closure purposes. All of the leachate wells are screened in refuse (waste). These six leachate monitoring wells will be sampled on a semi-annual basis in conjunction with the groundwater quality monitoring event.

4. SAMPLING DATES

This section identifies the compliance sampling periods for the site. Table 1 provides a summary of the information presented in this section.

4.1 Water Quality Sampling Events

Groundwater quality samples, to be submitted for analytical laboratory testing, will be collected at the frequency identified in Table 1. The sampling frequency of water quality monitoring is semi-annual. Depth to water level measurements will also be collected from

all locations identified in Section 3.2 during a sampling event. The compliance groundwater quality sampling periods for the site are:

- Spring: April 1st through May 31st
- Fall: October 1st through November 30th

The locations and analytical requirements for the groundwater quality sampling events at the site are also identified on Table 1.

During the Fall event, nine (9) well locations will be selected for additional parameter analysis beyond what is indicated in Table 1. This additional analysis includes the SJLF priority pollutant groundwater monitoring parameters identified in Table 2.

As indicated in Table 1, the six (6) leachate wells will also be analyzed for priority pollutants along with the standard landfill monitoring parameters during the Fall sampling event. The additional parameter analysis for the leachate wells corresponds with the priority pollutant analysis completed on the nine selected well locations. As indicated in Section 4.4.2 of the interim EMP, after the completion of four priority pollutant sampling events of the six leachate wells, Metro may recommend a reduction in the sampling frequency or in the list of laboratory analytes for one or more of the leachate wells.

4.2 Water Level Measurement Events

The collection of water level measurements at the site will be completed at the frequency and locations indicated in Table 1.

5. SAMPLING PARAMETERS

The chemicals to be analyzed in the water quality monitoring program at the SJLF are identified in Table 2. As indicated in Table 2, there are two sets of monitoring parameters that have been established at the SJLF. The first set includes the standard landfill monitoring parameters. This first parameter set includes field and laboratory indicator parameters (Groups 1a and 1b), common anions and cations (Group 2a), trace metals (Group 2b), and volatile organic compounds (Group 3). The second set is called the SJLF priority pollutant groundwater monitoring parameters. The priority pollutant parameter set includes semi-volatile organic compounds, cyanide, mercury, nitrite, pesticides, herbicides, and PCBs. A SJLF priority pollutant analysis would include analyzing all analytes shown on Table 2.

The analytical method description and method reporting level (mrl) for the parameters listed in Table 2 are presented in the following tables:

- Table 3: laboratory indicator parameters (Group 1b), common cations and anions (Group 2a), and trace metals (Group 2b) analytes
- Table 4: volatile organic compounds (Group 3)
- Table 5: semi-volatile organic compounds (SJLF priority pollutants)
- Table 6: pesticides, herbicides, and PCBs (SJLF priority pollutants)

The proposed method reporting level (mrl) of a given constituent should be no greater than ten-percent of the constituents maximum contaminant limit (MCL), if such a standard exists. A practical quantification limit (PQL) of a federal or state standard is also acceptable.

6. SAMPLING PREPARATION

Sampling preparation includes notifying and coordinating sampling requirements with the contracted analytical laboratory, notifying the DEQ of the up-coming sampling event, and coordinating with the DEQ Laboratory in the event of an up-coming split sampling event. These preparation activities are discussed in this section.

6.1 Laboratory Notification

The current designated laboratory for water quality analysis of samples collected at the site is:

North Creek Analytical (NCA)
9405 SW Nimbus Avenue
Beaverton, Oregon 97008-7132
(503) 906-9200 Fax (503) 906-9210

NCA should be contacted at least two weeks prior to sampling event and notified of an upcoming sample event. The laboratory will provide, upon request, sample cooler(s), appropriate sample bottles with preservatives, sample labels, chain of custody forms, and custody seals.

Table 1 identifies the locations to be sampled, the parameter groups to be analyzed, and the sampling schedule.

Table 7 presents appropriate sample containers, preservatives, holding times, and applicable comments. Note that nitrate has the shortest holding time of two days followed by total dissolved solids and total suspended solids, which have a holding time of seven days.

The laboratory needs to be informed of the following:

- The specific parameters/analytes requiring analysis as identified on Table 2. Table 1 presents the parameter groups to be analyzed, sampling frequency and schedule.

- The number of samples to be collected. Currently 30 groundwater samples and 6 leachate samples will be collected during a groundwater quality monitoring event. This does not include additional field duplicate sample sets as described in Section 7.1. A field duplicate sample set is to be collected for each day of sampling or for each batch of 10 samples and analyzed for the same parameters as completed on the associated field sample.

- Group 2a parameters (common anions and cations) will be field filtered for dissolved species analysis. Dissolved trace metal species (Group 2b parameters) analysis may also be necessary if the total suspended solids concentration of the sample is greater than 100 mg/l.

- The need for a laboratory prepared VOC travel blank to accompany each set of VOC samples to and from the laboratory. VOC travel blank specifics are discussed in Section 7.1.

- If VOC (by EPA Method 8260) or semi-volatile organic compound (by EPA Method 8270) analysis is to be completed, the laboratory needs to also complete a tentatively identified compound (TIC) analysis for the samples submitted. The TIC analysis represents a library search of detections not on the Method 8260 or 8270 standard analyte list.

6.2 DEQ Sampling Notification

The Salem office of the DEQ Solid Waste Program needs to be notified in writing at least 10 working days prior to a groundwater quality monitoring sampling event at the site. The address of the DEQ Western Region Solid Waste Program is:

Western Region Solid Waste Program
Department of Environmental Quality
750 Front Street NE, Suite 120
Salem, Oregon 97301-1039
Ph. 503/378-8240

6.3 DEQ Split Sampling Events

In the event of an up-coming DEQ Laboratory split sampling event, Metro will need to schedule the event with the DEQ laboratory at least 45 days prior to the sampling event. The DEQ Laboratory usually attempts to schedule an up-coming split sampling event 60 days prior to an event.

The DEQ reserves the right to add or delete from the scheduled split sampling events identified above or conduct unscheduled split sampling events. In the event of changes to the split sampling schedule, the DEQ is to notify Metro at least 30 days prior to the sampling event.

7. SAMPLE STORAGE, LABELING, AND TRANSPORT

An essential function of the plan is the tracking of sample handling, from the time of container preparation and shipment from the laboratory to Metro, to the return of samples to the laboratory, including throughout sample analysis.

7.1 Sample Labels

Containers will be requested by Metro as close in time to the sampling event as possible. After containers are received they will be stored in a dry and clean location.

The laboratory will prepare sample labels and secure them to the containers prior to shipment to Metro. Where applicable, the laboratory will identify on container labels the preservatives in the containers, based on analytes requested by Metro (see below "Chain-of-Custody Record").

Upon sampling, Metro personnel will record on the label a unique sample identification, date and time of collection.

7.2 Sample Container Preparation

Metro will request containers from the laboratory, including the number of containers and analytes to test. Based on that request the laboratory will provide the appropriate container types (composition, color, and volume), and will add preservatives as necessary, using the following as guidelines:

- Test Methods for Evaluating Solid Waste - Physical/Chemical Methods; SW-846.
- Methods for Chemical Analysis of Water and Wastes; EPA-600/4-79-020; 1983.
- Standard Methods for the Examination of Water and Wastewater; 18th edition.

