



# Water Quality Program

## Permit Submittal Electronic Certification

**Permittee:** SNOHOMISH CITY

**Permit Number:** WAR045543

**Site Address:** 116 UNION AVE  
Snohomish, WA 98290-2943

**Submittal Name:** MS4 Annual Report Phase II Western

**Version:** 1

**Due Date:** 3/31/2015

### Questionnaire

| Number | Permit Section    | Question                                                                                                                                                                                                                                                                                       | Answer                                                                                |
|--------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1      | S5.A.2            | Attach updated annual Stormwater Management Program Plan (SWMP Plan). (S5.A.2)                                                                                                                                                                                                                 | Snohomish 2015 SWMP_1_02262015_0214.docx                                              |
| 2      | S9.D.5            | Attach a copy of any annexations, incorporations or boundary changes resulting in an increase or decrease in the Permittee's geographic area of permit coverage during the reporting period per S9.D.5.                                                                                        | Not Applicable                                                                        |
| 3      | S5.A.3            | Implemented an ongoing program to gather, track, and maintain information per S5.A.3, including costs or estimated costs of implementing the SWMP.                                                                                                                                             | Yes                                                                                   |
| 4      | S5.A.5.b          | Coordinated among departments within the jurisdiction to eliminate barriers to permit compliance. (S5.A.5.b)                                                                                                                                                                                   | Yes                                                                                   |
| 4b     | S5.A.5.b          | Attach a written description of internal coordination mechanisms. (Required to be submitted no later than March 31, 2015, S5.A.5.b)                                                                                                                                                            | Snohomish NPDES Policy_4b_03242015_0650.docx                                          |
| 5      | S5.C.1.a.i and ii | Attach description of public education and outreach efforts conducted per S5.C.1.a.i and ii.                                                                                                                                                                                                   | Snohomish Education Efforts_5_03242015_0649.docx                                      |
| 6      | S5.C.1.b          | Created stewardship opportunities (or partnered with others) to encourage resident participation in activities such as those described in S5.C.1.b.                                                                                                                                            | Yes                                                                                   |
| 7      | S5.C.1.b          | Used results of measuring the understanding and adoption of targeted behaviors among at least one audience in at least one subject area to direct education and outreach resources and evaluate changes in adoption of targeted behaviors. (Required no later than February 2, 2016, S5.C.1.b) | Yes                                                                                   |
| 7b     | S5.C.1.b          | Attach description of how this requirement was met.                                                                                                                                                                                                                                            | Natural Yard Care Evaluation_7b_03192015_0847.pdf                                     |
| 8      | S5.C.2.a          | Describe the opportunities created for the public to participate in the decision making processes involving the development, implementation and updates of the Permittee's SWMP. (S5.C.2.a)                                                                                                    | A city council hearing was held 3/17/15 and the draft was posted on the city website. |

|     |                 |                                                                                                                                                                                                                                                           |                                                                                                         |
|-----|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| 9   | S5.C.2.b        | Posted the updated SWMP Plan and latest annual report on your website no later than May 31. (S5.C.2.b)                                                                                                                                                    | Yes                                                                                                     |
| 9b  | S5.C.2.b        | List the website address.                                                                                                                                                                                                                                 | <a href="http://www.ci.snohomish.wa.us/213/Stormwater">http://www.ci.snohomish.wa.us/213/Stormwater</a> |
| 10  | S5.C.3.a.i - vi | Maintained a map of the MS4 including the requirements listed in S5.C.3.a.i.-vi.                                                                                                                                                                          | Yes                                                                                                     |
| 11  | S5.C.3.b.v      | Implemented a compliance strategy, including informal compliance actions as well as enforcement provisions of the regulatory mechanism described in S5.C.3.b. (S5.C.3.b.v)                                                                                | Yes                                                                                                     |
| 12  | S5.C.3.b.vi     | Updated, if necessary, the regulatory mechanism to effectively prohibit illicit discharges into the MS4 per S5.C.3.b.vi. (Required no later than February 2, 2018)                                                                                        | Not Applicable                                                                                          |
| 12b |                 | Cite the Prohibited Discharges code reference                                                                                                                                                                                                             |                                                                                                         |
| 13  | S5.C.3.c.i      | Implemented procedures for conducting illicit discharge investigations in accordance with S5.C.3.c.i.                                                                                                                                                     | Yes                                                                                                     |
| 13b | S5.C.3.c.i      | Cite methodology                                                                                                                                                                                                                                          | City's 2011 IDDE Program Manual                                                                         |
| 14  | S5.C.3.c.i      | Percentage of MS4 coverage area screened in reporting year per S5.C.3.c.i. (Required to screen 40% of MS4 no later than December 31, 2017 (except no later than June 30, 2018 for the City of Aberdeen) and 12% on average each year thereafter. (S5.C.3) | 38                                                                                                      |
| 15  | S5.C.3.c.ii     | List the hotline telephone number for public reporting of spills and other illicit discharges. (S5.C.3.c.ii)                                                                                                                                              | (360) 568-3115 and (360) 568-7070                                                                       |
| 15b | S5.C.3.c.ii     | Number of hotline calls received.                                                                                                                                                                                                                         | 0                                                                                                       |
| 16  | S5.C.3.c.iii    | Implemented an ongoing illicit discharge training program for all municipal field staff per S5.C.3.c.iii.                                                                                                                                                 | Yes                                                                                                     |
| 17  | S5.C.3.c.iv     | Informed public employees, businesses, and the general public of hazards associated with illicit discharges and improper disposal of waste. (S5.C.3.c.iv)                                                                                                 | Yes                                                                                                     |
| 17b | S5.C.3.c.iv     | Describe the information sharing actions. (S5.C.3.c.iv)                                                                                                                                                                                                   | See attachment ("Snohomish Education Efforts.doc")                                                      |
| 18  | S5.C.3.d        | Implemented an ongoing program to characterize, trace, and eliminate illicit discharges into the MS4 per S5.C.3.d.                                                                                                                                        | Yes                                                                                                     |
| 19  | S5.C.3.d.iv     | Number of illicit discharges, including illicit connections, eliminated during the reporting year. (S5.C.3.d.iv)                                                                                                                                          | 1                                                                                                       |
| 20  | S5.C.3.d.iv     | Attach a summary of actions taken to characterize, trace and eliminate each illicit discharge found by or reported to the permittee. For each illicit discharge, include a description of actions according to required timeline per S5.C.3.d.iv          | 116 Union Ave - AEC Hydraulic Spill 7-2014_20_03052015_08 38.pdf                                        |
| 21  | S5.C.3.e        | Municipal illicit discharge detection staff are trained to conduct illicit discharge detection and elimination activities as described in S5.C.3.e.                                                                                                       | Yes                                                                                                     |

|     |                      |                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|-----|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 22  | S5.C.4.a             | Implemented an ordinance or other enforceable mechanism to address runoff from new development, redevelopment and construction sites per the requirements of S5.C.4.a.                                                                                                                                                                                                                                      | Yes |
| 24  | S5.C.4.a.i           | Number of exceptions granted to the minimum requirements in Appendix 1. (S5.C.4.a.i., and Section 6 of Appendix 1)                                                                                                                                                                                                                                                                                          | 0   |
| 25  | S5.C.4.a.i           | Number of variances granted to the minimum requirements in Appendix 1. (S5.C.4.a.i., and Section 6 of Appendix 1)                                                                                                                                                                                                                                                                                           | 0   |
| 26  | S5.C.4.b.i           | Reviewed Stormwater Site Plans for all proposed development activities that meet the thresholds adopted pursuant to S5.C.4.a.i. (S5.C.4.b.i)                                                                                                                                                                                                                                                                | Yes |
| 26b | S5.C.4.b.i           | Number of site plans reviewed during the reporting period.                                                                                                                                                                                                                                                                                                                                                  | 1   |
| 27  | S5.C.4.b.ii          | Inspected, prior to clearing and construction, permitted development sites that have a high potential for sediment transport as determined through plan review based on definitions and requirements in Appendix 7 Determining Construction Site Sediment Damage Potential, or alternatively, inspected all construction sites meeting the minimum thresholds adopted pursuant to S5.C.4.a.i. (S5.C.4.b.ii) | Yes |
| 27b | S5.C.4.b.ii          | Number of construction sites inspected per S5.C.4.b.ii.                                                                                                                                                                                                                                                                                                                                                     | 1   |
| 28  | S5.C.4.b.iii         | Inspected permitted development sites during construction to verify proper installation and maintenance of required erosion and sediment controls. (S5.C.4.b.iii)                                                                                                                                                                                                                                           | Yes |
| 28b | S5.C.4.b.iii         | Number of construction sites inspected per S5.C.4.b.iii.                                                                                                                                                                                                                                                                                                                                                    | 1   |
| 29  | S5.C.4.b.ii, iii and | Number of enforcement actions taken during the reporting period (based on construction phase inspections at new development and redevelopment projects). (S5.C.4.b.ii, iii and v)                                                                                                                                                                                                                           | 0   |
| 30  | S5.C.4.b.iv          | Inspected all permitted development sites that meet the thresholds in S5.C.4.a.i upon completion of construction and prior to final approval or occupancy to ensure proper installation of permanent stormwater facilities. (S5.C.4.b.iv)                                                                                                                                                                   | Yes |
| 31  | S5.C.4.b.ii-iv       | Achieved at least 80% of scheduled construction-related inspections. (S5.C.4.b.ii-iv)                                                                                                                                                                                                                                                                                                                       | Yes |
| 32  | S5.C.4.b.iv          | Verified a maintenance plan is completed and responsibility for maintenance is assigned for projects. (S5.C.4.b.iv)                                                                                                                                                                                                                                                                                         | Yes |
| 33  | S5.C.4.c             | Implemented provisions to verify adequate long-term operation and maintenance (O&M) of stormwater treatment and flow control BMPs/facilities that are permitted and constructed pursuant to S5.C.4. a and b. (S5.C.4.c)                                                                                                                                                                                     | Yes |
| 35  | S5.C.4.c.iii         | Annually inspected stormwater treatment and flow control BMPs/facilities per S5.C.4.c.iii.                                                                                                                                                                                                                                                                                                                  | Yes |

|     |              |                                                                                                                                                                                                                                                                                    |                |
|-----|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 35b | S5.C.4.c.iii | If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.4.c.iii                                                                                                                                                           | Not Applicable |
| 36  | S5.C.4.c.iv  | Inspected new residential stormwater treatment and flow control BMPs/facilities and catch basins every 6 months per S5.C.4.c.iv to identify maintenance needs and enforce compliance with maintenance standards.                                                                   | Yes            |
| 37  | S5.C.4.c.v   | Achieved at least 80% of scheduled inspections to verify adequate long-term O&M. (S5.C.4.c.v)                                                                                                                                                                                      | Yes            |
| 38  | S4.C.4.c.vi  | Verified that maintenance was performed per the schedule in S5.C.4.c.vi when an inspection identified an exceedance of the maintenance standard.                                                                                                                                   | Not Applicable |
| 38b | S5.C.4.c.vi  | Attach documentation of any maintenance delays. (S5.C.4.c.vi)                                                                                                                                                                                                                      | Not Applicable |
| 39  | S5.C.4.d     | Provided copies of the Notice of Intent for Construction Activity and Notice of Intent for Industrial Activity to representatives of proposed new development and redevelopment. (S5.C.4.d)                                                                                        | Yes            |
| 40  | S5.C.4.e     | All staff responsible for implementing the program to control stormwater runoff from new development, redevelopment, and construction sites, including permitting, plan review, construction site inspections, and enforcement are trained to conduct these activities. (S5.C.4.e) | Yes            |
| 42  | S5.C.4.g     | Participated and cooperated with the watershed-scale stormwater planning process led by a Phase I county. (S5.C.4.g)                                                                                                                                                               | Not Applicable |
| 43  | S5.C.5.a     | Implemented maintenance standards as protective, or more protective, of facility function as those specified in Chapter 4 of Volume V of the 2005 Stormwater Management Manual for Western Washington.                                                                             | Yes            |
| 44  | S5.C.5.a     | Applied a maintenance standard that is not specified in the Stormwater Management Manual for Western Washington.                                                                                                                                                                   | Not Applicable |
| 44b | S5.C.5.a     | Please note what kinds of facilities are covered by this alternative maintenance standard. (S5.C.5.a)                                                                                                                                                                              |                |
| 45  | S5.C.5.a.ii  | Performed timely maintenance per S5.C.5.a.ii.                                                                                                                                                                                                                                      | Yes            |
| 46  | S5.C.5.b     | Annually inspected all municipally owned or operated permanent stormwater treatment and flow control BMPs/facilities. (S5.C.5.b)                                                                                                                                                   | Yes            |
| 46b | S5.C.5.b     | Number of known municipally owned or operated stormwater treatment and flow control BMPs/facilities. (S5.C.5.b)                                                                                                                                                                    | 26             |
| 46c | S5.C.5.b     | Number of facilities inspected during the reporting period. (S5.C.5.b)                                                                                                                                                                                                             | 26             |
| 46d | S5.C.5.b     | Number of facilities for which maintenance was performed during the reporting period. (S5.C.5.b)                                                                                                                                                                                   | 3              |
| 47  | S5.C.5.b     | If using reduced inspection frequency for the first time during this permit cycle, attach documentation per S5.C.5.b.                                                                                                                                                              | Not Applicable |

|     |               |                                                                                                                                                                                                                                                                                                                                                     |                                                              |
|-----|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 48  | S5.C.5.c      | Conducted spot checks and inspections (if necessary) of potentially damaged stormwater facilities after major storms as per S5.C.5.c.                                                                                                                                                                                                               | Yes                                                          |
| 49  | S5.C.5.d      | Inspected all municipally owned or operated catch basins and inlets as per S5.C.5.d, or used an alternative approach. (Required once no later than August 1, 2017 and every two years thereafter, except once no later than June 30, 2018 and every two years thereafter for the City of Aberdeen)                                                  | Not Applicable                                               |
| 49b | S5.C.5.d      | Number of known catch basins.                                                                                                                                                                                                                                                                                                                       | 1587                                                         |
| 49c | S5.C.5.d      | Number of catch basins inspected during the reporting period.                                                                                                                                                                                                                                                                                       | 605                                                          |
| 49d | S5.C.5.d      | Number of catch basins cleaned during the reporting period.                                                                                                                                                                                                                                                                                         | 542                                                          |
| 50  | S5.C.5.d.i-ii | Attach documentation of alternative catch basin cleaning approach, if used. (S5.C.5.d.i or ii)                                                                                                                                                                                                                                                      | Not Applicable                                               |
| 51  | S5.C.5.f      | Implemented practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned or maintained by the Permittee, and road maintenance activities under the functional control of the Permittee. (S5.C.5.f)                                                                                                   | Yes                                                          |
| 52  | S5.C.5.g      | Implemented an ongoing training program for Permittee employees whose primary construction, operations or maintenance job functions may impact stormwater quality. (S5.C.5.g.)                                                                                                                                                                      | Yes                                                          |
| 53  | S5.C.5.h      | Implemented a Stormwater Pollution Prevention Plan for all heavy equipment maintenance or storage yards, and material storage facilities owned or operated by the Permittee in areas subject to this Permit that are not required to have coverage under an NPDES permit that covers stormwater discharges associated with the activity. (S5.C.5.h) | Yes                                                          |
| 54  | S7.A          | Complied with the Total Maximum Daily Load (TMDL)-specific requirements identified in Appendix 2. (S7.A)                                                                                                                                                                                                                                            | Yes                                                          |
| 55  | S7.A          | For TMDLs listed in Appendix 2: Attach a summary of relevant SWMP and Appendix 2 activities to address the applicable TMDL parameter(s). (S7.A)                                                                                                                                                                                                     | Snohomish TMDL Status<br>2014_55_02272015_10<br>09.doc       |
| 56  | S8.A          | Attach a description of any stormwater monitoring or stormwater-related studies as described in S8.A.                                                                                                                                                                                                                                               | Snohomish Monitoring Report<br>2015_56_02272015_10<br>14.pdf |
| 57  | S8.B.1        | Participated in cost-sharing for the regional stormwater monitoring program (RSMP) for status and trends monitoring. (S8.B.1)                                                                                                                                                                                                                       | Yes                                                          |
| 58  | S8.C.1        | Participated in cost-sharing for the regional stormwater monitoring program (RSMP) for effectiveness studies. (S8.C.1) (Required to begin no later than August 15, 2014)                                                                                                                                                                            | Yes                                                          |

|     |          |                                                                                                                                                                                                                |                |
|-----|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| 59  | S8.D.1   | Contributed to the RSMP for source identification and diagnostic monitoring information repository in accordance with S8.D.1. (Required to begin no later than August 15, 2014)                                | Yes            |
| 60  | G3       | Notified Ecology in accordance with G3 of any discharge into or from the Permittees MS4 which could constitute a threat to human health, welfare or the environment. (G3)                                      | Not Applicable |
| 61  | G3       | Number of G3 notifications provided to Ecology.                                                                                                                                                                | 0              |
| 62  | G3.A     | Took appropriate action to correct or minimize the threat to human health, welfare, and/or the environment per G3.A.                                                                                           | Not Applicable |
| 63  | S4.F.1   | Notified Ecology within 30 days of becoming aware that a discharge from the Permittee's MS4 caused or contributed to a known or likely violation of water quality standards in the receiving water. (S4.F.1)   | Not Applicable |
| 64  | S4.F.3.a | If requested, submitted an Adaptive Management Response report in accordance with S4.F.3.a.                                                                                                                    | Not Applicable |
| 65  | S4.F.3.d | Attach a summary of the status of implementation of any actions taken pursuant to S4.F.3 and the status of any monitoring, assessment, or evaluation efforts conducted during the reporting period. (S4.F.3.d) | Not Applicable |
| 66  | G20      | Notified Ecology of the failure to comply with the permit terms and conditions within 30 days of becoming aware of the non-compliance. (G20)                                                                   | Not Applicable |
| 67  | G20      | Number of non-compliance notifications (G20) provided in reporting year.                                                                                                                                       | 0              |
| 67b | G20      | List the permit conditions described in non-compliance notification(s).                                                                                                                                        | Not Applicable |

*I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.*

Larry Bauman

3/30/2015 9:23:51 AM

Signature

Date

# City of Snohomish

## Policies and Procedures

|                        |                                                                                                   |
|------------------------|---------------------------------------------------------------------------------------------------|
| <b>Policy Name:</b>    | National Pollutant Discharge Elimination System Permit Compliance Roles & Responsibilities Policy |
| <b>Department(s):</b>  | Public Works                                                                                      |
| <b>Effective Date:</b> | Deadline - March 31, 2015                                                                         |
| <b>Supersedes:</b>     | N/A                                                                                               |
| <b>Prepared by:</b>    | Max Selin, Senior Utilities Engineer                                                              |
| <b>Signature:</b>      |                                                                                                   |
| <b>Approved by:</b>    | Steve Schuller, Public Works Director                                                             |
| <b>Signature:</b>      |                                                                                                   |

### **Purpose:**

The Western Washington Phase II Municipal Stormwater Permit (NPDES permit) is a federal permit issued to municipalities which allows municipal stormwater systems to discharge to waters of the state. The NPDES permit includes broad ranging requirements which are implemented by several departments within the City's Public Works Department. Furthermore, it is a condition of the 2013 – 2018 NPDES permit (Section S5.A.5.b) that each jurisdiction develops a coordination mechanism to identify departmental responsibilities to eliminate barriers to compliance with the terms of the permit. This policy is created to provide clarification of departmental roles and responsibilities for the purposes of complying with the NPDES permit.