The pH of preserved samples will be field-checked by Metro using pH test strips to ensure laboratory specifications are met (see Table 7Appendix B, Analytical Method Information). If necessary, additional preservative will be added to the sample. Additional preservative can be obtained from the site contract analytical laboratory.

Along with the containers the laboratory will provide coolers and blue ice, and appropriate packaging materials.

7.3 Chain of Custody Record

A Chain-of-Custody sheet (COC) will accompany each sample collected by Metro. The laboratory will provide the COC. In preparing samples for transport, Metro will complete the COC with the following information:

- name and phone number of destination laboratory
- Metro/laboratory contract number
- name of sample collector(s)
- name of person recording the COC
- name of contact person
- site location and sample matrix type
- unique identification for each sample; associated date and time of collection
- parameters to be analyzed
- sample transport instructions if required
- notes regarding filtering of samples if required

Metro will sign the COC over to the lab personnel when samples are retrieved. If samples are retrieved after Metro staff has completed work for the day, the COC will be signed and placed inside coolers. A custody seal will then be placed on cooler. If samples are to be shipped, the COC will be placed inside the cooler and custody seals placed on the coolers. Metro will document the date and time of all COC transactions.

7.4 Sample Analysis Request Sheet

A sample analysis request sheet prepared by the laboratory will accompany each sample through the analytical process, and will provide the following information:

- name of person receiving the sample
- date of sample receipt
- laboratory sample identification number
- analyses to be performed

8. QUALITY CONTROL PROCEDURES

Quality control procedures are designed to ensure that all samples collected at the site are consistent with project objectives and that samples collected are identified, handled, and transported so that the data are representative of actual site conditions and information is not lost in sample transfer.

8.1 Field QA/QC

Field QA/QC procedures ensure the reliability of field sampling and measurements, and contribute to the validity of the analytical results for collected samples. These procedures include transport blanks, which test the effects of contamination resulting from sample transport, if any; field duplicates, which test sampling precision; and field instrument calibrations that ensure accurate measurement of field parameters.

Field Documentation

All sample collection and equipment handling procedures will be documented, including the calibration of field measurement equipment. Documentation of water quality sample collection and associated sampling equipment will be recorded on the site field sampling forms (Attachment 2). Sampling field data sheets will be used to document sample collection at each water quality monitoring location. Field documentation is discussed in further detail below.

Field Equipment (Rinsate) Blanks

Field equipment rinsate blanks will be obtained after nondedicated or nondisposable sampling equipment is decontaminated. This will involve passing deionized distilled water through the sampling equipment and transferring this water into the appropriate sample container. Field equipment rinsate blank testing will determine whether sampling equipment decontamination is adequate. If rinsate blanks are appropriate, one blank will be submitted per sampling event in which volatile organic compounds are analyzed.

Transport Blanks

A transport blank will be prepared and analyzed per sampling event where volatile organic compounds (VOCs) are to be tested. This blank will be prepared by the laboratory by filling containers with Type II reagent grade water. The container will be transported to, and stored by Metro with the sample containers, and transported back to the laboratory with the collected samples. At no point in this process will this container be opened or exposed. At the laboratory, the blank will be analyzed for organic compounds using the same methods as for the collected samples. All VOC samples collected during a specific sampling period are to be stored in cooler(s) that contain a VOC blank(s).

Field Blanks

A field blank will be collected once per event for only organics. The field blank will be collected by transferring Type II reagent grade water to a sample container(s) at the site. The field blank will be limited to VOCs except when semi-volatile organic compound samples are being collected. The purpose of the field blank is to determine if the field or sample transport procedures and/or the environment have contaminated the sample. The field blank transfer should be completed at a sample location where there is a potential of contamination via the environment

Field Duplicates

A field duplicate "blind" sample with a unique identification number will be collected during the collection of a water quality sample at the site. The field duplicate blind sample will be submitted for the same analysis as the original sample it is duplicating. It will be transported, processed, and analyzed just like its companion (co located) sample. The purpose of the field duplicate is to evaluate the precision associated with sample collection, preservation, and storage, as well as with laboratory procedures. Field duplicate samples will be collected at a minimum frequency of one every sampling day or one for each subsequent 10 samples, whichever is greater. The "blind" field duplicate sample will be collected immediately following collection of the original sample (e.g., VOC sample collection followed by field duplicate VOC sample collection, etc.). The field duplicate will be submitted for the same analysis as the original sample it is duplicating.

Field Monitoring Instrument Calibration

Calibration of test sensors for field parameters will be performed twice each day of sample collection, according to procedures recommended by the field instrument vendor(s). The first calibration will be completed at the start of the day and the second calibration will be completed mid-day. Most calibration creep occurs during morning hours when atmospheric warming is greatest. Where required during sampling, maintenance and any associated re-calibration will also be performed.

Records will be kept of any equipment calibration and maintenance performed between sampling events. This will include records of equipment function problems, calibration and maintenance procedures, and dates.

Instruments used for measuring groundwater parameters in the field include the following:

- Flow Cell (model: QED FC5000) for measuring water quality parameters, including pH, temperature, specific conductance, dissolved oxygen, and oxidation-reduction potential (or, redox).

- Druck pressure transducer and Unidata logger for measuring and recording the depth to water and rate of drawdown of the water column.
- Solinst sounder to measure depth to water inside the wells. (Electronic sensor for static water elevation measurements, sensitive to $\pm$ 0.01 foot, and including a polyvinyl chloride tape and 6" stainless steel shaft at tape end which contains a water-sensing pin)

Following are the calibration procedures for the specific conductance, dissolved oxygen, pH, and redox sensors of the flow cell. (The FC5000 model does not allow for field calibration of temperature.) The flow cell is calibrated once per each day it is used.

General Steps for calibration of the QED FC5000:

1. Connect cable from FC5000 to the back of the computer.
2. Access Procomm program on computer.
3. With unit upside down unscrew top of storage cup and pour water out.
4. Perform calibration for conductivity, DO, pH and redox.
5. Record all readings in calibration logbook.

Calibration of individual parameters for FC5000:

With instrument attached to computer, turn computer on and access Procomm program. Wait for communication with the instrument.

Calibration steps for specific conductance (sensor is automatically temperature corrected):

1. Zero conductivity:
   - From menu bar at top of screen select Calibrate
   - From menu bar at top of screen select Cond
   - From menu bar at top of screen select SpCond:uS/cm
   - Enter SpCond standard (uS/cm): << (enter 0.0)
2. Calibrate conductivity: (sensor is automatically temperature corrected)
   - Choose a standard (in the range of either 100 or 1000) that most closely represents water being sampled.
   - With instrument upside down fill cup with standard to cover conductivity sensor.
   - Wait for initial reading to stabilize and record value in logbook.
   - From menu bar at top of screen select: Calibrate
   - From menu bar at top of screen select: Cond
   - From menu bar at top of screen select: SpCond:uS/cm
   - Enter SpCond standard (uS/cm): << (enter value of calibration standard)
3. Record final reading in logbook.
4. Pour out standard and rinse probes and cup with distilled water.

Calibration steps for dissolved oxygen:

1. With instrument upside down fill calibration cup with distilled water to just below black O-ring at top of DO sensor. Remove any water that may be on DO membrane. Cover top of calibration cup.
2. Wait for DO% reading to stabilize and record value in logbook.
3. From menu bar at top of screen select: Oxy.
4. From menu bar at top of screen select: DO%:Sat.
5. Barometric Pressure (mmHg): << (enter current BP in mmHg)
6. Record final reading in logbook.
7. Pour out water.

Calibration steps for pH:

1. Select appropriate calibration standards: 7.00 and 4.00 or 7.00 and 10.00.
2. With the instrument upside down fill the calibration cup with 7.00 buffer.
3. Wait for pH reading to stabilize and record value in logbook.
4. From menu at top of screen select: Ions.
5. From menu at top of screen select: pH: Units
6. Standard: << (enter 7.00)
7. Record final reading in logbook.
8. Pour out standard and rinse probes and cup with distilled water.
9. Repeat procedure with either 4.00 or 10.00 buffer.

Calibration steps for redox:

1. With the instrument upside down fill calibration cup with 7.00 redox buffer.
2. Wait for redox reading to stabilize and record value in logbook.
3. From menu at top of screen select: Ions.
4. From menu at top of screen select: redox: mV
5. Standard: << (enter value for 7.00 redox buffer)
6. Record final reading in logbook.
7. Pour out standard and rinse probes and cup with distilled water.
8. Repeat procedure with the 4.00 redox buffer.

Calibration readings for each sensor will be recorded in a logbook, as follows:

Parameter	Initial Reading	Final Reading	Calibration Std
Depth (m)			
Specific Conductance (mS/cm)			
pH (lower bound)			
pH (upper bound)			
Dissolved oxygen (mg/l)			
Dissolved oxygen % saturation			

Assuming appropriate calibration procedures have been followed, the accuracy/sensitivity of the FC5000 flow cell is as follows:

- temperature: +/- 0.10 C
- pH: +/- 0.2 units
- dissolved oxygen: +/- 0.2 mg/L
- redox: +/- 20 mV
- specific conductance: +/- 1% of reading or + 0.001mS/cm

The Druck pressure transducer was factory and field calibrated before its initial use in the field. All settings are recorded within the data logger. The transducer refers back to these settings with each use. Assuming the instrument has been properly calibrated, its sensitivity is 0.98 mV/V/PSI. Field checking of the unit's accuracy is as follows:

1. Depth-to-water is measured using the Solinst sounder, at the start of sampling.
2. The transducer is then placed at a known depth from the top of the well.
3. Once the transducer is in place the head readout from the logger is recorded.
4. Depth and the head readings are compared to ensure that the transducer and logger are functioning properly before purging and drawdown begins.

The Solinst sounder is periodically tested at a known depth to water. If it does not read that depth correctly, the offset is added or subtracted to the value obtained.

Recordkeeping

Groundwater Sampling Data Sheets will be used to record all relevant field observations and data (see Attachment 2 to Sampling and Analysis Plan: Groundwater Sampling Data Sheet). Copies of all data sheets will be sent by Metro field staff who have recorded the information to a designated staff person at Metro headquarters within one week after samples are collected. This information will be stored both at St. Johns Landfill and at Metro Headquarters.

Chain-of-Custody Records and Sample Analysis Request Sheets will be sent by the laboratory to the at Metro Headquarters along with analytical results per the reporting schedule specified by Metro's contract with the laboratory.

8.2 Laboratory Quality Assurance/Quality Control

All laboratory QA/QC procedures are documented by the laboratory and implemented routinely as a condition of its contract with Metro, according to its Quality Assurance Manual (see Attachment 3). These procedures are based on the EPA Contract Laboratory Program, the American Society of Testing and Materials, and the Association of Official Analytical Chemists.

The Quality Assurance Program (QAP) includes but is not limited to the following:

- methods for preparing all sample containers and trip blanks
- routine procedures for calibrating instruments to standard reference materials
- specified holding times, by analyte or analyte class
- analytical accuracy and precision targets, by analyte, matrix and method
- analytical methods of QC samples including blanks, duplicates, organic compound surrogate spikes and matrix spikes
- methods for evaluating the maintenance of control limits for QC results
- description of laboratory logbook for maintaining records of all analyses
- analytical result qualification by type, with associated reporting codes

Analytical QC will be performed at a minimum frequency of 10% (i.e., one complement of relevant QC tests per nine field samples analyzed). QC results (e.g., % recovery; relative % difference) will be provided to Metro along with field sample results. These results will be used by Metro and the laboratory as a measure of performance and as an indicator of potential sources of cross-contamination. Routine QC control charts will be maintained and made available to Metro upon request.

A laboratory logbook of all analyses performed for Metro will be maintained a minimum of three years to document the sample processing steps, including:

- sample preparation technique (*e.g.*, dilution; extraction)
- analytical instruments
- analytical methods
- experimental conditions

Reporting of analytical results will include the following:

- sampling site and media
- dates and times of sampling
- date of receipt of sample by laboratory
- date of sample analysis
- laboratory sample identification number
- analytical method(s)

- measured concentrations
- method detection limits (MDLs) or
- method reporting limits (MRLs) or
- practical quantitation limits (PQLs)
- analytical qualifier where applicable

8.2.1 Groundwater Sampling Procedures

This section describes the groundwater sampling procedures that will be implemented during sample collection events.

Protective Equipment

Gloves will be worn during the following field procedures:
- Instrument decontamination.
- Placing or removing field instruments from monitoring wells.
- Filling any sample container to be sent to the lab for analysis.

Gloves will be changed between each monitoring site.

Field Instrument Decontamination

All instruments used for measuring field parameters in monitoring wells will be rinsed with distilled water between monitoring sites. At the end of each monitoring day each instrument will be washed with Alconox solution and thoroughly rinsed.

Sampling Equipment

Groundwater samples will be collected at each monitoring well in the network using the low-flow method of purging and sampling, per approval by DEQ. Equipment used to collect samples by this method include the following:

- Bladder pump with a polyvinyl chloride housing and check valves; and a polytetra fluoroethylene bladder membrane/tube; dedicated to each monitoring well
- Fluoroethylene polymer-lined discharge tubing (1/2 inch diameter.) from pump, dedicated to each monitoring well
- Air compressor for expanding bladder in order to push sample through discharge tubing
- Pneumatic regulator for controlling flow rates (i.e., bladder fill and discharge times)
- In-line disposable filters with 0.45-micron membranes to remove particulate (for analysis of "dissolved" parameters).
- Sampling containers provided by the laboratory.

Assessment of Well Integrity

Prior to beginning the set-up for sampling, each monitoring well will be inspected for integrity. Relevant information will be recorded and repairs made as needed and as feasible. Samples will not be collected from any well that is impaired to an extent which raises doubt about the collection of a representative sample. At such wells, all relevant information will be recorded, and appropriate actions will be taken to repair or replace the well.

Sampling Method

DTW measurements will be taken from an established and marked reference point on each well. The reference point will be:

- Established by licensed surveyor to an established National Geodetic Vertical Datum;
- Permanent and easily identified mark;
- Located on the top of the well casing with the locking cap removed; and
- Periodically re-surveyed.

A sounder with an electronic sensor is lowered with a graduated tape into the well until a signal indicates that water has been contacted. The tape indicates the depth in feet, which is then recorded.

Using a pressure transducer, changes in water level "head" will be measured continuously during both purging and sampling (as described in the stepwise procedure below).

The "low flow" method will be used for purging and sampling groundwater. This sampling methodology is currently conditionally approved by the DEQ. This method involves the following steps.