### **Policies:**

- 1) The NPDES permit is a broad ranging federal stormwater permit which requires citywide compliance, and as such, shall be viewed as a citywide permit.
- 2) Lead Agency: The Engineering Department is the lead agency responsible for coordinating compliance with the NPDES permit. All other Public Works departments responsible for complying with any portion of the NPDES permit shall work cooperatively with the lead agency, responding and providing accurate tracking and reporting information in a timely manner.
- 3) NPDES Permit Coordinator: The City Manager has the authority to designate a NPDES Permit Coordinator. Currently the Stormwater NPDES Permit Coordinator position is the Senior Utilities Engineer for the City. The NPDES Permit Coordinator's duties include:
  - a. Submit and ensure all NPDES permit related submittals to Ecology are complete and signed. [Note: Signature authority and responsibility for NPDES submittals has been delegated to the City Manager.]

- b. Coordinate NPDES compliance efforts for the City, including collecting tracking and reporting data from the different departments, as well as preparing and submitting annual reports and updates to the Stormwater Management Program to the Department of Ecology.
  - c. Assist the different city departments in identifying and understanding their individual responsibilities for complying with the pertinent sections of the NPDES permit.
  - d. Assist in the development or update of departmental programs or procedures necessary to comply with the NPDES permit requirements.
  - e. Assist in training efforts, where applicable.
  - f. Work with individual departments to assist in resolving issues of non-compliance, as well as drafting and submitting G3 or G20 Non-Compliance notification letters to Ecology.
  - g. Coordinate required illicit discharge detection and reporting training for all municipal field staff.
- 4) All municipal field staff are responsible for reporting illicit discharges to the City's Spill Hotline ((360) 568-3115 and (360) 568-7070).
- 5) All City departments are responsible for working with the NPDES Permit Coordinator to resolve instances of permit noncompliance, including:
- a. Notifying the NPDES Permit Coordinator as soon as they become aware of any instance of non-compliance; and
  - b. Identifying steps and a timeline for resolving issues of non-compliance that will be identified in G3 or G20 notifications to Ecology.
- 6) Compliance with Standards
- a. All daily activities and City operations that can impact stormwater or water quality, must comply with applicable adopted building and land management standards as included in the Snohomish City Code.
  - b. All stormwater development review, inspection and maintenance activities must comply with applicable adopted standards as listed below.
    - i. Ecology's Stormwater Management Manual for Western Washington (SMMWW)
    - ii. City Engineering Design and Construction Standards
- 7) All effected City departments are responsible for training staff, implementing requirements, keeping records and providing accurate tracking and reporting data for the NPDES programs under their purview.

## 8) Departmental Responsibilities

It is the responsibility of each department director to assign the duties and responsibilities identified in this policy to the pertinent members of their staff, as well as ensure they are being implemented correctly.

### a. Public Works Department

- i. The Public Works Department is responsible for the majority of the NPDES compliance efforts including Sections: S5.C.1 Public Education and Outreach, S5.C.2 Public Involvement, S5.C.3 Illicit Discharge Detection and Elimination, Section S5.C4 “Controlling Runoff from New Development, Redevelopment and Construction Sites”, S5.C.5 Operations and Maintenance, and portions of Section S5.C.4. related to CIP construction and inspections, post construction stormwater system inspection and maintenance. The following tasks are identified in these Sections:
  1. NPDES Permit coordination
  2. Annual Reporting
  3. Development and submittal of the Stormwater Management Program
  4. Serving as point of contact for the Department of Ecology regarding issues of the Permit
  5. Submitting G3 and G20 noncompliance notifications.
  6. Conducting development review in compliance with adopted standards and policies.
  7. Tracking and reporting development review
  8. Tracking, reporting and justifying any deviations (e.g. variances, exceptions etc.) from adopted stormwater development review standards.
  9. Collection of final as-built stormwater system drawings for new and redevelopment projects and distribution of these as-builts to designated GIS and Public Works staff.
  10. Managing and tracking stormwater maintenance bonds.
  11. Updating all city codes, policies, plans and standards, implemented by or under the purview of other departments as necessary to meet the requirements of the NPDES Permit.
  12. Ensuring the annual maintenance of all city owned or operated stormwater facilities located on properties under their purview in compliance with Section S5.C5 of the NPDES permit.
  13. Maintaining and updating the City’s storm system mapping in compliance with Section S5.C.3.a of the Permit, as well as maintenance and updating of private storm system mapping.
  14. Compliance with adopted building and land management standards (See section 7 of this policy) in all their operations and maintenance activities.

### b. Parks Department

- i. The Parks Department is responsible for ensuring the annual maintenance of all stormwater facilities located on properties under their purview in compliance with Section S5.C5 of the NPDES permit

## 9. NPDES Departmental Policy

Given the scope of NPDES responsibilities assigned to the Public Works Department, the Public Works Department must create individual department policies assigning roles and responsibility among their department and division management and staff.

### **Procedures:**

- 1) All departments must report NPDES annual tracking information to the NPDES Permit Coordinator within two weeks of the date of the request.
- 2) Tracking of NPDES compliance requirements must indicate: the name of the responsible staff member, the date of the action, the location, a description of the action being tracked, and the result of the action.

**City of Snohomish**  
**Education Efforts associated with the NPDES Phase II Permit**

The Western Washington Phase II Municipal Stormwater Permit (August 2013) requires the City of Snohomish to provide an education program designed to target certain audiences. These audiences and topics are presented in Tables 1 through 4 along with the education activity provided by the City to address these areas.

**TABLE 1**  
**General Public and Business**  
**Education Efforts for General Awareness**

| <b>Education Activity</b>                               | <b>General Impacts of Stormwater</b> | <b>Impacts from Impervious Surfaces</b> | <b>Impacts of Illicit Discharges</b> | <b>LID (Principles/ BMPs)</b> | <b>Stewardship Opportunities</b> |
|---------------------------------------------------------|--------------------------------------|-----------------------------------------|--------------------------------------|-------------------------------|----------------------------------|
| Utility bill insert on stormwater topics                | ✓                                    | ✓                                       | ✓                                    |                               |                                  |
| Puget Sound posters at library/city hall                | ✓                                    | ✓                                       | ✓                                    |                               |                                  |
| Link to rain garden handbook on city website            | ✓                                    | ✓                                       |                                      | ✓                             |                                  |
| Link to LID Technical Guidance Manual on website        |                                      |                                         |                                      | ✓                             |                                  |
| Draft of SWMP available on City website for comment     |                                      |                                         |                                      |                               | ✓                                |
| Link to Sound Salmon Solutions on City website          | ✓                                    |                                         | ✓                                    |                               | ✓                                |
| Link to Snohomish Conservation District on City website | ✓                                    |                                         |                                      | ✓                             | ✓                                |
| Wrapped Public Works trailers w/ IDDE related messages  | ✓                                    |                                         | ✓                                    |                               |                                  |
| BMP poster to all restaurants                           | ✓                                    |                                         | ✓                                    |                               |                                  |
| Worked with ECOSS to provide spill kits to businesses   | ✓                                    |                                         | ✓                                    |                               |                                  |

| <b>Education Activity</b>                                                                                                                     | <b>General Impacts of Stormwater</b> | <b>Impacts from Impervious Surfaces</b> | <b>Impacts of Illicit Discharges</b> | <b>LID (Principles/ BMPs)</b> | <b>Stewardship Opportunities</b> |
|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------------------------|--------------------------------------|-------------------------------|----------------------------------|
| Link to EPA website on City's website                                                                                                         | ✓                                    | ✓                                       | ✓                                    | ✓                             |                                  |
| Make available free car wash kit to fundraising entities complete with brochure                                                               | ✓                                    | ✓                                       | ✓                                    |                               |                                  |
| City occupies a booth at local farmer's market May-Sept. for stormwater educational purposes                                                  | ✓                                    | ✓                                       | ✓                                    |                               |                                  |
| Kla Ha Ya Days – Drive wrapped truck educating about IDDE related issues while passing out brochures during the parade; Occupy booth as well. | ✓                                    | ✓                                       | ✓                                    |                               |                                  |

**TABLE 2**  
**Engineers, Contractors, Developers, and Land Use Planner**  
**Education Efforts for General Awareness**

| <b>Education Activity</b>                        | <b>Tech. Stds.<br/>for<br/>Stormwater<br/>Site and<br/>Erosion<br/>Control<br/>Plans</b> | <b>LID<br/>(Principles/<br/>BMPs)</b> | <b>Stormwater<br/>Treatment and<br/>Flow Control<br/>BMPs/facilities</b> |
|--------------------------------------------------|------------------------------------------------------------------------------------------|---------------------------------------|--------------------------------------------------------------------------|
| Pamphlet passed out with permits                 |                                                                                          |                                       | ✓                                                                        |
| Link to rain garden handbook on city website     |                                                                                          | ✓                                     | ✓                                                                        |
| Link to LID Technical Guidance Manual on website | ✓                                                                                        | ✓                                     | ✓                                                                        |

**TABLE 3**  
**General Public and Business**  
**Education Efforts for Behavior Change**

| <b>Education Activity</b>                                        | <b>Use and Storage of<br/>Automotive Chemicals,<br/>Hazardous Cleaning<br/>Supplies, Carwash Soaps<br/>and other Haz. Materials</b> | <b>Equipment<br/>Maintenance</b> | <b>Prevention<br/>of Illicit<br/>Discharges</b> |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|-------------------------------------------------|
| Brochure to mobile pet groomers                                  | ✓                                                                                                                                   | ✓                                | ✓                                               |
| Brochure to mobile carpet cleaners                               | ✓                                                                                                                                   |                                  | ✓                                               |
| BMP poster to all restaurants in the city                        | ✓                                                                                                                                   |                                  | ✓                                               |
| Worked with ECOSS to provide spill kits to businesses            | ✓                                                                                                                                   |                                  | ✓                                               |
| Emailed tip sheet to power washers to prevent illicit discharges | ✓                                                                                                                                   |                                  | ✓                                               |

**TABLE 4**  
**Residents, Landscapers and Property Managers/Owners**  
**Education Efforts for Behavior Change**

| <b>Education Activity</b>                                            | <b>Yard Care Techniques</b> | <b>Use/Storage of Pesticides/Fertilizers/ Household Chemicals</b> | <b>Carpet Cleaning and Auto Repair/ Maintenance</b> | <b>Vehicle/ Equipment/ Home Building Maintenance</b> |
|----------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| Workshop w/ Conservation District for property owners along streams  | ✓                           | ✓                                                                 |                                                     |                                                      |
| Natural Yard Care Workshop w/ Snohomish County                       | ✓                           | ✓                                                                 |                                                     |                                                      |
|                                                                      |                             |                                                                   |                                                     |                                                      |
| <b>Education Activity</b>                                            | <b>Pet Waste Management</b> | <b>LID (Principles/ BMPs)</b>                                     | <b>Stormwater Facility Maintenance</b>              | <b>Dumpster / Trash Compactor Maintenance</b>        |
| Pet waste handling facilities/education at parks                     | ✓                           |                                                                   |                                                     |                                                      |
| Brochure to landscapers/HOAs on how to do detention pond maintenance |                             |                                                                   | ✓                                                   |                                                      |
| Link to rain garden handbook on city website                         |                             | ✓                                                                 | ✓                                                   |                                                      |

**City of Snohomish  
TMDL Status Report  
NPDES Phase II Permit Year 2014  
(January – December 2014)**

- The list of animal handling facilities was prepared in 2012. Inspections of appropriate BMP practices within these facilities was conducted in November 2012. All veterinary clinics at that time had implemented appropriate BMPs. The City wrote a letter to Ecology to notify them that the City had met the inspection requirement listed in Appendix 2 of the 2008 NPDES Phase II Permit. Per the current permit, the City will revisit these facilities along with any new facilities by August 1, 2016.
- The City continues to implement and uphold the measures and ordinances referenced in its 2010 Bacterial Pollution Control Plan.
- Per Appendix 2 of the Phase II Permit, the City has Ordinance 2173 in place which prohibits animal wastes into stormwater systems. The City also has pet waste stations located at parks within the city limits.
- The City continued to monitor for fecal coliform in seven locations on a monthly basis throughout the year with the exception of SNOH10 where monitoring ceased in Summer 2014. These sites are listed in Table 1.

**TABLE 1  
Snohomish Fecal Coliform Monitoring Sites**

| <b>Station name</b> | <b>Site Description</b>                                   | <b>Latitude/Longitude</b> |
|---------------------|-----------------------------------------------------------|---------------------------|
| SNOH3               | Weaver Rd. (CMP)                                          | N 47°56.279/ W 122°06.626 |
| SNOH4               | 72 <sup>nd</sup> St. SE, Near SR 9 (Concrete Box Culvert) | N 47°55.879/ W 122°06.409 |
| SNOH5               | 64 <sup>th</sup> St. S.E. (Concrete Pipe under Road)      | N 47°56.306/ W 122°05.759 |
| SNOH6               | 13 <sup>th</sup> St., Near Ave. A                         | N 47°55.640/ W 122°05.581 |
| SNOH7               | E. of Ave. A, Near 8 <sup>th</sup> St. in Park (CMP)      | N 47°55.292/ W 122°05.559 |
| SNOH8               | Cady Park (CMP)                                           | N 47°54.593/ W 122°05.599 |
| SNOH10              | S. end of Lake Crest Dr. (stream)                         | N 47°56.190/ W 122°05.708 |

- In February 2015, a revised Quality Assurance Protection Plan (QAPP) was submitted to Ecology reflecting the City's intention to continue monitoring for fecal coliform at sites SNOH3 through SNOH8 with a priority for investigative efforts related to sites SNOH6 and SNOH7 due to historically high data in this region.
- In February 2015, a draft Water Quality Monitoring Report was prepared to analyze the fecal coliform monitoring data collected by the City over the past seven years. A final draft is anticipated by April 2015.

# CITY OF SNOHOMISH

SNOHOMISH COUNTY  
WASHINGTON



## WATER QUALITY MONITORING REPORT (2008 -2014)

February 2015

# DRAFT

G&O #14431  
PREPARED BY:



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## INTRODUCTION

### PURPOSE

In June 2003, the Department of Ecology published the *Lower Snohomish Tributaries Fecal Coliform Bacteria Total Maximum Daily Load (TMDL): Detailed Implementation Plan*. This Plan recognized that at the time, many of the streams in the Lower Snohomish Watershed did not meet State Water Quality Standards for swimming due to the high amounts of bacteria present. To address this issue, a TMDL was issued and an Implementation Plan was put into effect. The goal of the TMDL was to have 75% of sampled stations throughout the Lower Snohomish River tributaries to be in compliance with State Water Quality Standards (WAC 173-201A) by 2007. It was anticipated that by 2009, all sampled stations would be in compliance.

The TMDL Implementation Plan found that at the mouth of the Pilchuck River, near the town of Snohomish, water quality improves. During the dry season, there are occasional spikes observed near the city of Snohomish that cause the 90th percentile to be exceeded. The Plan indicated that a constant source of bacteria from the Catherine Creek system (upstream, near Lake Stevens) should be a priority for investigation due to the high levels of bacteria observed and the high concentration of people living in the Lake Stevens area. The Plan also noted that the sources of fecal coliform are likely to be livestock access to the stream, inadequate pasture management, and failing on-site sewage disposal systems.

As a requirement to the Western Washington Phase II Municipal Stormwater Permit issued initially in 2007 and again in 2013, jurisdictions with upstream tributaries to the Snohomish River were required to meet the TMDL Implementation Plan by having them address commercial animal handling and compost areas as well as to develop a Bacterial Pollution Control Plan. These actions were required with the intent to help reduce the amount of bacteria within the Snohomish River and its tributaries.

In an effort to address the issued TMDL on the Snohomish River, the City of Snohomish began monitoring for fecal coliform and other parameters such as temperature, pH, dissolved oxygen, conductivity, and turbidity in 2008. Prior to monitoring, the City of Snohomish prepared a Quality Assurance Project Plan (QAPP) that was reviewed and approved by Ecology in 2007. The QAPP identified ten locations throughout the city that were to be monitored for the intended parameters (see Figure 1). These sites were selected to best represent areas throughout the City where fecal coliform could be entering the tributary system to the Snohomish River. In March 2010, the City received approval from Ecology to relocate two of the sample site locations (SNOH1 and SNOH2) in order to better address potential problem areas revealed by the first 3 years of sample analysis. In 2011, the City removed two of the sample sites due to employee safety (SNOH9 and SNOH12). As of February 2015, the City has revised their QAPP to reflect these site changes and is awaiting review by the Department of Ecology. In addition to conducting monitoring, the City of Snohomish developed a Bacterial Pollution Control Plan in 2011.

The Plan was intended to assist the City in attaining the goal of reducing the ecological impacts of stormwater runoff and stormwater bacterial pollution.

The following Water Quality Report summarizes the data collected from 2008 through 2014. The Report will detail the results from the monitoring data collected and will also analyze the trends that were observed over the past six years as they relate to water quality improvement.

## AREAS OF ANALYSIS

The fecal coliform samples collected throughout the city were located at sites chosen to provide a well-mixed and representative sample (See Figure 1). Table 1 lists the locations of the sampling sites. It should be noted that sampling sites “SNOH1” and “SNOH2” were removed from the list of sampling sites for 2010 due to the fact that data from both sites indicated that these areas were not affecting areas downstream in terms of water quality degradation due to fecal coliform. In 2011, SNOH11 was removed from the list of sampling sites. In addition, sites “SNOH9” and “SNOH12” were removed due to safety reasons.

**Table 1**  
**Sampling Sites for Fecal Coliform in Snohomish**

| <b>Station name</b> | <b>Site Description</b>                                         | <b>Latitude/Longitude</b>        |
|---------------------|-----------------------------------------------------------------|----------------------------------|
| <i>SNOH1</i>        | <i>Fobes Rd. (Concrete Box Culvert)</i>                         | <i>N 47°56.771/ W 122°06.889</i> |
| <i>SNOH2</i>        | <i>Near SR 2, E. of 52<sup>nd</sup> St. S.E. (Arch CMP)</i>     | <i>N 47°56.895/ W 122°05.173</i> |
| <b>SNOH3</b>        | <b>Weaver Rd. (CMP)</b>                                         | <b>N 47°56.279/ W 122°06.626</b> |
| <b>SNOH4</b>        | <b>72<sup>nd</sup> St. SE, Near SR 9 (Concrete Box Culvert)</b> | <b>N 47°55.879/ W 122°06.409</b> |
| <b>SNOH5</b>        | <b>64<sup>th</sup> St. S.E. (Concrete Pipe under Road)</b>      | <b>N 47°56.306/ W 122°05.759</b> |
| <b>SNOH6</b>        | <b>13<sup>th</sup> St., Near Ave. A</b>                         | <b>N 47°55.640/ W 122°05.581</b> |
| <b>SNOH7</b>        | <b>E. of Ave. A, Near 8<sup>th</sup> St. in Park (CMP)</b>      | <b>N 47°55.292/ W 122°05.559</b> |
| <b>SNOH8</b>        | <b>Cady Park (CMP)</b>                                          | <b>N 47°54.593/ W 122°05.599</b> |
| <i>SNOH9</i>        | <i>N. of Riverview, W. of Ludwig Rd.</i>                        | <i>N 47°55.204/ W 122°06.706</i> |
| <i>SNOH10</i>       | <i>S. end of Lake Crest Dr. (stream)</i>                        | <i>N 47°56.190/ W 122°05.708</i> |
| <i>SNOH11</i>       | <i>Upper Swifty Creek (Near Cedar/Third)</i>                    | <i>N 47°54.335/ W 122°05.25</i>  |
| <i>SNOH12</i>       | <i>Lower Swifty Creek (12” outfall near Glen/Second)</i>        | <i>N 47°54.46/ W 122°05.29</i>   |

\*Note: Sampling Sites SNOH1 and SNOH2 were removed from the selected set of sampling sites and were replaced with SNOH 11 and SNOH12 in 2010. In 2011, SNOH 9 and SNOH 12 were removed for safety reasons along with SNOH11.

The following will discuss data pertaining to the results found at each of these sites.

## **WATER QUALITY MONITORING PARAMETERS**

### **DESCRIPTION**

To obtain an understanding of the water quality in the streams and conveyance areas surrounding the City of Snohomish, a number of parameters were monitored. These parameters include fecal coliform, temperature, pH, dissolved oxygen, conductivity, and turbidity. All parameters were observed for the twelve sampling sites located throughout the City from 2008 to 2010. In 2011 and 2012, the City was understaffed to provide this information. The following describes the state of these waters and the trends they are anticipated to follow over the next few years. It is important to note that this data represents only a snap shot of time. By observing only this brief period of time as opposed to looking at data representing numerous years, expected trends may be skewed.

### **FECAL COLIFORM**

The presence of fecal coliform bacteria in aquatic environments indicates that the water has been contaminated with the fecal material of man or other animals. At the time this occurred, the source water may have been contaminated by pathogens or disease producing bacteria or viruses which can also exist in fecal material. Some waterborne pathogenic diseases include typhoid fever, viral and bacterial gastroenteritis and hepatitis A. The presence of fecal contamination is an indicator that a potential health risk exists for individuals exposed to this water. Fecal coliform bacteria may occur in ambient water as a result of the overflow of domestic sewage or nonpoint sources of human and animal waste.

The City began monitoring for fecal coliform in March 2008. Appendix A displays the resulting graphs of this data for 2008 through 2014. The raw data can be found in Appendix B. Samples since March 2008 reveal results that exceed the State Water Quality Standards for the Snohomish River. The State Standard for the river includes having an annual geometric mean that does not exceed 100 colonies/100 mL due to the classification of the river being a “primary contact recreational” area. Any surface waters running into Blackmans Lake are subject to the state standard of having a geometric mean that does not exceed 50 colonies/100 mL. In addition, for runoff entering Snohomish River, not more than 10% of the annual samples taken can exceed 200 colonies/100mL whereas runoff entering Blackmans Lake is subject to having no greater than 10% of the samples taken exceed 100 colonies/100mL. Table 1 shows a summary of the annual geometric means whereas Table 2 shows the sampling sites that have exceeded the 10% threshold designated by the State Standard.

**TABLE 1**  
**Annual Geometric Mean for Fecal Coliform Samples**

| Site   | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------|------|------|------|------|------|------|------|
| SNOH1  | 110  | 61   | 45   |      |      |      |      |
| SNOH2  | 14   | 9    | 14   |      |      |      |      |
| SNOH3  | 84   | 44   | 77   | 47   | 56   | 46   | 20   |
| SNOH4  | 39   | 85   | 80   | 38   | 51   | 47   | 70   |
| SNOH5  | 16   | 22   | 18   | 32   | 11   | 45   | 7    |
| SNOH6  | 202  | 49   | 38   | 55   | 69   | 90   | 73   |
| SNOH7  | 266  | 240  | 119  | 84   | 111  | 87   | 44   |
| SNOH8  | 201  | 179  | 120  | 56   | 52   | 53   | 43   |
| SNOH9  | 48   | 54   | 40   |      |      |      |      |
| SNOH10 | 38   | 114  | 68   | 21   | 18   | 11   | 11   |
| SNOH11 |      |      |      |      |      |      |      |
| SNOH12 |      |      |      |      |      |      |      |

1) Black shading represents exceedance of State Water Quality Standard of an annual geometric mean greater than 100 colonies/100 mL (or 50 colonies/100 mL for SNOH5 and SNOH10).

**TABLE 2**  
**Fecal Coliform Results Exceeding 10% of Annual Sample Collected**

| Site   | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|--------|------|------|------|------|------|------|------|
| SNOH1  | x    | x    | x    |      |      |      |      |
| SNOH2  |      |      |      |      |      |      |      |
| SNOH3  | x    | x    | x    | x    | x    |      |      |
| SNOH4  |      | x    | x    |      | x    | x    | x    |
| SNOH5  | x    | x    | x    | x    | x    | x    | x    |
| SNOH6  | x    | x    |      | x    | x    | x    | x    |
| SNOH7  | x    | x    | x    | x    | x    | x    | x    |
| SNOH8  | x    | x    | x    | x    | x    | x    | x    |
| SNOH9  |      | x    | x    |      |      |      |      |
| SNOH10 |      | x    | x    | x    |      |      | x    |
| SNOH11 |      |      | x    |      |      |      |      |
| SNOH12 |      |      | x    |      |      |      |      |

1) "x" represents sites that had over 10% of the annual fecal coliform results (or one minimum) greater than 200 colonies/100 mL (or 100 colonies/100 mL for SNOH5 and SNOH10).

From Table 1, it is apparent that sampling sites “SNOH7” (East of Ave. A, near Park St.) and “SNOH8” (Cady Park) had a consistent violation of state water quality standards in 2008 through 2010. Both sites have shown relative improvement over the past four years, resulting in a lower geometric mean of fecal coliform samples for those areas. The SNOH7 site revealed a geometric mean of 266 colonies/100mL in 2008 and a reduced geometric mean of 87 colonies/100mL in 2014. The SNOH8 site had a geometric mean of 201 colonies/100mL in 2008 which was reduced to 53 colonies/100mL in 2014. Although the area has shown signs of significant improvement, the City will elect to further examine the SNOH6 and SNOH7 sites due to their proximity to Blackmans Lake and due to the fact that the annual geometric mean for SNOH6 has been increasing over the past six years.

The remaining sites were fairly consistent over the past four years in meeting the state water quality standard of a geometric mean below 100 colonies/100 mL or 50 mL for waters flowing into Blackmans Lake. However, a number of sites did not meet the standard requiring that 10% of the samples be below 200 colonies/100 mL (see Appendices A and B for further detail). These sites should continue to be observed. If necessary, the City may want to do additional testing just upstream and downstream of areas that violate the 10% rule to get a better understanding of the sources at hand and to narrow down the potential source of bacterial contamination. Sampling shall be taken to represent both dry and wet weather seasons since wet weather seasons typically reveal higher results due to high sediment loads during storms.

If results throughout the increased monitoring period still exceed state standards, the City may want to investigate methods such as DNA typing, observing land use, or doing stream reconnaissance to determine the origin of the bacteria so as to minimize pollution of the water in the future.

## **TEMPERATURE**

Temperature data was intermittently collected from 2008-2010. Although the data was not consistent, observations can be noted from the data that was collected. In observing the temperature data presented graphically in Appendix A, it is apparent that the temperature had generally risen for all sites. This may simply be due to the general warming of the atmosphere but it may also be attributable to a decrease of vegetation along the sides of a stream or open conveyance system. Increased development and a lack of knowledge by homeowners can lead to the reduction of necessary buffers along streams. If the increase in temperature is simply due to a lack of vegetation, the City may want to focus on enforcing required buffers around streams and continue promoting positive landscaping features to homeowners located adjacent to these areas. By implementing these measures, the temperature of the water surface should remain constant throughout the years to come.

## **pH**

Critical to streams is the pH value. pH is a measurement of hydrogen ions present in a solution and is expressed on a scale of 1 to 14. Water with a pH less than 7 is considered

a more acidic solution whereas a pH greater than 7 indicates a more alkaline solution. A low pH increases the solubility of toxic metals, causing damage to fish and other aquatic life within a stream. The State Water Quality Standards require the pH within a salmon and/or trout spawning stream to be within the range of 6.5 to 8.5. As a whole, pH at the sampling sites throughout 2008 through 2010 generally varied from 6.5 to 8.5. A few spikes around 9 were noticed in 2008 at SNOH2, SNOH4 and SNOH10 however the pH appeared lower in subsequent years. As shown in Appendix A, the linear trendline shown on the graphs indicate a decreasing amount of pH at each of the sampling sites with the exception of SNOH11 and SNOH12. Since sampling just began for the SNOH11 and SNOH12 sites in 2010, an insufficient amount of data exists to determine an appropriate trend for these sites. Although the trend shows a decreasing pH for the majority of the sampled sites, the data lies within the range required in State's water quality standard for pH. Overall, the pH in tributary creeks and conveyance channels is expected to continue with minimal change as shown over the past few years however the City may wish to continue to monitor this parameter and observe trends in future years.

#### **DISSOLVED OXYGEN**

Dissolved oxygen is necessary for aquatic habitat to thrive within tributary streams. Like temperature, dissolved oxygen was not collected on a consistent basis and the data appears somewhat sparse however, from the data collected (see Appendix A), it appears that sites SNOH1, SNOH2, SNOH7, SNOH8 and SNOH12 show a decreasing amount of dissolved oxygen within the water whereas sites SNOH4 through SNOH6, and SNOH9 through SNOH11 show an increase in dissolved oxygen during the period between 2008 and 2010. Dissolved oxygen generally coincides with temperature. The sites that show a decrease in dissolved oxygen would coincide with the fact that the temperature has been slightly increasing over previous years. An increase in temperature results in decreased dissolved oxygen levels. As with temperature, this may be due to a lack of vegetation along the streams or conveyance channels. With the heightened awareness of how critical stream buffers are, it is expected that as vegetation is replaced along these streams, the temperature will decrease in the short term and remain constant in the long term, thereby allowing the dissolved oxygen levels to stabilize in the future. The sites that appear to have increased in dissolved oxygen should continue to be protected by monitoring vegetation along these corridors.

#### **CONDUCTIVITY**

Conductivity is a measure of the ability of a solution to conduct a current which is a property attributable to the ions in the solution. Conductivity typically increases with the rise in urbanization and is affected by the presence of inorganic dissolved solids such as chloride, nitrate, sulfate and phosphate anions. A rise in conductivity could be caused by the chemistry of the surrounding soil, wastewater, urban runoff, agricultural runoff or atmospheric input. Sampling sites SNOH1, SNOH 2, SNOH 5, and SNOH 6 appear to have increased in conductivity between 2008 and 2010. Further data needs to be collected at sites SNOH11 and SNOH12 to determine a trend. Conductivity at these sites should continue to be monitored for if it continues to increase, the City may want to investigate the possibility of pollutants entering the water via a source related to wastewater (i.e.

septic tanks) or agricultural runoff. Throughout the future however, conductivity in watersheds that are mostly developed are expected to remain unchanged.

### **TURBIDITY**

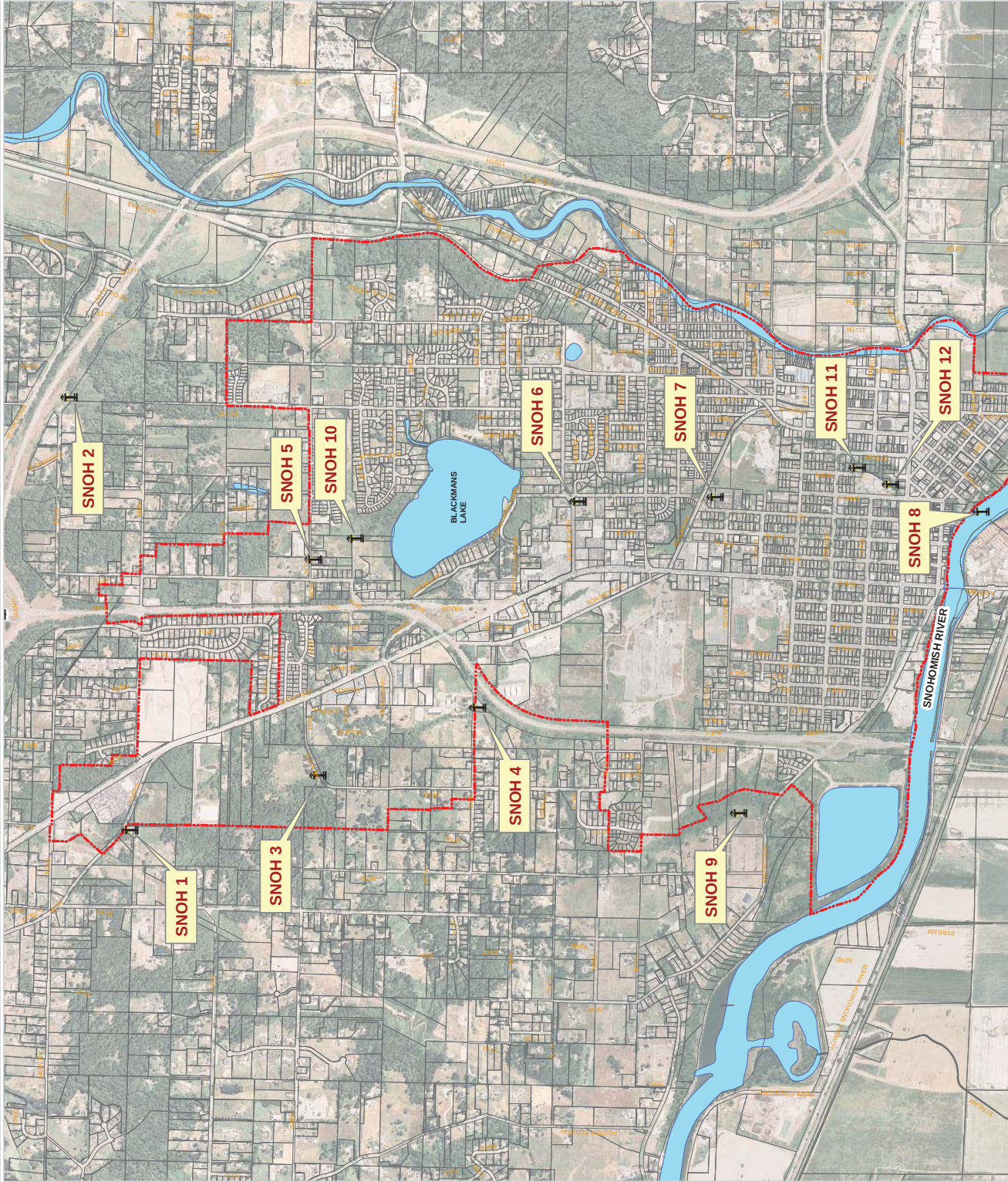
Turbidity is defined in the Department of Ecology's *Stormwater Management Manual for Western Washington* as the "the dispersion or scattering of light in a liquid caused by suspended solids and other factors...". A high turbidity level may make living conditions difficult for fish and other aquatic life. With increased development, it is expected that turbidity would increase. However, if BMPs are enforced and implemented correctly during the time of development, turbidity should not pose a threat to the city's tributaries and conveyance systems. As with the other water quality parameters monitored, the sites at SNOH11 and SNOH12 need further data collection to observe trends. The other sites generally revealed decreasing turbidity with the exception of SNOH2 and SNOH3. The decreasing turbidity may be due to successful inspection of developed sites or may possibly be due to a decrease in development seen in the past. The increase in turbidity at SNOH2 and SNOH3 is a trend that should continue to be monitored throughout the following years. More detailed inspection of construction sites or stormwater runoff draining to these areas may help prevent this upward trend from continuing in the future.