1. Measure depth-to-water (from top of well casing)
2. Position the pressure transducer downwell; at a depth below water level that ensures it will be under water for the duration of the purging and sampling.
3. Record initial reading from transducer (depth of water above sensor – i.e., "head")
4. With a pneumatic regulator, set refill/discharge times and air pressure (throttle), initially to minimize flow through the discharge line, using settings from previous samplings for guidance. (The initial throttle setting [feet of lift] should be equal to well depth plus 10-15 ft.)
5. Initiate pumping and begin measuring indicator parameters.
6. Using the Unidata Logger (connected to the transducer), log changes in "head" continuously (e.g., @ 10 second intervals). (These measurements allow the sampler to adjust pumping rates to stabilize drawdown.)
7. Adjust regulator settings as appropriate to achieve a stable water level during well purging.
8. The minimum volume of water purged must equal three volumes of water in the pump and discharge line tubing (which has been stagnant since the previous sampling).

Discharge water shall be directed in a calibrated container such that the total volume of water purged from the well can be documented.

9. Measure indicator parameters continuously during purging until they stabilize. Stabilization guidelines are presented below. (These guidelines are based on a combination of a synthesis of guidelines from the literature, professional judgment, and the limitations of the equipment.
   - temperature +/- 0.5 C
   - pH +/- 0.20 units
   - dissolved oxygen +/- 0.20 mg/l
   - specific conductance +/- 5.0% reading
   - redox +/- 25 mV

10. When indicator parameters stabilize, disconnect the discharge tube from the flow cup for discharge directly into sample containers, and begin sampling. Where any indicator parameter fails to stabilize, based on the above guidelines, professional judgement will be used to determine when sampling is appropriate. Where necessary, purging will be stopped and monitoring sensors will be re-calibrated. Any unusual conditions will be recorded.
11. Filter samples for dissolved parameters using an in-line, Nalgene 0.45 micron disposable cartridge filter. (New filter cartridges and pump tubing will be used for each sampling station.)
12. The pH of preserved samples will be field-checked to ensure laboratory specifications are met (see Table 7). If necessary, additional preservative will be added to the sample.
13. Fill containers with samples for volatile organic compound analysis with zero headspace so that volatiles will not escape from the liquid. Do not allow containers with preservative to overflow.
14. Samples should be collected in the order of decreasing volatility of the parameters to be analyzed. Table 7 presents parameters in order of decreasing volatility.
15. Immediately upon collection, store samples in ice chests that are cooled to 4 degrees Centigrade.

Purge Water Disposal

All groundwater purged from monitoring wells screened in the solid waste (e.g., the H-series wells and well K-5) will be disposed of in the on-site leachate well (see EMP Figure 4). Leachate collected in the expansion area of the landfill (see EMP Figure 2) flows to this well, from where it is pumped to the City sewer, in accordance with Wastewater Discharge Permit 400.018. See Section 3.3.2 of the interim EMP.

In addition, for any monitoring well screened in the silt or sand and gravel aquifer where historical data show the presence of hazardous substances, purge water from that well will also be disposed of in the on-site leachate well. For wells where historical data show little or no hazardous constituents, purge water will be disposed of on the ground, at least 5 feet from the well.

Field Documentation

All essential field information will be documented on the Groundwater Sampling Data Sheet (see Attachment 2). These sheets will be used to record field information related to groundwater quality measurements, sample collection and storage at each monitoring well during each sampling event. The information recorded will include:

- Name of collector(s)
- Site location
- Date and time of purging, sampling
- Condition of the well
- Purge rates, volumes, and related calculations
- Depth-to-water measurements
- Indicator parameter measurements
- Sample preservation confirmation
- Observations of unanticipated conditions which may directly cause (or result in procedures which cause) deviation normal sampling protocol, potential contamination, or otherwise potentially anomalous data.

Water level data logged by the pressure transducer at each monitoring well will be graphed following the sampling event, and kept on file for reporting purposes.

Other related field activities will be documented by other means, where appropriate, including:

- Equipment calibration parameters
- Decontamination
- Sample storage and shipment

8.2.2 Water Level Data Logging & Processing

Water level data collected using piezometers and monitoring wells equipped with pressure transducers will be measured initially as frequency. These measured values will then be converted to pressure (psi) using a polynomial expression and calibration factors unique to each sensor, as obtained from the transducer manufacturer. Because the sensors are un-vented, they will be adjusted for atmospheric barometric pressure, primarily obtained from the Oregon Climate Center, while filling any gaps using an on-site barometer.

Periodically, manual water level readings will be used to cross check the continuously logged data, and to calibrate the transducers (by determining when the aquifer essentially has a flat-water surface).

9. DECONTAMINATION

Decontamination procedures are required to remove contaminants from equipment that comes into contact with the sample matrix (sample contacting equipment) and from ancillary equipment that has not contacted the portion of sample to be analyzed (non-sample contacting equipment). The decontamination procedure methods to be employed at SJLF are based on standard practices as presented in ASTM Standard D-5088-90, Decontamination of Field Equipment Used at Nonradioactive Waste Sites.

Sample collection at the SJLF involves the use of dedicated sampling equipment. Decontamination procedures to be completed at the site are primarily directed toward non-sample contacting equipment such as field parameter probes.

Sample contacting equipment are those items that come in direct contact with the sample or a portion of the sample that will undergo chemical analysis or physical testing. Non-sample contacting equipment are those items associated with the sampling effort that do not directly contact the sample.

Decontamination of sample contacting equipment will consist of a non-phosphate detergent wash and rinse with deionized water and allow to air dry. Close vessel following air dry.

Decontamination of non-sample contacting equipment will consist of a non-phosphate detergent wash and rinsed with deionized water.

Control rinse water will be obtained from a water system of known chemical composition. The non-phosphate detergent will be Alquinox or similar solution. Deionized water shall be organic-free reagent grade.

10. SAMPLE PACKAGING AND SHIPMENT

Chain-of-custody procedures will be followed. The following procedures for sample packing and shipment will be followed:

- Double-check that the sample label sticker on the sample bottle has been completed and that the label identification matches the chain-of-custody form.
- Roll up or contain glass containers with bubble-pack and tape, taking care that there is no glass-to-glass contact. (Plastic bottles do not have to be wrapped with bubble pack.)
- Pack the sample bottles in coolers, preferably keeping all the samples from one sample location together. Use additional bubble-pack or Styrofoam packing material to provide

cushioning and support between and below sample bottles, especially the large glass bottles.

- Use Blue Ice or ice sealed inside two Ziploc bags to cool the samples. Do not use ice for packing between bottles.

- Complete the chain-of-custody form, listing the number of each sample bottles in the cooler. Indicate on the chain-of-custody form which analyses are to be performed (as indicated in Table 2). Seal the top chain-of-custody sheet in a Ziploc bag and tape it to the inside lid of the cooler.

- Close the cooler and tape it shut by making one complete wrap of banding tape on each end of the cooler and seal the opening with a custody seal.

- Transport the coolers to the laboratory or use the laboratory courier service. Chain-of-custody forms are to be signed upon sample relinquishment.

Attachment 1 to Sampling and Analysis Plan
DEQ Baseline Criteria

The following criteria were provided to Metro by DEQ in a letter of October 28 1997. They will serve as guidance for Metro personnel conducting sampling and field measurements at St. Johns Landfill.