## **SNOHOMISH WATER QUALITY SUMMARY**

Overall, it appears that most of the sampled sites fell within the water quality standards for fecal coliform over the past four years with the exception of SNOH 7 located east of Ave. A. Both SNOH7 and SNOH8 sites violated the 100 colonies/100mL standard from 2008 through 2010. SNOH7 violated the standard in 2012 as well. Although the past four years have shown decreased fecal coliform levels in these areas, the historical dissolved oxygen data for these sites revealed a decreasing trend. Therefore, it is recommended that the city continue to observe these sites in the future for potential pollutants related to fecal coliform and factors pertaining to a decline in dissolved oxygen. In addition, SNOH6 should be observed in detail as the geometric mean has been increasing over the past six years. The City may want to add additional monitoring sites upstream to narrow the region responsible for polluting the area. DNA typing, observation of land use or stream reconnaissance at these sites may also help to identify the source at hand.

Beyond fecal coliform sampling, particular attention should be given to turbidity monitoring for sites SNOH2 and SNOH3. In addition, due to temperature levels increasing slightly at all sites and an apparent decline in dissolved oxygen at various sampling sites throughout the City, it is recommended that the City continue to encourage vegetation retention near water bodies. Although budget constraints have prevented the City from monitoring water quality parameters outside of fecal coliform, it is recommended that the City continue to monitor these parameters should funds become available. Water quality indicators such as dissolved oxygen and temperature are vital in determining the overall health of the hydraulic system.

**FIGURE 1**  
**SAMPLING LOCATIONS**



**LEGEND:**

-  SAMPLING STATIONS
-  CITY LIMITS
-  PARCELS
-  WATER

CITY OF SNOHOMISH

FIGURE 1  
SAMPLING SITES

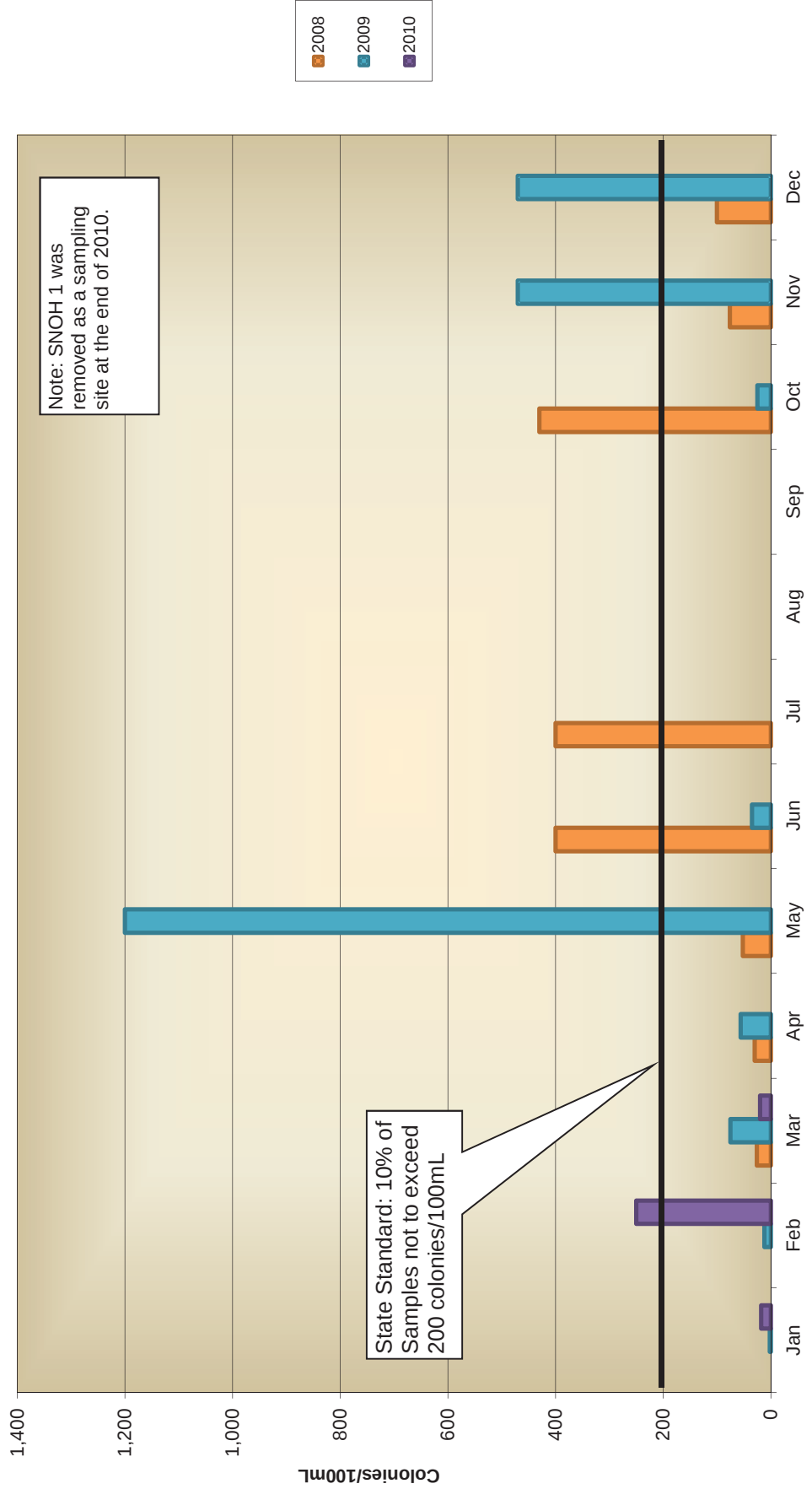


# **APPENDIX A**

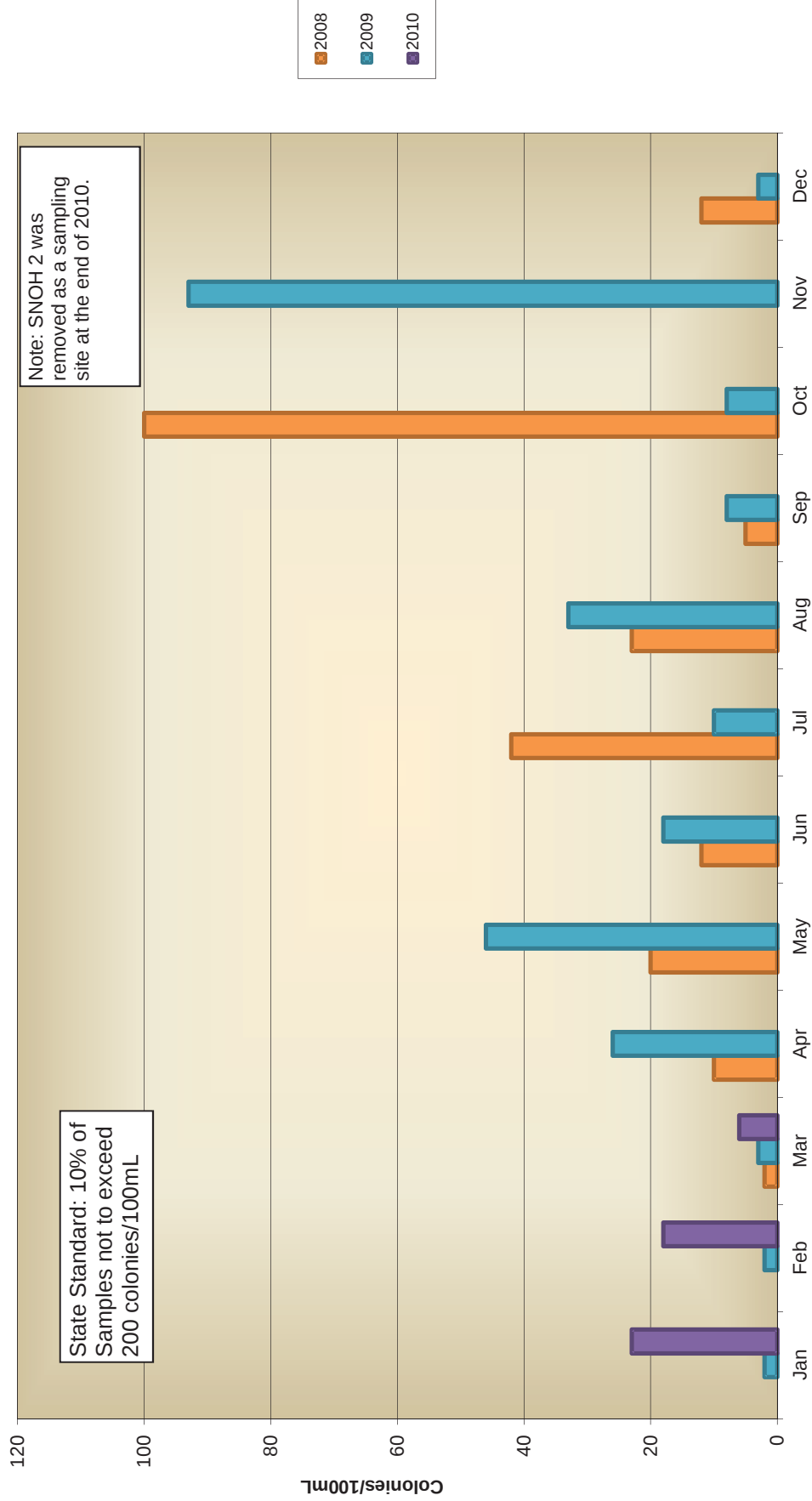
## **GRAPHS**

**FECAL COLIFORM  
GRAPHS  
(2008-2014)**

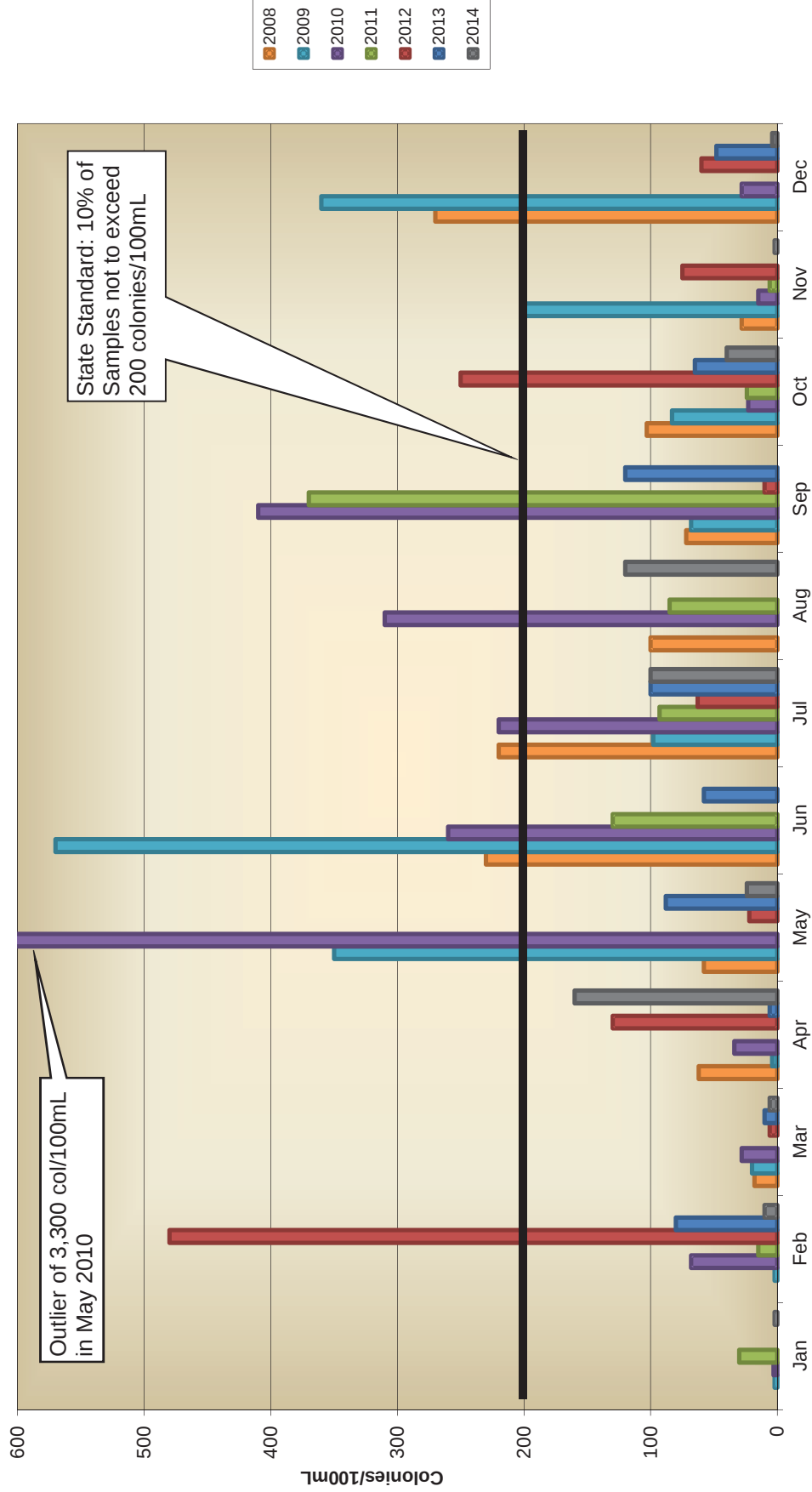
# Fecal Coliform Monitoring SNOH1 - Fobes Rd.



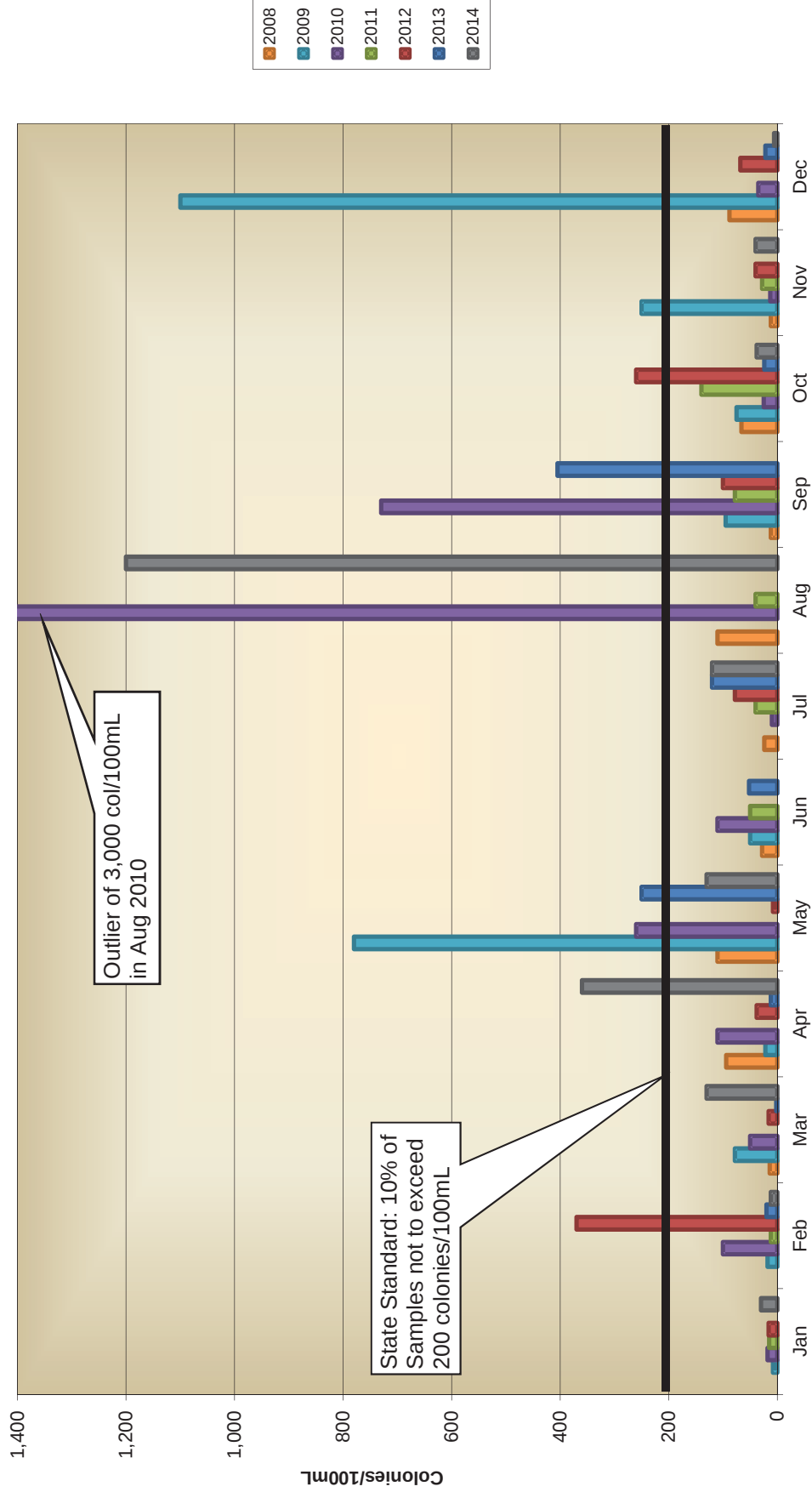
**Fecal Coliform Monitoring  
SNOH2 - Near SR 2, E. of 52nd**



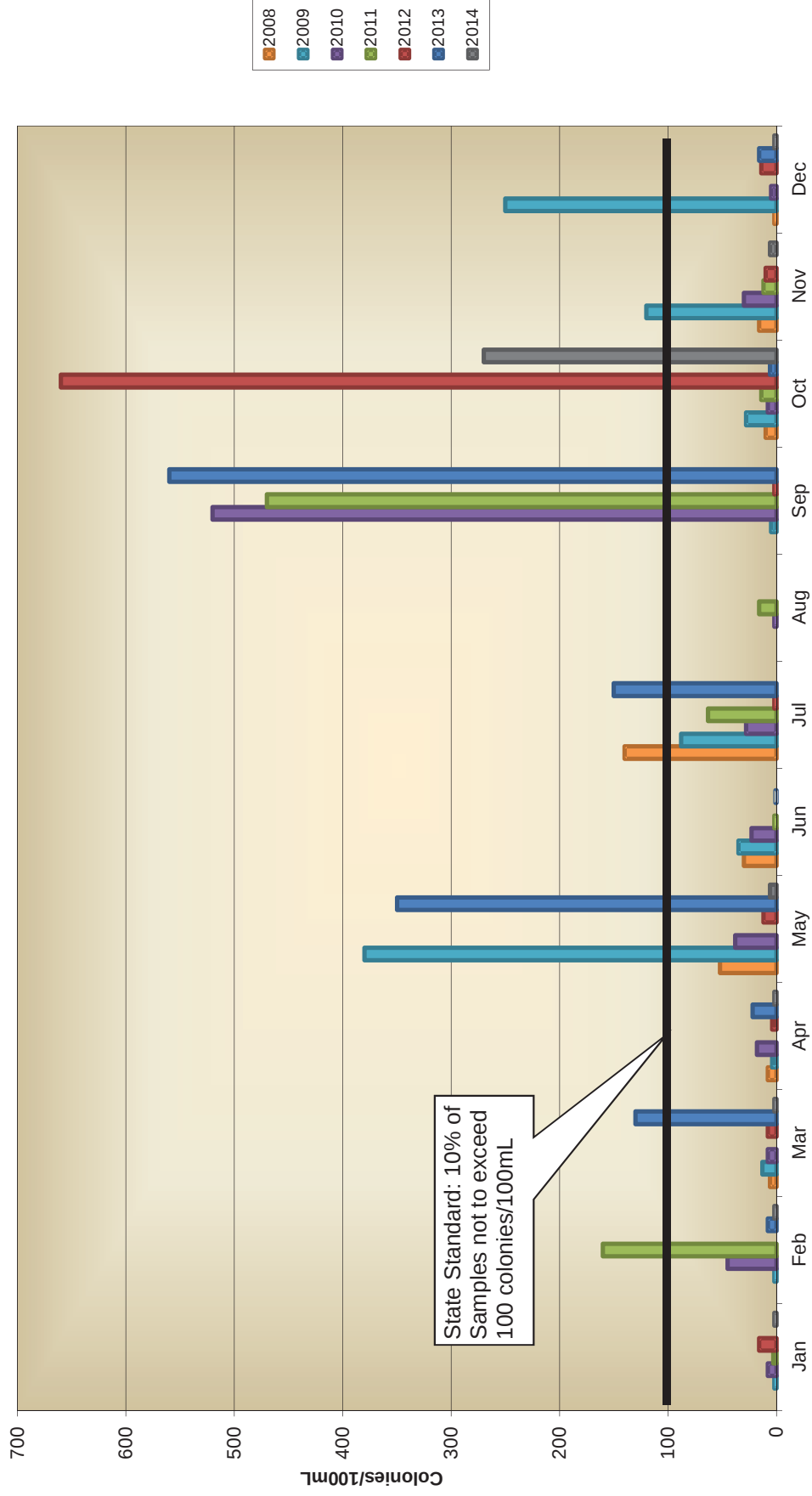
# Fecal Coliform Monitoring SNOH3 - Weaver Rd.



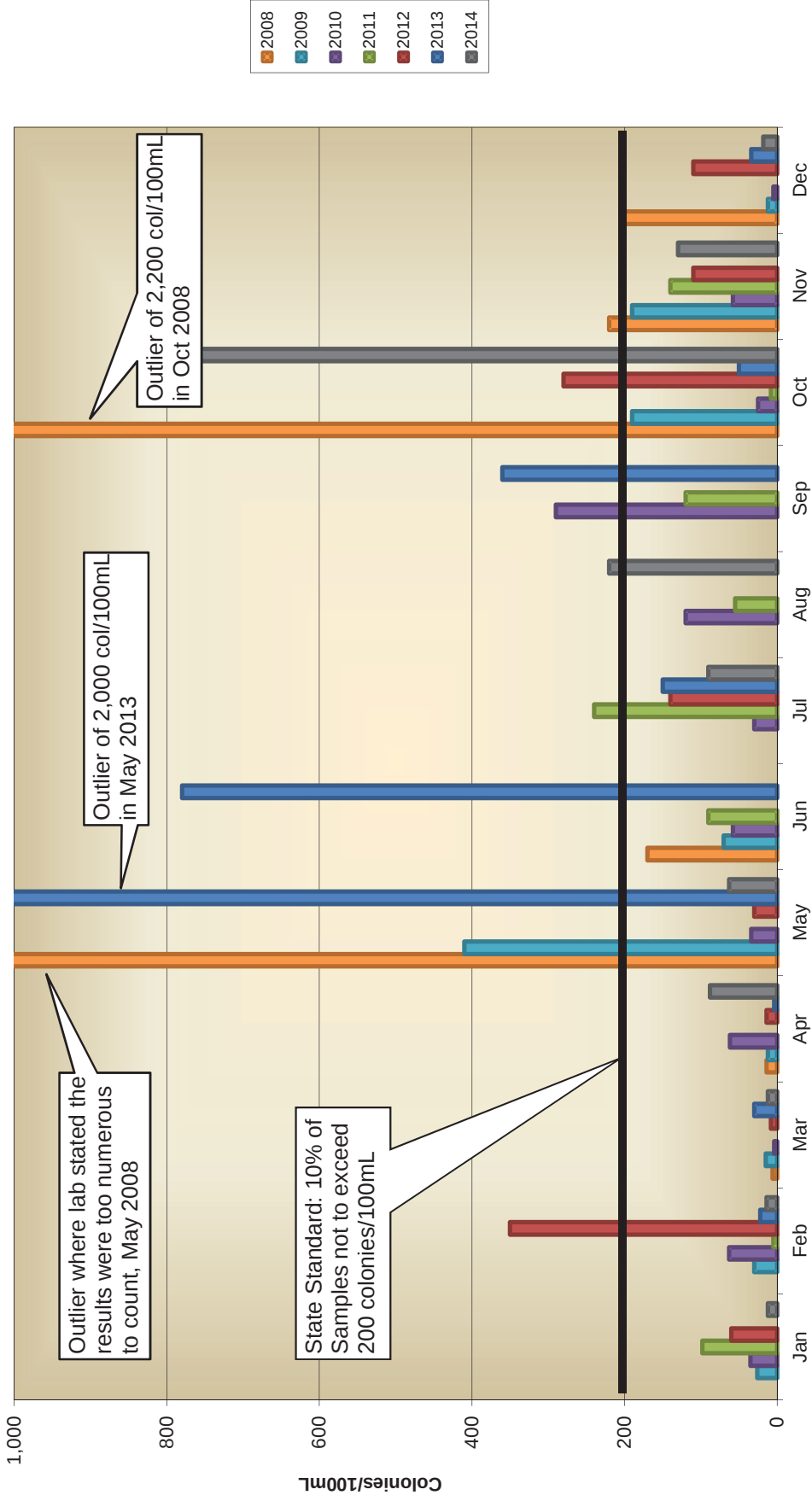
# Fecal Coliform Monitoring SNOH4 - 72nd St. SE



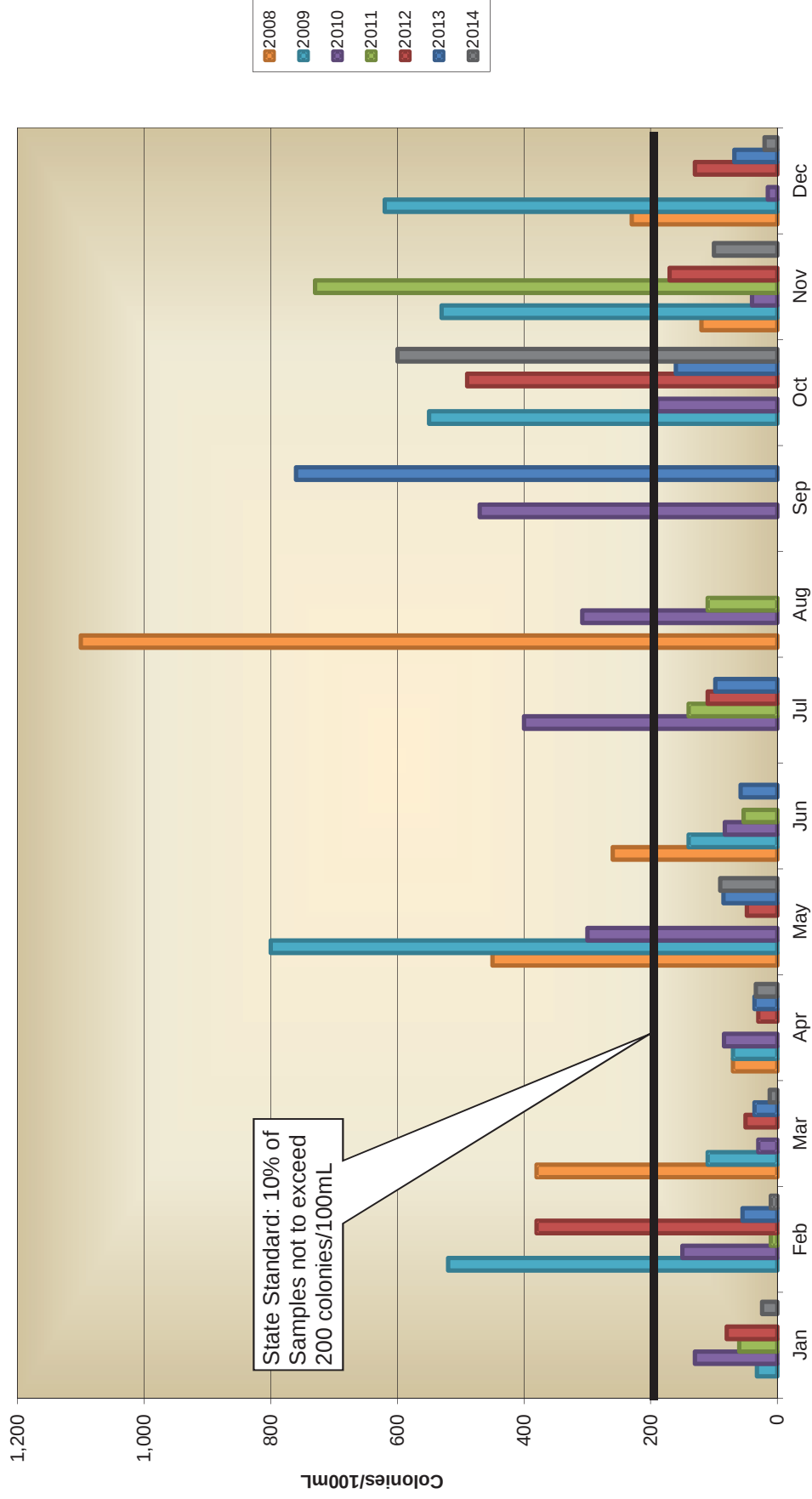
# Fecal Coliform Monitoring SNOH5 - 64th St. SE



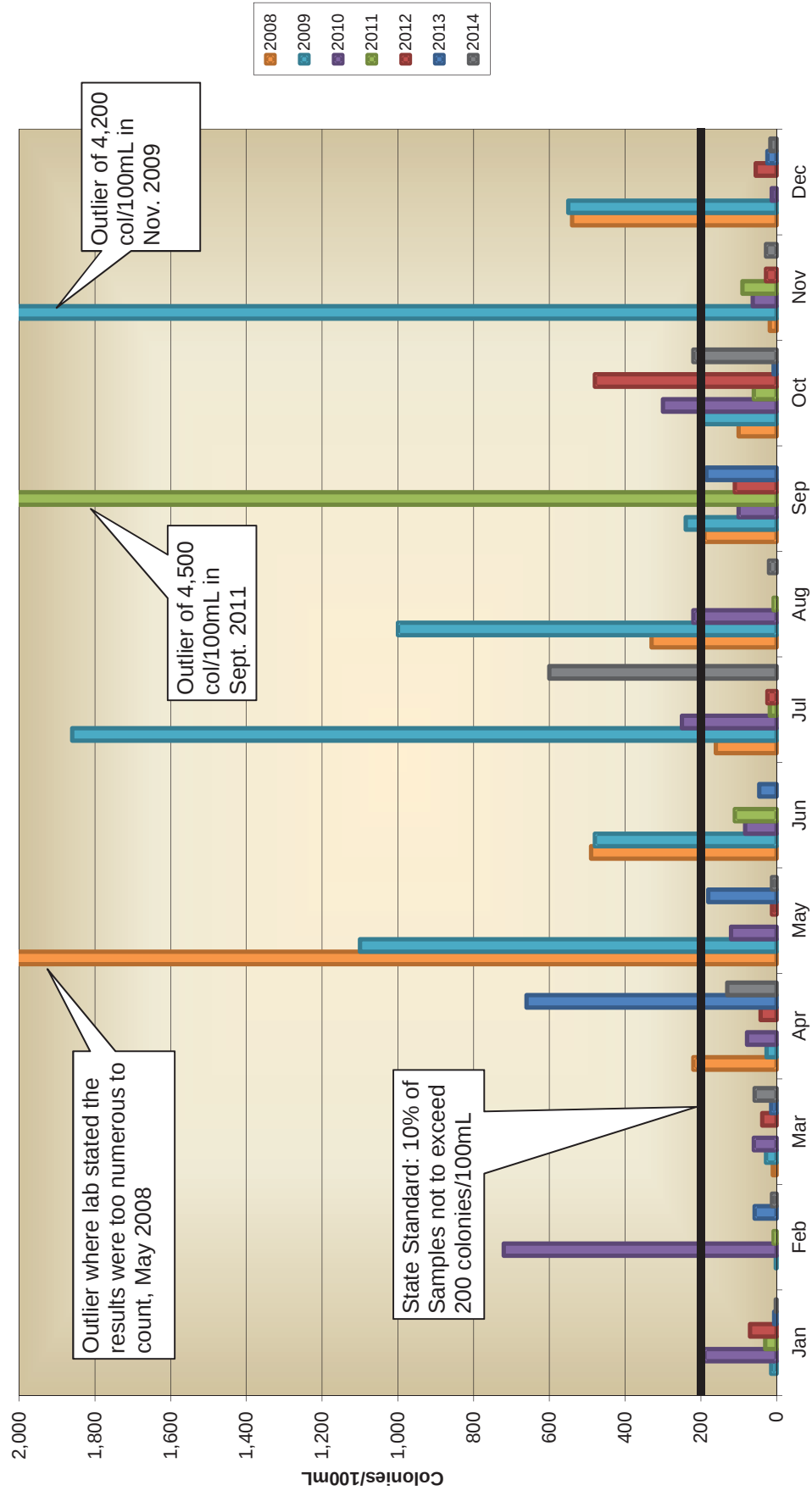
## Fecal Coliform Monitoring



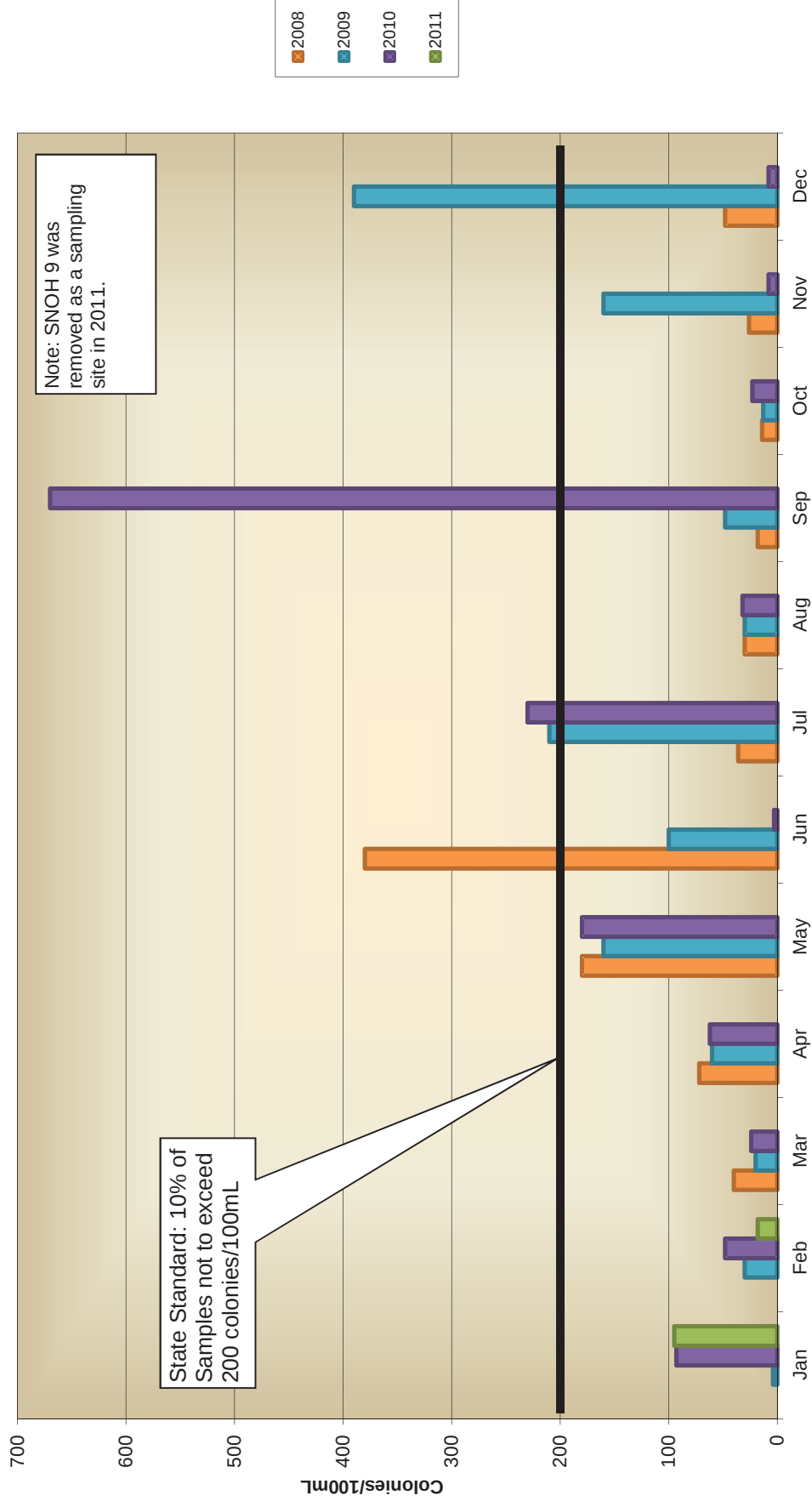
# Fecal Coliform Monitoring SNOH7 - E. of Ave. A