1. Carry at all times in the field the most recent DEQ approved Sampling and Analysis Plan (SAP). This is critical to assuring that the facility is in compliance with its current permit.

2. Record the groundwater temperature as soon as the sample reaches the surface. This minimizes the influence of ambient conditions at the surface. Delays in reading and recording the groundwater temperature often lead to erroneous readings and discrepancies when compared to DEQ measurements. See ASTM D 4448 and references made in that section.

3. Field personnel should be familiar with meter calibration and use.

4. Carry back-up meters that are in good working condition.

5. Carry manufacturer-operating instructions for all meters.

6. Carry and use log books for all field meters. Logbooks should contain meter calibration information, as well as notes on abnormal function, maintenance, and repair.

7. Check and/or calibrate pH meters on at least two standards (4 & 7 or 7 & 10). The most accurate pH readings will be obtained when the sample's pH readings lie between the readings of the buffers used for calibration.

8. All pH meters should receive a low ionic strength solution check to determine if the meters are responding properly, accurately, and in a timely manner. The DEQ Laboratory uses 10^{-5} M sulfuric acid as a low ionic strength solution check. It has a theoretical pH of 5. A pH meter and probe in good condition should achieve a stable reading of 5.0 ± 0.3 pH units within a few minutes of immersion in this solution. Poor performance in this solution generally indicates that the pH probe needs cleaning or replacement.

9. Check and/or calibrate conductivity meters on at least two standards. The DEQ checks all conductivity meters on standards of approximately 148 µMhos/cm to verify that the meters are responding properly on solutions that are of both low and high ionic strength.

10. When using conductivity meters that do not feature automatic temperature compensation, such as the YSI Model 33 S-C-T meter, the conductivity readings must be corrected for temperature in the field at each site.

11. If the primary purpose of obtaining dissolved oxygen (D.O.) readings is to check for D.O. stability during purging and prior to sampling, then less accuracy may be tolerable, and the emphasis should be on following the D.O. manufacturer's manual closely, regarding calibration and maintenance (i.e., changing the membrane, and accounting for the fact that ambient conditions affect the D.O. meter probe temperatures, which, in turn, affects the meter's field accuracy). However, if groundwater D.O. is considered an important parameter of concern, then accuracy, and hence the use of the modified Winkler titration method, rather than a D.O. meter method of D.O. determination, is more of an issue.

12. Utilize a staging equipment checklist before heading out for the field to assure that all necessary materials, including backup equipment, oil, gas, tubing, fittings, tools, gloves, boots, rain gear, D.I. water, paperwork, logbooks, etc., have been packed.

13. Assure that wellheads are properly protected, secure, have adequate surface seals, and are marked clearly on the other casings with the well identification number. See ASTM D 5092-95.

14. Assure that all-weather access to all sample sites is provided, including safety, such as hand lines for steep, slippery, hard to reach sample sites (wells and/or stream sites).

15. Field check the preservation (pH) level of all samples containing acid preservative (if the specified pH level has not been achieved, have additional preservative available and add as necessary to achieve the proper pH level). A few drops of the preserved sample can be poured onto a short-range pH test strip to determine the preserved sample's pH level, without contaminating the sample. Samples requiring zero head space in the container, such as volatile organic compounds, need not be checked. See ASTM D 4448.

16. Perform equipment blanks when non-dedicated equipment is used, such as filter chambers, portable pumps, etc. See ASTM D 5088 - 90.

17. Assure that your lab performs ion balances, which are important because they provide an additional check to the inorganic analyses, and can help to explain discrepancies between differing lab results. Standard Methods, section 1030F describes the procedure.

Table 1: Groundwater Quality Sample Locations, Frequency, and Schedule
Sampling and Analysis Plan
St Johns Landfill

Locations	Analytes*	Frequency	Schedule
Overbank Silt wells: Upper: D-1a, D-2a, D-3a, D-4a, D-6a, G-4a, G-5a, K-1, K-2, K-3, K-4, K-6a, Middle: D-1b, D-3b, F-1, G-2, Lower: D-1c, D-6b, G-1, G-3, G-3R, G-8a, K-6b.	Group 1a Group 1b Group 2a Group 2b Group 3	Semi-annual	Spring and Fall
Columbia River Sand wells: D-4b, G-4b, G-7,	Group 1a Group 1b Group 2a Group 2b Group 3	Semi-annual	Spring and Fall
Pleistocene Gravel wells: D-6c, G-5b, G-6, G-8b, G-8c	Group 1a Group 1b Group 2a Group 2b Group 3	Semi-annual	Spring and Fall
Piezometers: Transducer equipped: P-1a/b/c/d/e, P-2a/b/c/d, P-3a/b/c, P-4a/b/c, P-5a/b/c, P-6a/b/c, P-7a/b/c/d, P-8a/b/c, P-9a/b/c/d, D-6c, G-4b, G-5b, G-6, G-8b, and G-8c.	Water levels	Continuous basis: P-1, P-4, P-6, P-7, P-8, P-9, D-6c, G-4b, G-5b, G-6, G-8b, and G-8c. Monthly basis: P-2, P-3, P-5, H-1, H-2, H-3, H-4, and H-5. Semi-annually: all monitoring wells	
Leachate wells: H-1, H-2, H-3, H-4, H-5, K-5.	Group 1a Group 1b Group 2a Group 2b Group 3	Semi-annual	Spring and Fall
	Priority Polluntants	Anuual	Fall

NOTE: * - See Table 2 for Group definitions. Priority pollutants include parameters shown on Table 2.
During the Fall event, priority pollutant analysis to be completed on nine selected groundwater monitoring wells.
Semi-annual compliance monitoring periods are: Spring (April 1st through May 31st) and Fall (October 1st through November 30th).

Table 2: Groundwater Monitoring Parameters
Interim Environmental Monitoring Plan
St Johns Landfill

Standard Landfill Groundwater Monitoring Parameters

Group 1a	Group 2a	Group 3
Field Indicators	**Anions and Cations**	**EPA 8260 (VOC)**
pH	Carbonate	1,1,1-trichloroethane *
Temperature	Bicarbonate	1,1,2,2-tetrachloroethane
Specific Conductance	Ammonia	1,1,2-trichloroethane
Dissolved Oxygen	Calcium	1,1,2-trichloroethylene *
Eh	Chloride	1,1-dichloroethane *
Water Elevation	Iron	1,1-dichloroethylene *
	Magnesium	1,2-dichloroethane
	Manganese	1,2-dichloroethylene *
Group 1b	Potassium	1,2-dichloropropane
Laboratory Indicators	Sodium	2-butanone (MEK)
	Silica	2-hexanone
Total Alkalinity	Sulfate	4-Bromofluorobenzene
Total Hardness	Nitrate	4-methyl-2-pentanone (MIBK)
Specific Conductance	Phosphorus	Acetone *
Chemical Oxygen Demand		Bromodichlormethane
Total Suspended Solids		Benzene *
Total Dissolved Solids	**Group 2b**	Bromoform
Total Organic Carbon	**Trace Metals**	Bromomethane
		Chlorodibromomethane
	Silver	Carbon disulfide *
	Arsenic *	Carbon tetrachloride *
	Barium *	Chlorobenzene *
	Beryllium	Chloroethane *
	Cadmium	Chloroform
	Chromium *	Chloromethane
	Cobalt	Ethyl benzene *
	Copper	Methylene chloride *
	Nickel	Styrene
	Lead *	Tetrachloroethylene *
	Antimony	Toluene *
	Selenium	Trichlorofluoromethane
	Thallium	Vinyl acetate
	Vanadium	Vinyl chloride *
	Zinc	Xylenes (total) *
		cis-1,3-dichloropropene
		p-dichlorobenzene
		trans-1,3-dichloropropene