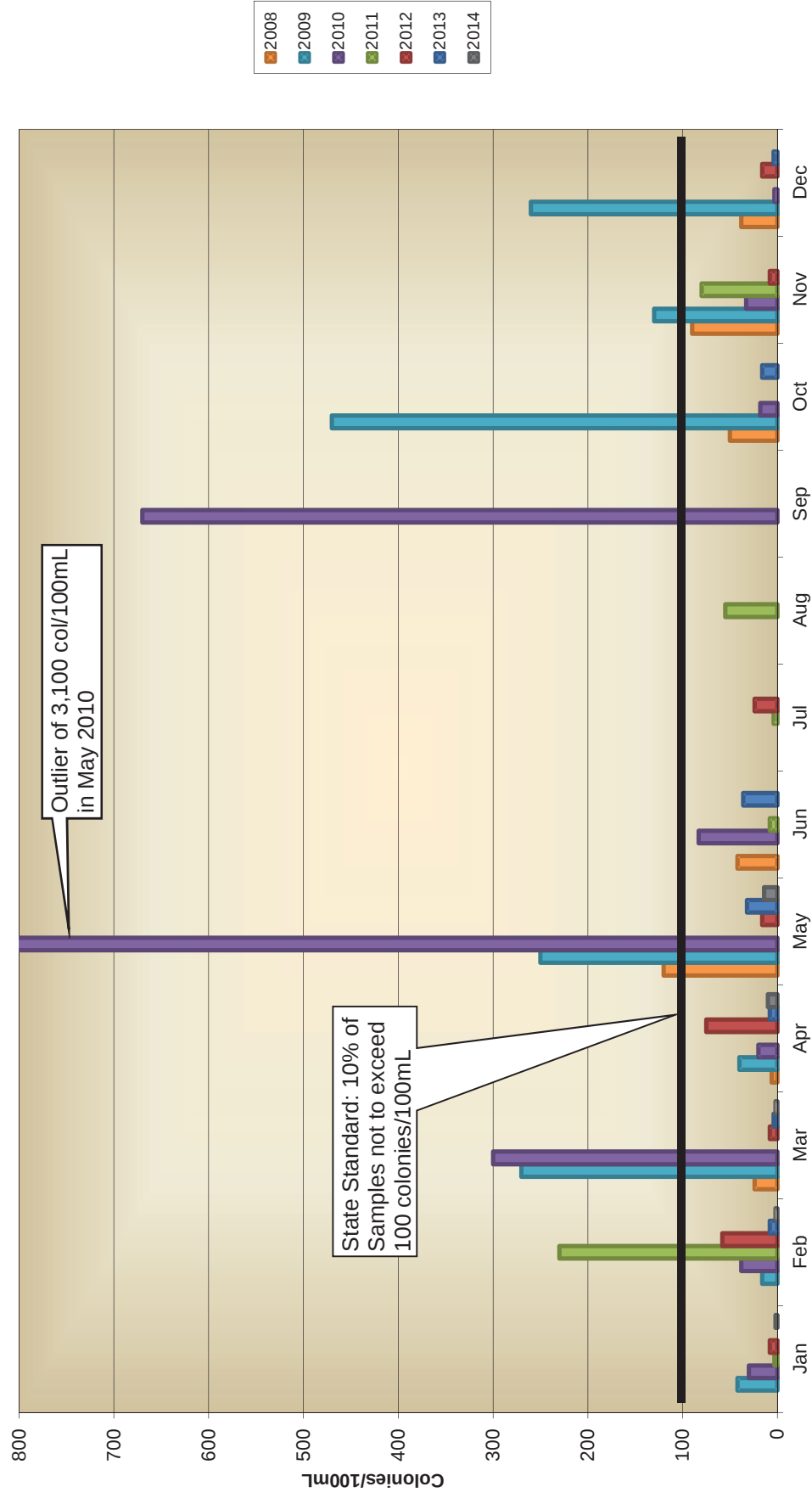
## Fecal Coliform Monitoring SNOH8 - Cady Park



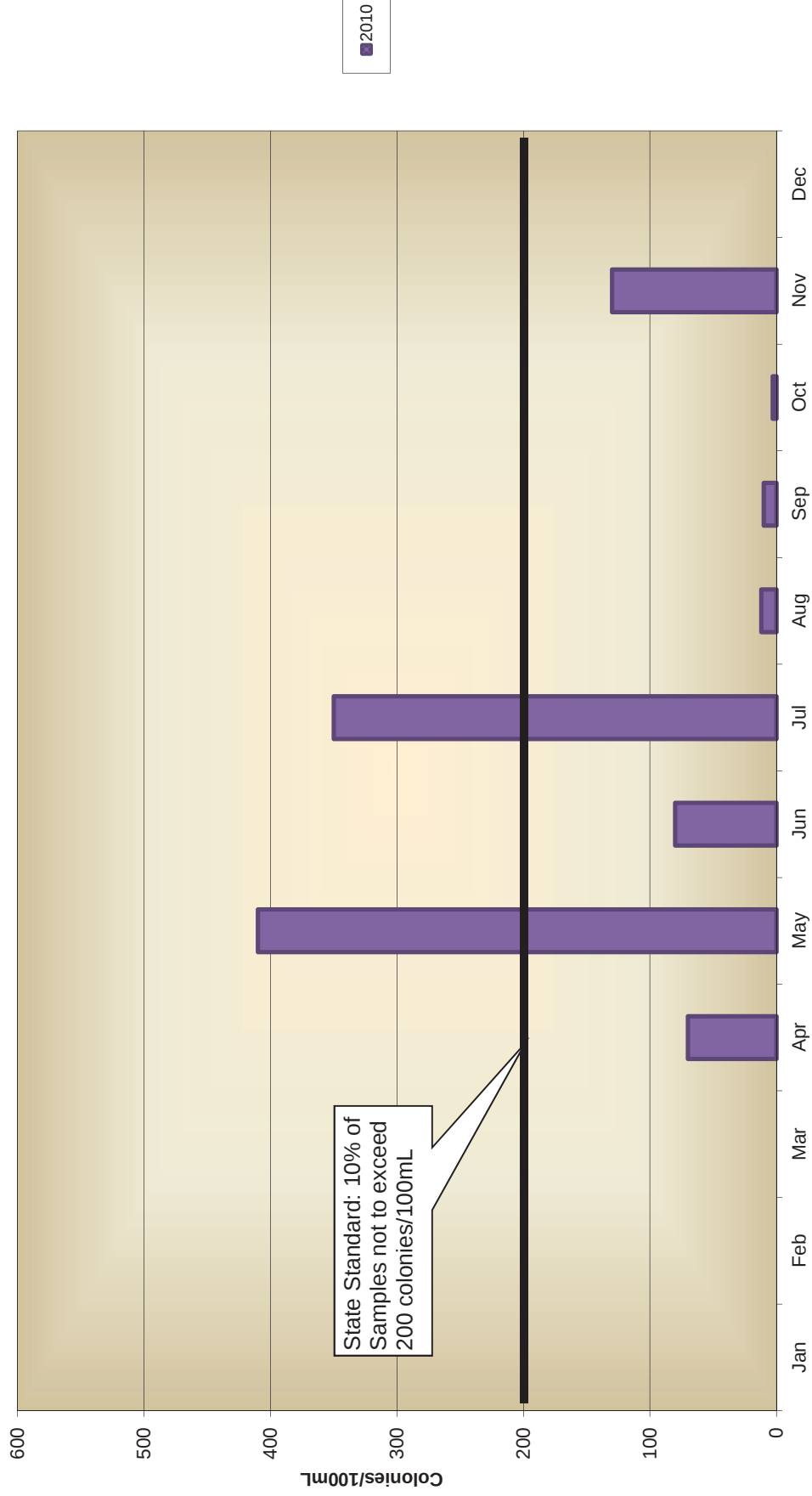
# Fecal Coliform Monitoring SNOH9 - North of Riverview



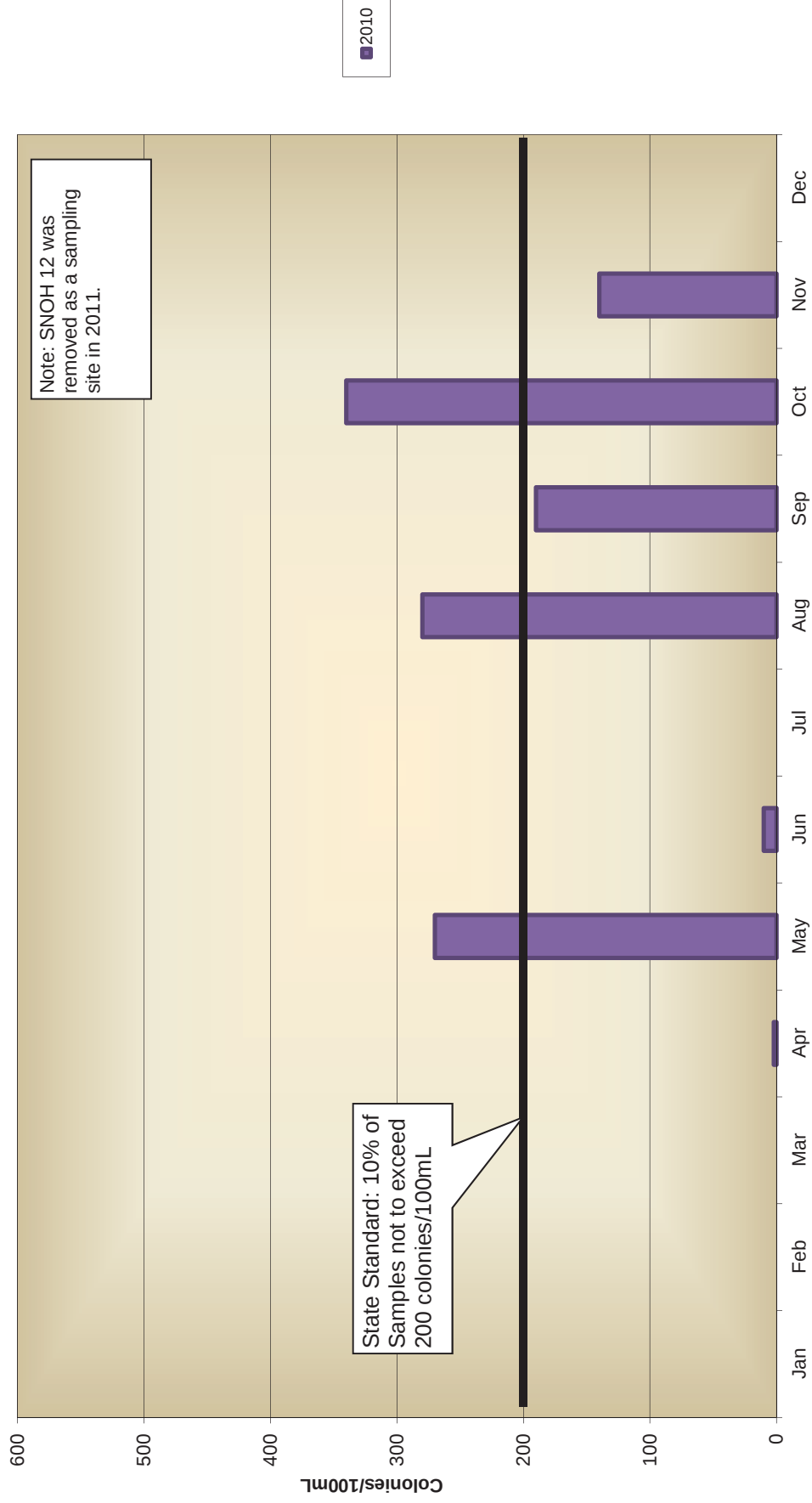
**Fecal Coliform Monitoring**  
**SNOH10 - South End of Lakecrest Dr.**