St Johns Landfill Priority Pollutant Groundwater Monitoring Parameters [1]

Semi-Volatile Organics	Semi-Volatile Organics	Pesticides	Herbicides	PCBs
EPA 8270c	**EPA 8270c**	**EPA 8081a**	**EPA 8151a**	**EPA 8082**
1,2,4-trichlorobenzene	Benzo(k)fluoranthene	Alpha BHC	2,4-D	Aroclor 1016
1,2-dichlorobenzene	Benzidine	Lindane *	2,4-DB	Aroclor 1221
1,3-dichlorobenzene	Benzoic acid	Heptachlor	2,4,5-T	Aroclor 1232
1,4-dichlorobenzene *	Benzyl alcohol	Aldrin	2,4,5-TP	Aroclor 1242
2-chlorophenol	Chrysene	Beta-BHC	Dalapon	Aroclor 1248
2,4,5-trichlorophenol	Di-n-butylphthalate	Delta-BHC	Dicamba	Aroclor 1254
2,4,6-trichlorophenol	Di-n-octyl phthalate	Heptachlor epoxide	Tricamba	Aroclor 1260
2,4-dichlorophenol	Dibenzo(a,h)anthracene	Endosulfan I	Dichloroprop	
2,4-dimethylphenol	Dibenzofuran	Endosulfan II	Dinoseb	
2,4-dinitrophenol	Diethylphthalate	Endosulfan sulfate	MCPA	
2,4-dinitrotoluene	Dimethylphthalate	pp-DDE	MCPP	
2,6-dinitrotoluene	Fluoranthene	pp-DDD		
2-chloronaphthalene	Fluorene	pp-DDT		
2-methylnaphthalene	Hexachlorobenzene	Endrin		
2-methylphenol	Hexachlorobutadiene	Endrin aldehyde		
2-nitroaniline	Hexachloroethane	Methoxychlor		
2-nitrophenol	Hexachlorocyclopentadiene	Toxaphene		
3,3-dichlorobenzidine	Indeno(1,2,3-cd)pyrene	Chlordane		
3-nitroaniline	Isophorone	Dieldrin		
4,6-dinitro-2-methylphenol	N-nitrosodimethylamine			
4-bromophenyl-phenylether	N-nitrosodiphenylamine			
4-chloro-3-methylphenol	N-nitroso-di-n-propylamine			
4-chlorophenyl-phenylether	Naphthalene			
4-chloroaniline	Nitrobenzene			
4-methylphenol	Pentachlorophenol			
4-nitroaniline	Phenanthrene			
4-nitrophenol	Phenol			
Acenaphthene	Pyrene			
Acenaphthylene	bis-(2-ethylhexyl)phthalate			
Aniline	bis-(2-chloroethyl)ether			
Anthracene	bis-(2-chloroethoxy)methane			
Azobenzene	bis-(2-chloroisopropyl)ether			
Butylbenzylphthalate				
Benzo(a)anthracene				
Benzo(a)pyrene	Cyanide			
Benzo(b)fluoranthene	Mercury *			
Benzo(g,h,i)perylene	Nitrite			

* Confirmed Release List substance

Standard Surface Water Monitoring Parameters [2]

Group 5		
Total Kjeldahl Nitrogen	Total Coliform Bacteria	Biological Oxygen Demand
Total Phosphorus	Fecal Coliform Bacteria	Total Halogenated Organics
Orthophosphate	E. Coli	

[1] Analysis of SJLF Priority Pollutant monitoring parameters includes analysis of standard landfill groundwater monitoring parameters.
[2] Surface water monitoring is currently not required by permit.

TABLE 3: WATER QUALITY MONITORING PARAMETERS
SAMPLING AND ANALYSIS PLAN
St JOHNS LANDFILL

PARAMETER	METHOD	METHOD DESCRIPTION	METHOD REPORTING LEVEL (mg/L)	DEQ REF. LEVELS (D)(mg/L)	DEQ GUIDANCE LEVELS (e) (mg/L)	EPA DRINKING WATER STD (f) (mg/L)
GROUP 1a: FIELD INDICATOR PARAMETERS						
ELEVATION OF WATER LEVEL	FIELD	Electric Probe				
pH	FIELD	Reference Electrode Probe			6.5 to 8.5	
TEMPERATURE	FIELD	Temperature Probe				
SPECIFIC CONDUCTANCE	FIELD	Conductivity Probe				
DISSOLVED OXYGEN	FIELD	Metal Cathode Probe				
REDOX POTENTIAL (Eh)	FIELD	Platinum Band Sensor Probe				
GROUP 1b: LABORATORY INDICATOR PARAMETERS						
HARDNESS (as CaCO3)	6020a	ICP-MS	0.660			
TOTAL ALKALINITY (as CaCO3)	310.1b	Titrimetric	10.0			
TOTAL DISSOLVED SOLIDS (TDS)	160.1b	Gravimetric	10.0		500	
TOTAL SUSPENDED SOLIDS (TSS)	160.1b	Gravimetric	10.0			
CHEMICAL OXYGEN DEMAND (COD)	410.4b	Spectrophotometric	5.00			
TOTAL ORGANIC CARBON (TOC)	415.1b	UV, Persulfate Oxidation-IR	3.00			
GROUP 2a: COMMON ANIONS AND CATIONS #						
CALCIUM (Ca)	200.7b	ICP-MS	0.050			
MAGNESIUM (Mg)	200.7b	ICP-MS	0.050			
SODIUM (Na)	200.7b	ICP-MS	1.00			
POTASSIUM (K)	200.7b	ICP-MS	1.00			
IRON (Fe)	200.7b	ICP-MS	0.02		0.3	
MANGANESE (Mn)	200.7b	ICP-MS	0.0020		0.05	
AMMONIA-NITROGEN (NH4-N)	350.3b	Electrode	0.100			
CARBONATE ALKALINITY (CO3)	310.1b	Titrimetric	10.0			
BICARBONATE ALKALINITY (HCO3)	310.1b	Titrimetric	10.0			
SULFATE (SO4)	300.0b	Ion Chromotography	1.00		250	
CHLORIDE (Cl)	325.3b	Ion Chromotography	0.5		250	
NITRATE (NO3-N)	353.3b	Ion Chromotography	0.100	10.0		10
SILICA (Si)	370.1b	Spectrophotometric Reduction	0.250			
GROUP 2b: TRACE METALS						
ANTIMONY (Sb)	6020a	ICP-MS	0.00100			0.006
ARSENIC (As)	6020a	ICP-MS	0.00100	0.05		0.05
BARIUM (Ba)	6020a	ICP-MS	0.00100	1.0		2
BERYLLIUM (Be)	6020a	ICP-MS	0.00100			0.004
CADMIUM (Cd)	6020a	ICP-MS	0.000500	0.01		0.005
CHROMIUM (Cr)	6020a	ICP-MS	0.00100	0.05		0.1
COBALT (Co)	6020a	ICP-MS	0.00200			
COPPER (Cu)	6020a	ICP-MS	0.00200		1.0	1.3***
LEAD (Pb)	6020a	ICP-MS	0.00100	0.05		0.015***
NICKEL (Ni)	6020a	ICP-MS	0.00200			0.1
SELENIUM (Se)	6020a	ICP-MS	0.00100	0.01		0.05
SILVER (Ag)	6020a	ICP-MS	0.00100	0.05		0.1
THALLIUM (Ti)	6020a	ICP-MS	0.00100			0.002
VANADIUM (V)	6020a	ICP-MS	0.00500			
ZINC (Zn)	6020a	ICP-MS	0.00500		5.0	
GROUP 3: VOLATILE ORGANIC CONSTITUENTS						
VOLATILE ORGANIC CONSTITUENTS	8260a	Gas Chromotography/Mass Spectrometer	0.50-1.0 ug/L			
GROUP 4: ADDITIONAL MONITORING PARAMETERS						
SEMI-VOLATILE ORGANIC CONSTITUENTS	8270a					
MERCURY (Hg)	7470a	Cold Vapor Atomic Adsorption	0.000200	0.002		
CYANIDE	335.2b	Distillation, Spectrophotometric	0.010			0.2
NITRITE	300.0b	Ion Chromotography	0.030			1.0
GROUP 5: SURFACE WATER AND LEACHATE MONITORING PARAMETERS						
TOTAL KJELDAHL NITROGEN (TKN)	351.3b	Digestion, Distillation, Titrimetric	1.0			
TOTAL PHOSPHORUS (P)	6010a	Inductively Coupled Plasma	0.20			
ORTHOPHOSPHATE (PO4)	365.2b	Ion Chromatography	0.025			
BIOLOGICAL OXYGEN DEMAND (BOD)	405.1b	Oxygen Electrode	4.0			
TOTAL HALOGENATED ORGANICS (TOX)	9020a	Adsorption, Microcoulometric	0.010			
TOTAL COLIFORM BACTERIA	9221Bc	Membrane Filter	1.1 MPN per 100ml			
FECAL COLIFORM BACTERIA	9221Cc	Membrane Filter	1.1 MPN per 100ml			
ENTEROCOCCUS BACTERIA	9230c	Membrane Filter	1.1 MPN per 100ml			