**Fecal Coliform Monitoring  
SNOH11 - Upper Swifty Creek**

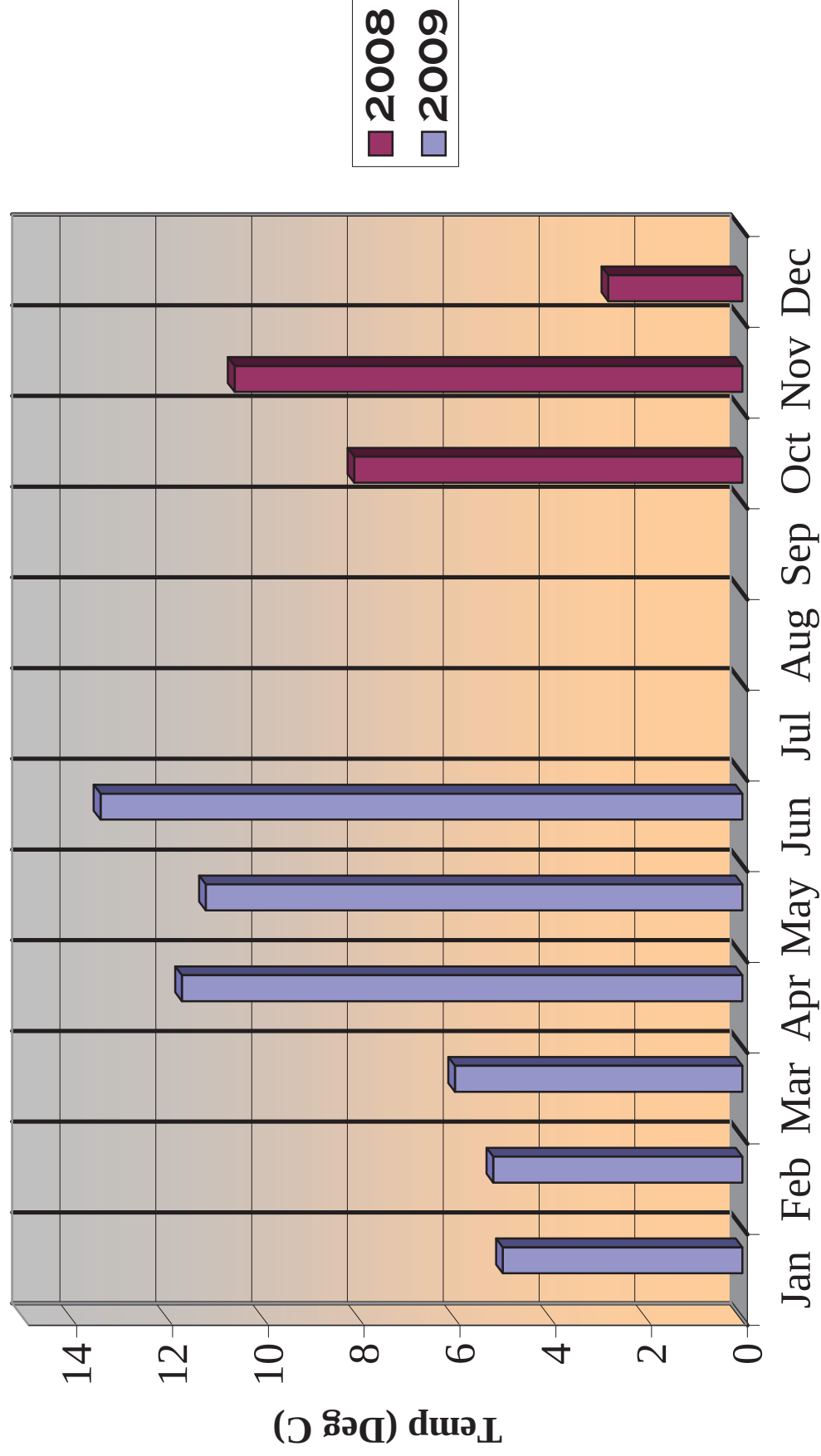


**Fecal Coliform Monitoring  
SNOH12 - Lower Swifty Creek**

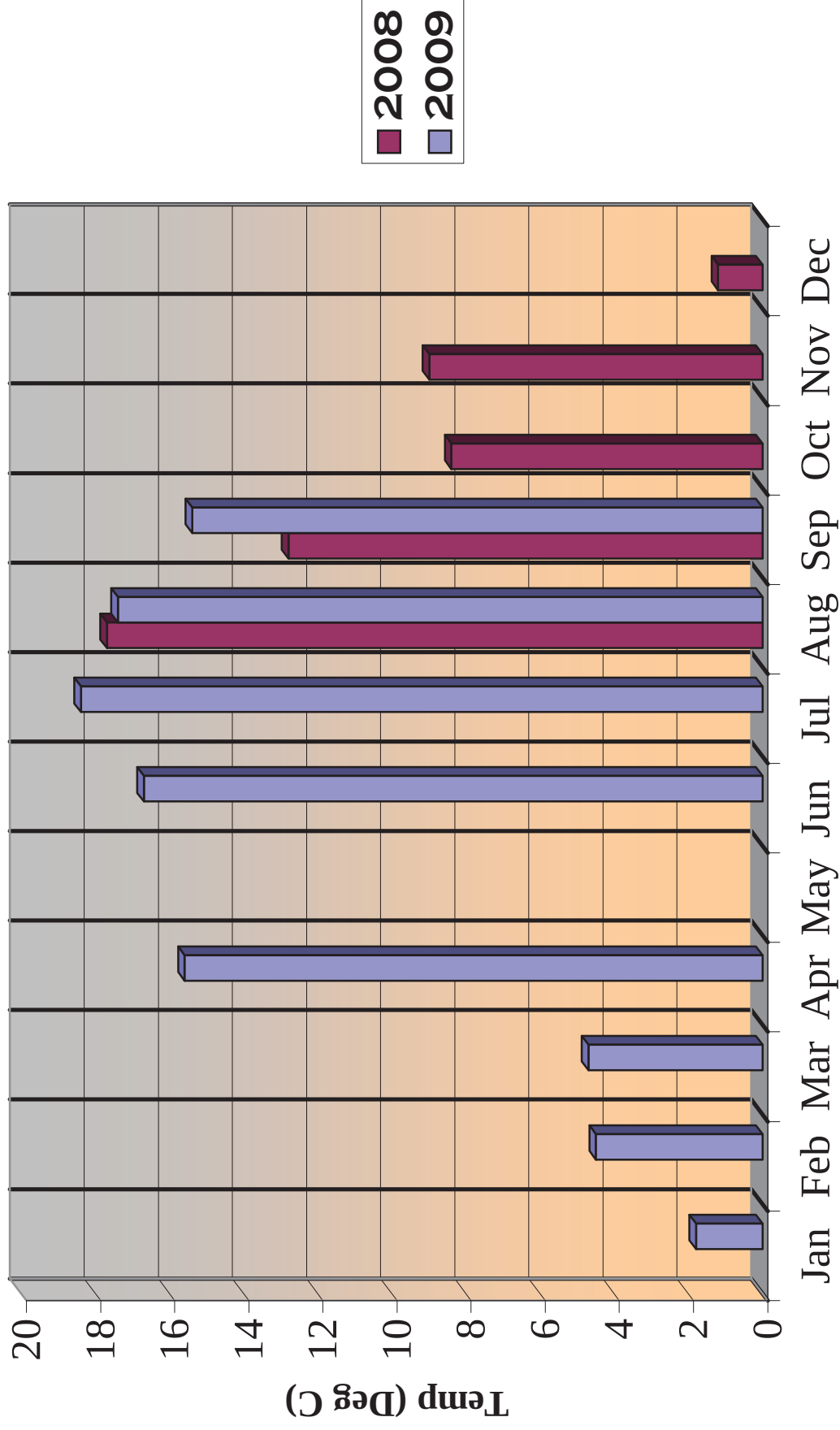


**TEMPERATURE  
GRAPHS  
(2008-2010)**

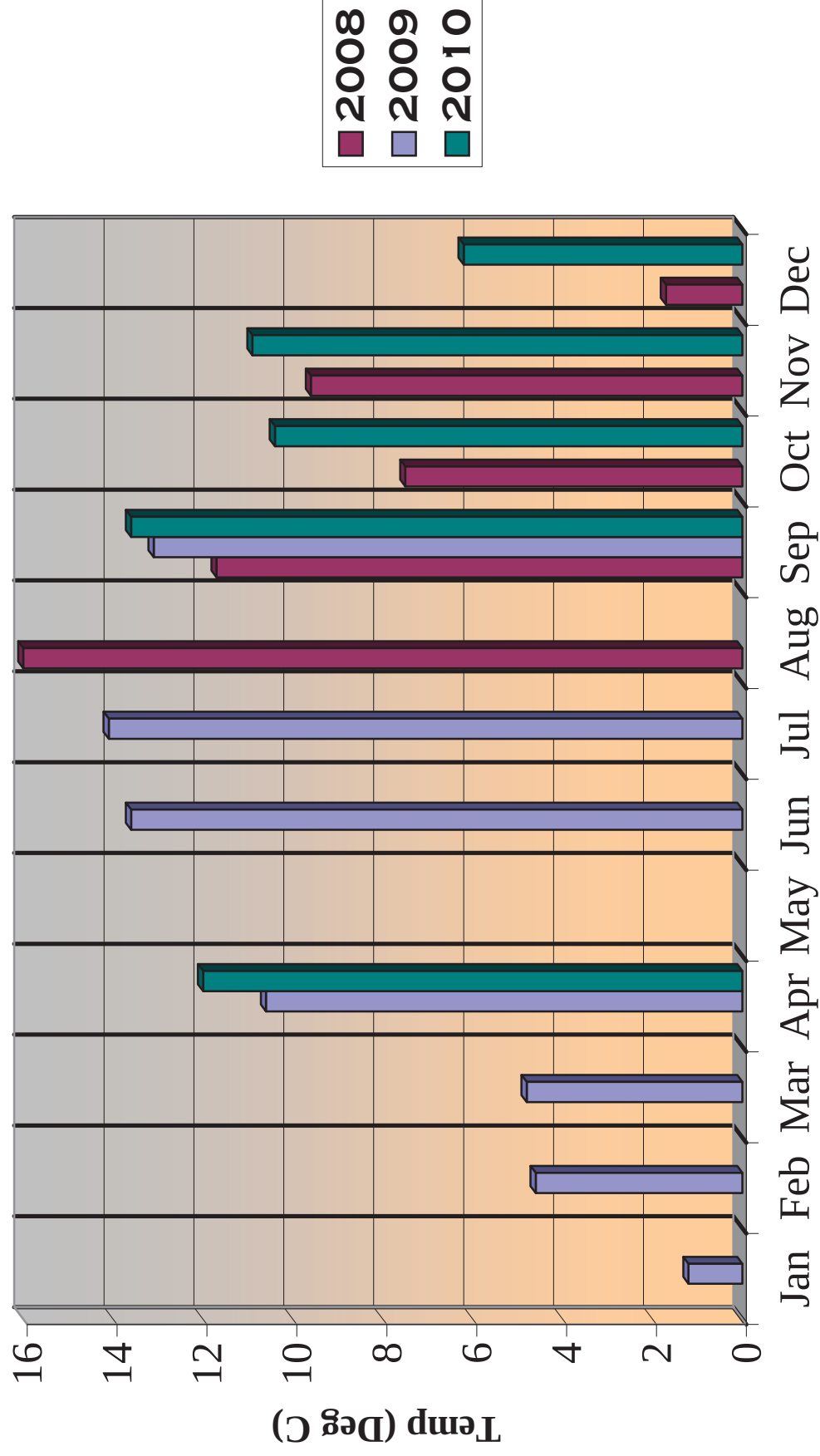
## Temperature for SNOH1 - Fobes Rd.



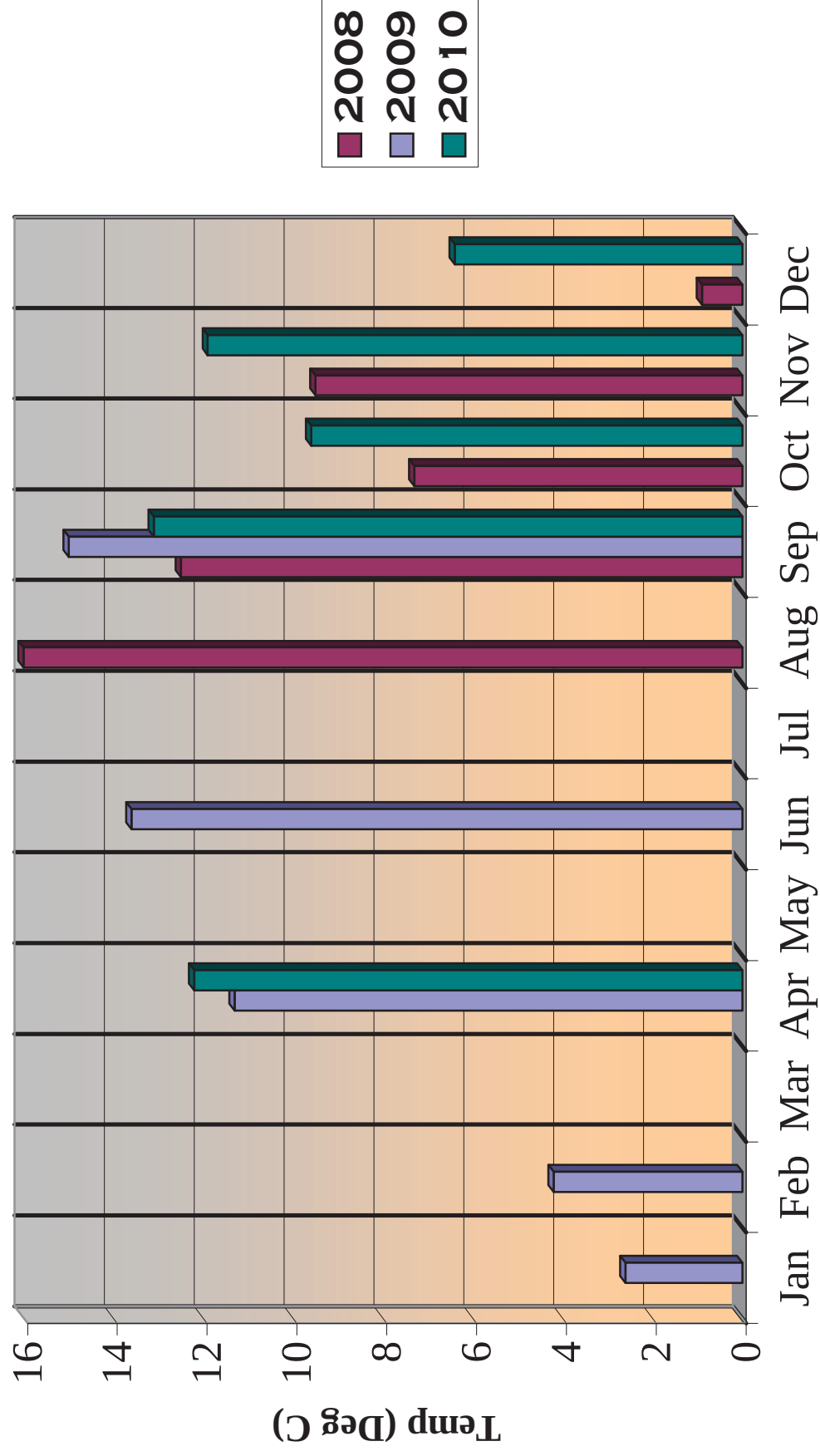
## Temperature for SNOH2 - Near SR 2, East of 52nd



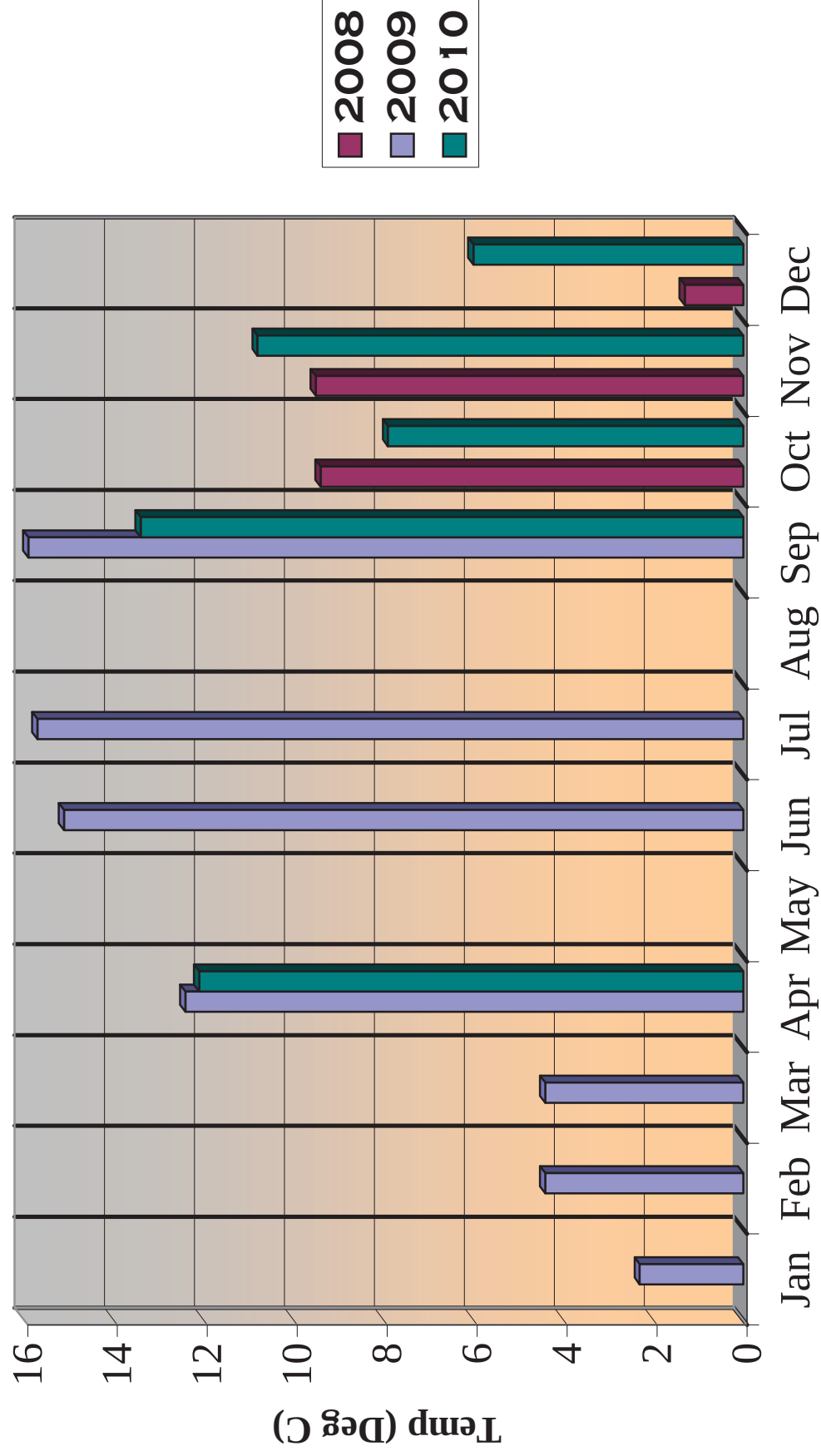
## Temperature for SNOH3 - Weaver Rd.