DISSOLVED CONCENTRATIONS. SAMPLES MUST BE FIELD-FILTERED.
a TEST METHODS FOR EVALUATING SOLID WASTE - PHYSICAL/CHEMICAL METHODS. 3rd edition. EPA SW-846 (November 1990).
b METHODS FOR CHEMICAL ANALYSIS OF WATER AND WASTES. EPA-600/4-79-020 (revised March 1983).
d DEQ NUMERICAL GROUNDWATER QUALITY REFERENCE LEVELS (HEALTH BASED). OAR 340-040-080 (January 1990).
e DEQ NUMERICAL GROUNDWATER QUALITY GUIDANCE LEVELS (NONHEALTH BASED). OAR 340-040-080 (January 1990).
f EPA DRINKING WATER REGULATIONS AND HEALTH ADVISORIES. EPA 822-R-94-001 May 1994.
*** EPA ACTION LEVELS.
ICP-MS: Inductively Coupled Plasma-Mass Spectrometry
TRACE METALS - TOTAL CONCENTRATIONS IF TSS <100 mg/L; BOTH TOTAL AND DISSOLVED CONCENTRATIONS IF TSS >100 mg/L

TABLE 4: VOLATILE ORGANIC CONSTITUENTS PER EPA METHOD 8260

ANALYTE	EPA DW STD. & HEALTH ADVISORY (ug/L)	DEQ-GW QUALITY LEVELS (ug/L)	METHOD REPORT LIMIT (ug/L)
Acetone		NEL	10.0
Benzene	5	5	0.500
Bromobenzene		NEL	0.500
Bromochloromethane		NEL	0.500
Bromodichloromethane (THM)	100	NEL	1.00
Bromoform (THM)	100	NEL	1.00
Bromomethane		NEL	5.00
2-Butanone		NEL	10.0
n-Butylbenzene		NEL	5.00
sec-Butylbenzene		NEL	0.500
tert-Butylbenzene		NEL	1.00
Carbon Tetrachloride	5	5	10.0
Chlorobenzene		NEL	0.500
Chloroethane		NEL	1.00
Chloroform (TMH)	100	NEL	0.500
Chloromethane		NEL	5.00
2-Chlorotoluene		NEL	0.500
4-Chlorotoluene		NEL	0.500
1,2-Dibromo-3-chloropropane	0.2	NEL	5.00
Dibromochloromethane		NEL	1.00
1,2-Dibromoethane		NEL	0.500
Dibromomethane		NEL	0.500
1,2-Dichlorobenzene	600	NEL	0.500
1,3-Dichlorobenzene	600	NEL	0.500
1,4-Dichlorobenzene	75	75	0.500
Dichlorodifluoromethane		NEL	5.00
1,1-Dichloroethane		NEL	0.500
1,2-Dichloroethane (EDC)	5	5	0.500
1,1-Dichloroethene	7	7	0.500
cis-1,2-Dichloroethene	70	NEL	0.500
trans-1,2-Dichloroethene	100	NEL	0.500
1,2-Dichloropropane (1,2-DCP)	5	NEL	0.500
1,3-Dichloropropane		NEL	0.500
2,2-Dichloropropane		NEL	0.500
1,1-Dichloropropene		NEL	1.00
Ethylbenzene	700	NEL	0.500
Hexachlorobutadiene		NEL	2.00
2-Hexanone		NEL	10.0
Isopropylbenzene		NEL	2.00
p-Isopropyl toluene		NEL	2.00
4-Methyl-2-pentanone		NEL	5.00
Methylene Chloride		NEL	5.00
Napthalene		NEL	2.00
n-Propylbenzene		NEL	0.500
Styrene	100	NEL	0.500
1,1,1,2-Tetrachloroethane		NEL	0.500
1,1,2,2-Tetrachloroethane		NEL	0.500
Tetrachloroethene (PCE)	5	NEL	0.500
Toluene	1000	NEL	0.500
1,2,3-Trichlorobenzene		NEL	1.00
1,2,4-Trichlorobenzene	70	NEL	1.00
1,1,1-Trichloroethane (1,1,1-TCA)	200	200	1.00
1,1,2-Trichloroethane	5	NEL	0.500
Trichloroethene (TCE)	5	5	0.500
Trichlorofluoromethane		NEL	0.500
1,2,3-Trichloropropane		NEL	0.500
1,2,4-Trimethylbenzene		NEL	1.00
1,3,5-Trimethylbenzene		NEL	0.500
Vinyl chloride	2	2	0.500
o-xylenes		NEL	0.500
m,p-xylenes	10,000	NEL	1.00

NOTES:
NEL = NO ESTABLISHED MCL.
* TOTALS FOR ALL THM'S COMBIND CANNOT EXCEED 0.008 mg/L.

TABLE 5: SEMI-VOLATILE ORGANIC CONSTITUENTS PER EPA METHOD 8270

ANALYTE	METHOD REPORT LIMIT (ug/L)
Benzoic acid	50.0
4-chloro-3-methylphenol	5.00
2,4-dinitrophenol	10.0
3-nitroaniline	10.0
4,6-dinitro-2-methylphenol	10.0
4-nitroaniline	10.0
4-nitrophenol	25.0
Benzyl alcohol	10.0
Bis(2-Chloroethoxy)methane	10.00
Bis(2-Chloroisopropyl)ether	10.00
Hexchlorobutadiene	10.00
Hexchlorocyclopentadiene	10.00
Hexchloroethane	10.00
N-nitrosodi-n-propylamine	10.00
Pentachlorophenol	10.00
1,2,4-Trichlorobenzene	5.00
1,2-dichlorobenzene	5.00
1,3-dichlorobenzene	5.00
1,4-dichlorobenzene	5.00
2,4,5-trichlorophenol	5.00
2,4,6-trichlorophenol	5.00
2,4-dichlorophenol	25.0
2,4-dimethylphenol	10.0
2,4-dinitrotoluene	5.00
2,6-dinitrotoluene	5.00
2-chloronaphthalene	5.00
2-chlorophenol	5.00
2-methylnaphthalene	5.00
2-methylphenol	10.0
2-nitroaniline	5.00
2-nitrophenol	5.00
3,3'-dichlorobenzidine	5.00
4-bromophenyl phenyl ether	5.00
4-chloroaniline	20.0
4-chlorophenyl phenyl ether	5.00
4-methylphenol	5.00
Acenaphthene	5.00
Acenaphthylene	5.00
Anthracene	5.00
Benzo(a)anthracene	5.00
Benzo(a)pyrene	5.00
Benzo(b)fluroanthene	5.00
Benzo(g,h,i)perylene	5.00
Benzo(k)fluoranthene	5.00
Bis(2-chloroethyl)ether	5.00
Bis(2-ethylhexyl)phthalate	5.00
Butylbenzyl phthalate	5.00
Chrysene	5.00
D-n-butyl phthalate	5.00
Di-n-octyl phthalate	5.00
Dibenzo(a,h)anthracene	5.00
Dibenzofuran	5.00
Diethyl phthalate	5.00
Dimethyl phthalate	5.00
Fluoranthene	5.00
Fluorene	5.00
Hexchlorobenzene	5.00
Indeno(1,2,3-cd)pyrene	5.00
Isophorone	5.00
N-nitrosodiphenylamine	5.00
Naphthalene	5.00
Nirtobenzene	5.00
Phenanthrene	5.00
Phenol	5.00
Pyrene	5.00

Table 6: Pesticides, Herbicides, and PCBs
Sampling and Analysis Plan
St Johns Landfill

Pesticides	
EPA 8081a	
ANALYTE	METHOD REPORTING LIMIT (UG/L)
Alpha BHC	0.100
Lindane *	0.100
Heptachlor	0.100
Aldrin	0.100
Beta-BHC	0.100
Delta-BHC	0.100
Heptachlor epoxide	0.100
Endosulfan I	0.100
Endosulfan II	0.100
Endosulfan sulfate	0.100
pp-DDE	0.100
pp-DDD	0.100
pp-DDT	0.100
Endrin	0.100
Endrin aldehyde	0.100
Methoxychlor	0.100
Toxaphene	2.50
Chlordane	1.00
Dieldrin	0.100

Herbicides	
EPA 8151a	
ANALYTE	METHOD REPORTING LIMIT (UG/L)
2,4-D	1.00
2,4-DB	4.00
2,4,5-T	1.00
2,4,5-TP	1.00
Dalapon	10.0
Dicamba	1.00
Tricamba	1.00
Dichloroprop	1.00
Dinoseb	2.00
MCPA	60.0
MCPP	50.0

PCBs	
EPA 8082	
ANALYTE	METHOD REPORTING LIMIT (UG/L)
Aroclor 1016	0.500
Aroclor 1221	1.00
Aroclor 1232	0.500
Aroclor 1242	0.500
Aroclor 1248	0.500
Aroclor 1254	0.500
Aroclor 1260	0.500

TABLE 7
St. John's Landfill
Water Quality Monitoring Parameters
Water Quality Sample Containers, Preservatives, and Holding Times

Analysis[1]	No. of Containers	Type[2]	Comments/Preservation	Holding Time
Volatile Organics	3	G-40 mL vial teflon septa	No headspace, HCI to pH < 2, 4°C	14 days
Semi-Volatile Organics	1	G-1 L	Cool only, 4°C	7 days
Herbicides	1	G-1 L	Cool only, 4°C	7 days
Pesticides/PCBs	1	G-1 L	Cool only, 4°C	7 days
Total organic carbon	1	P-500 mL	No headspace, H_2SO_4 to pH < 2, 4°C	28 days
Trace metals[3] and common cations and anions[4], hardness	1	P-500 mL	HnO_3 to pH < 2, 4°C	6 months
Alkalinity Total suspended solids Total dissolved solids, Hardness, Nitrate, Nitrite,	1	P-1 L	Cool only, 4°C	Alkalinity 14 days, Total Suspended and Dissolved Solids 7 days, Nitrate and Nitrite 2 days
Chloride, Sulfate, Silica	1	P-500 mL	Cool only, 4°C	28 days
Chemical oxygen demand, ammonia	1	P-500 mL	H_2SO_4 to pH < 2, 4°C	28 days

[1]Sample types are listed in order of decreasing volatilization sensitivity.
[2]G=glass; P=polyethylene
[3]Trace metals listed in Table 2 (Group 2b).
[4]Common cations and anions as listed in Table 2 (Group 2a).

STAFF REPORT

IN CONSIDERATION OF RESOLUTION NO. 03-3268, FOR THE PURPOSE OF AUTHORIZING THE RELEASE OF REQUEST FOR PROPOSALS NO. 03-1038-REM FOR ANALYTICAL LABORATORY SERVICES

Date: January 2003 Prepared by: Paul Vandenberg

BACKGROUND

Metro's Solid Waste and Recycling Department requires analytical laboratory services to fulfill the requirements of various permits and policies applicable to St. Johns Landfill and the Smith-Bybee Lakes Wildlife Area. The current contract for these services expires February 28, 2003. At that time, a new contract will be needed to maintain permit compliance and policy conformance.

The contract would primarily serve the implementation of the Environmental Monitoring Plan for St. Johns Landfill (Plan), approved by the Oregon Department of Environmental Quality (DEQ) in 2001. Under the Plan, groundwater, stormwater and the landfill are routinely sampled and analyzed according to monitoring requirements specified by the DEQ and City of Portland regulations and permits.

The Plan also includes sampling and analysis of surface water to detect and assess contaminants or changes in water quality conditions, consistent with the policies of the Smith-Bybee Lakes Natural Resources Management Plan. Sediment sampling and analysis is also conducted to provide essential supporting information for the overall assessment of surface water quality.

The contract would provide analytical laboratory services integral to environmental quality monitoring at St. Johns Landfill and the Smith-Bybee Lakes Wildlife Area.

ANALYSIS/INFORMATION

1. **Known Opposition**
   There is no known opposition to this authorization request.

2. **Legal Antecedents**
   Metro Code 2.04.026 requires Council authorization of request for proposals designated as having a significant impact on Metro prior to release of the proposal documents to vendors.

3. **Anticipated Effects**
   The anticipated effect of this authorization is 3-year personal services agreement for analytical laboratory services.

4. **Budget Impacts**
   The amount budgeted for analytical laboratory services for Fiscal Year 2002-2003 is $80,000.

RECOMMENDED ACTION

The Chief Operating Officer recommends approval of Resolution No. 03-3268.