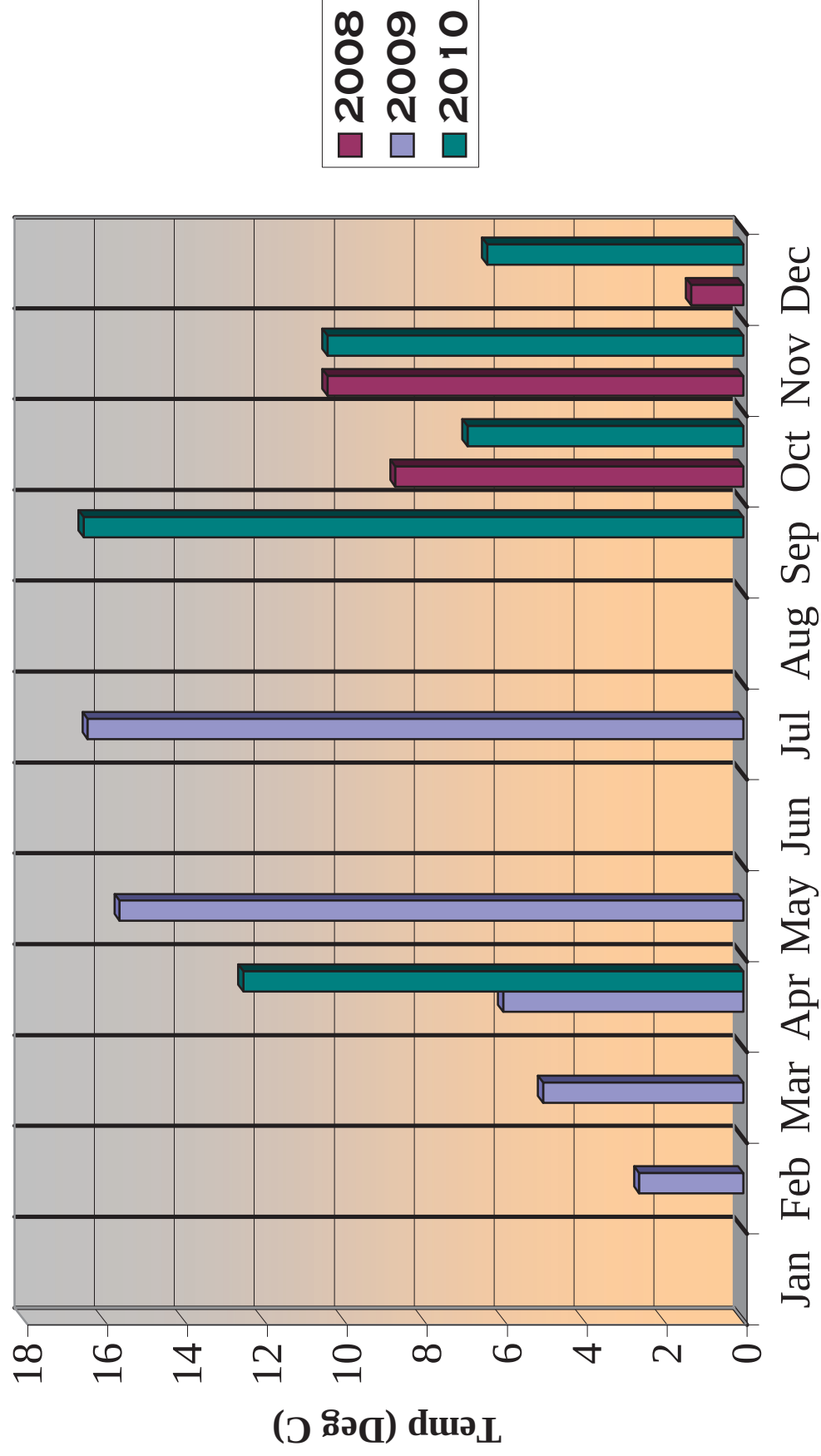
## Temperature for SNOH4 - 72nd St. SE



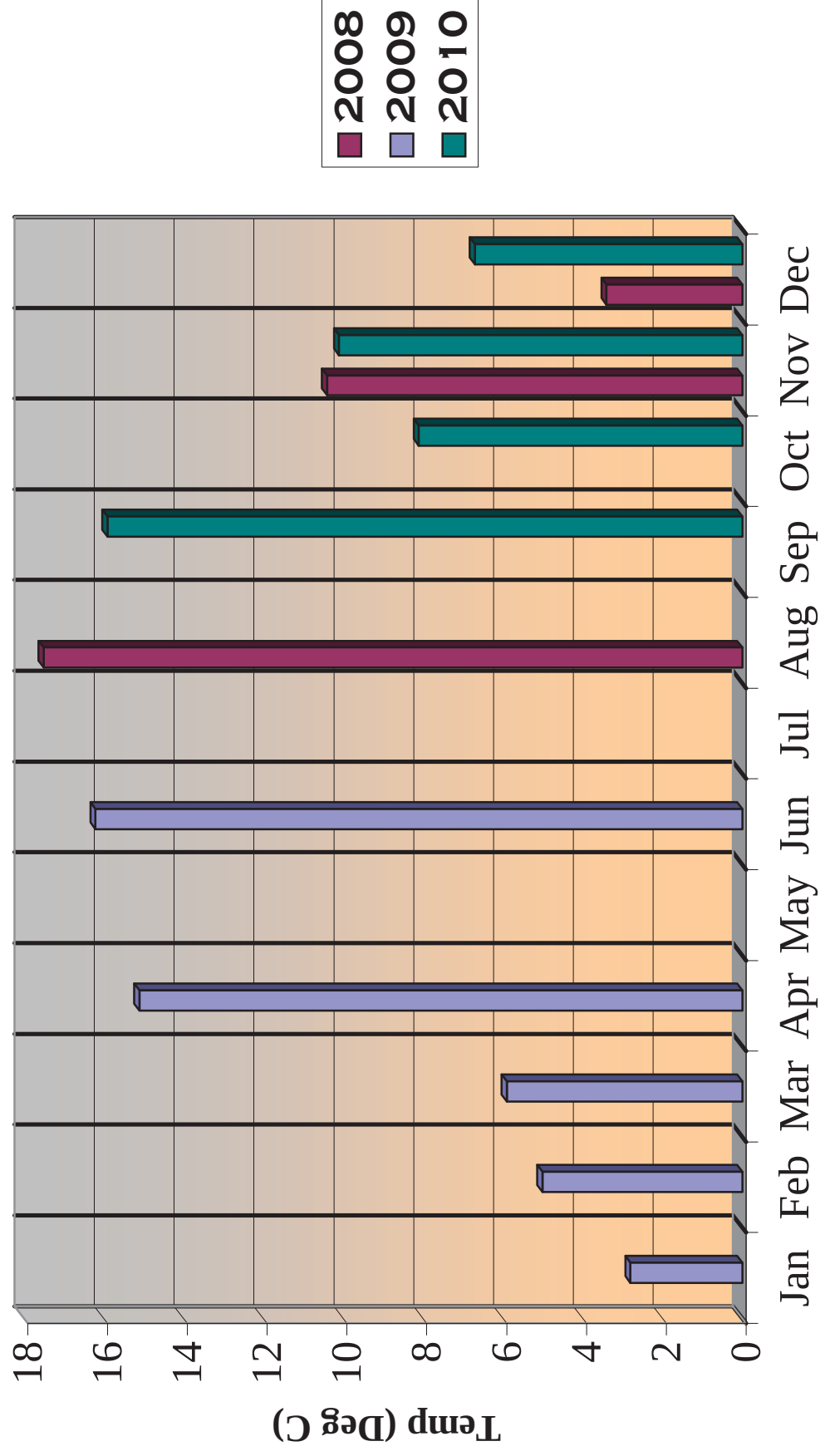
## Temperature for SNOH5 - 64th St. SE



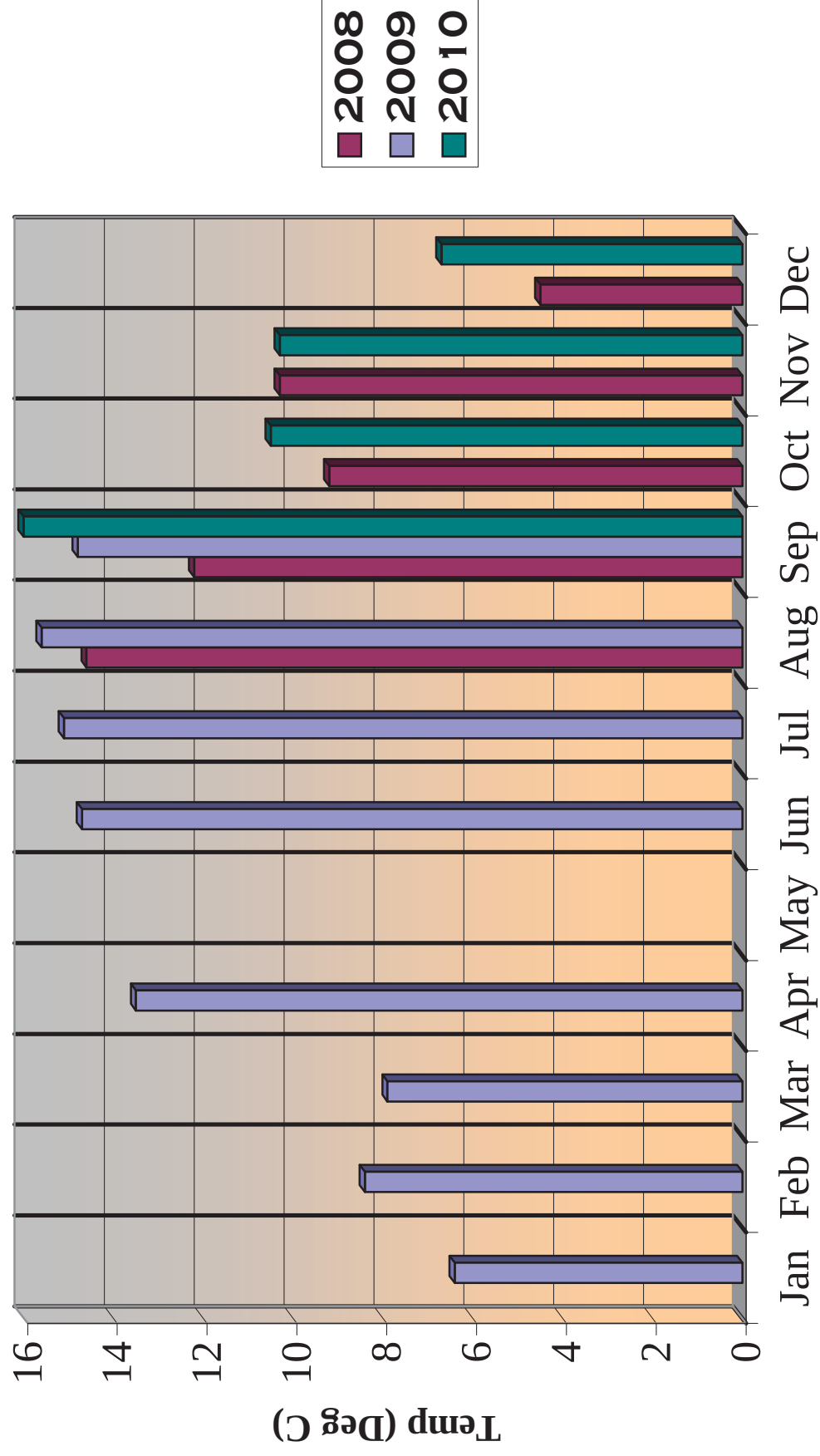
## Temperature for SNOH6 - 13th St.



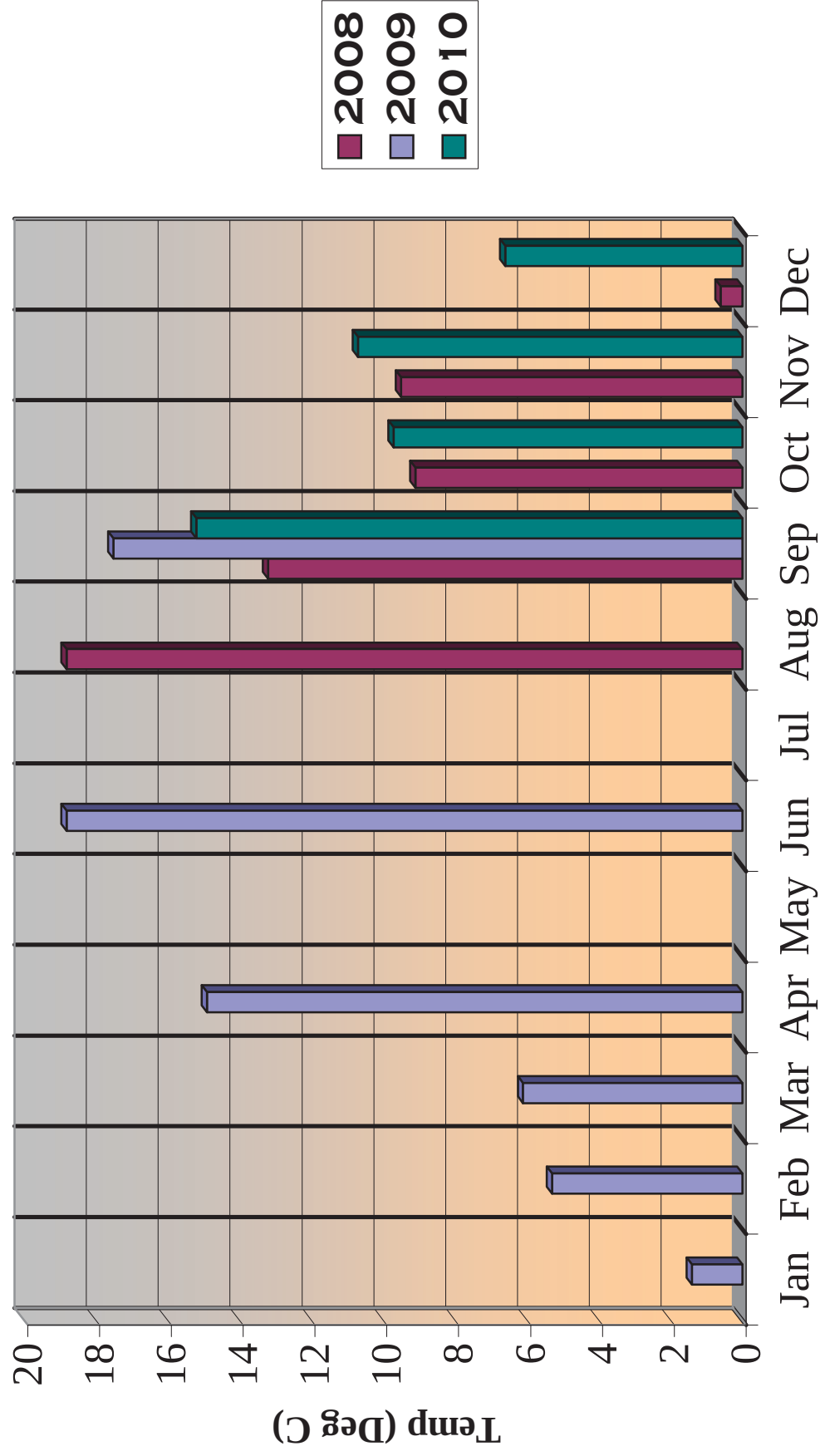
## Temperature for SNOH7 - East of Ave. A



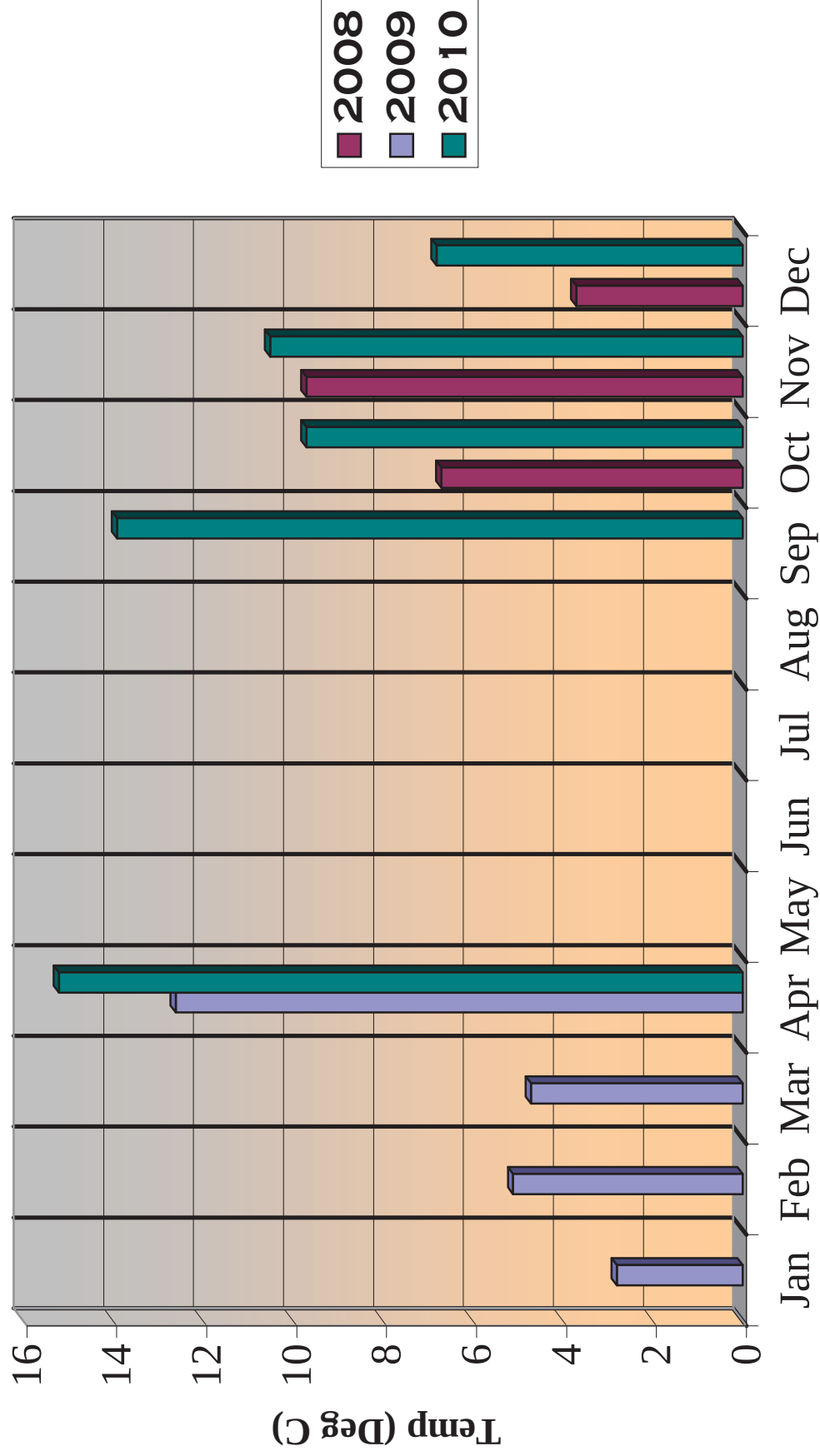
## Temperature for SNOH8 - Cady Park



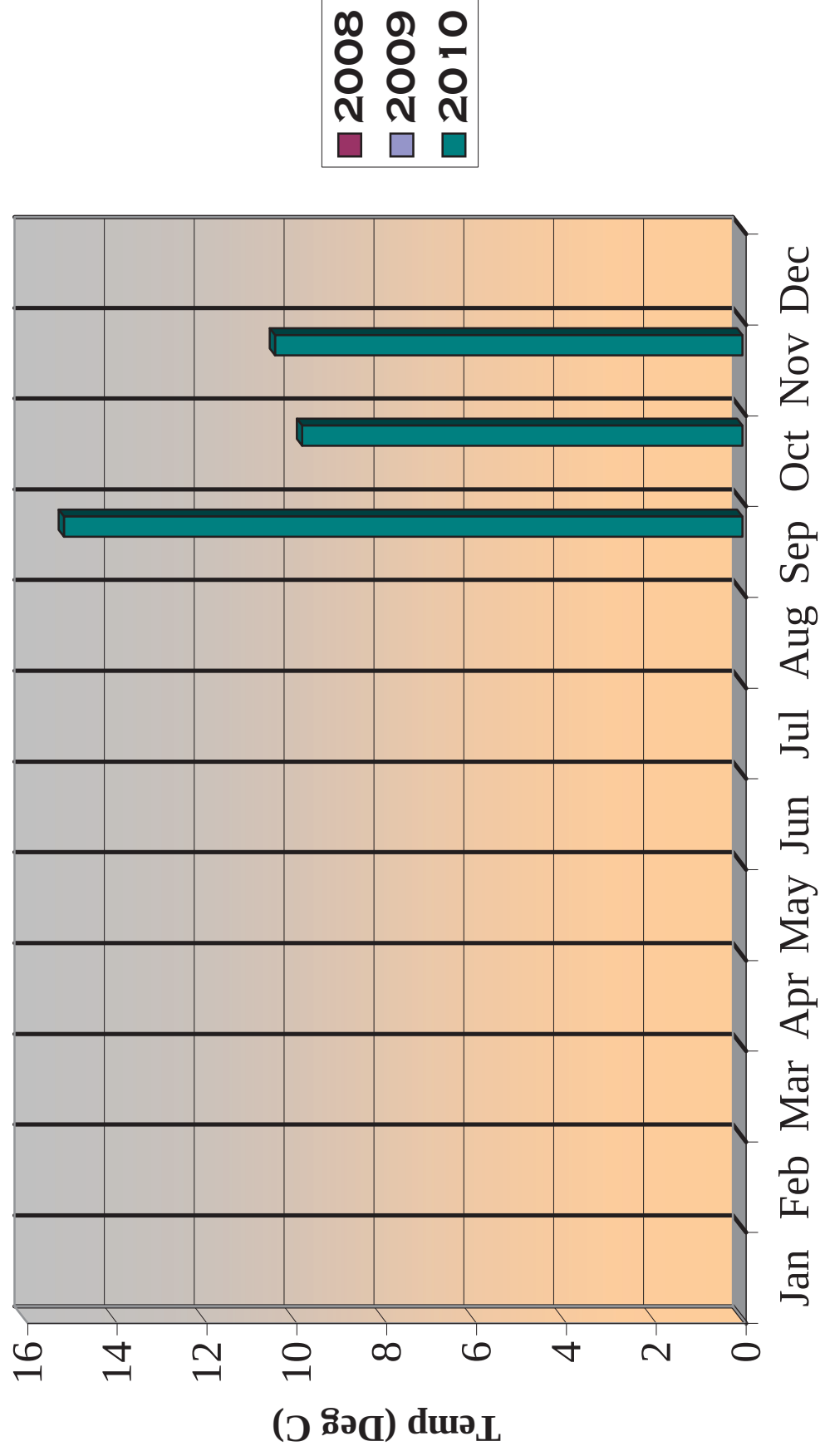
## Temperature for SNOH9 - North of Riverview



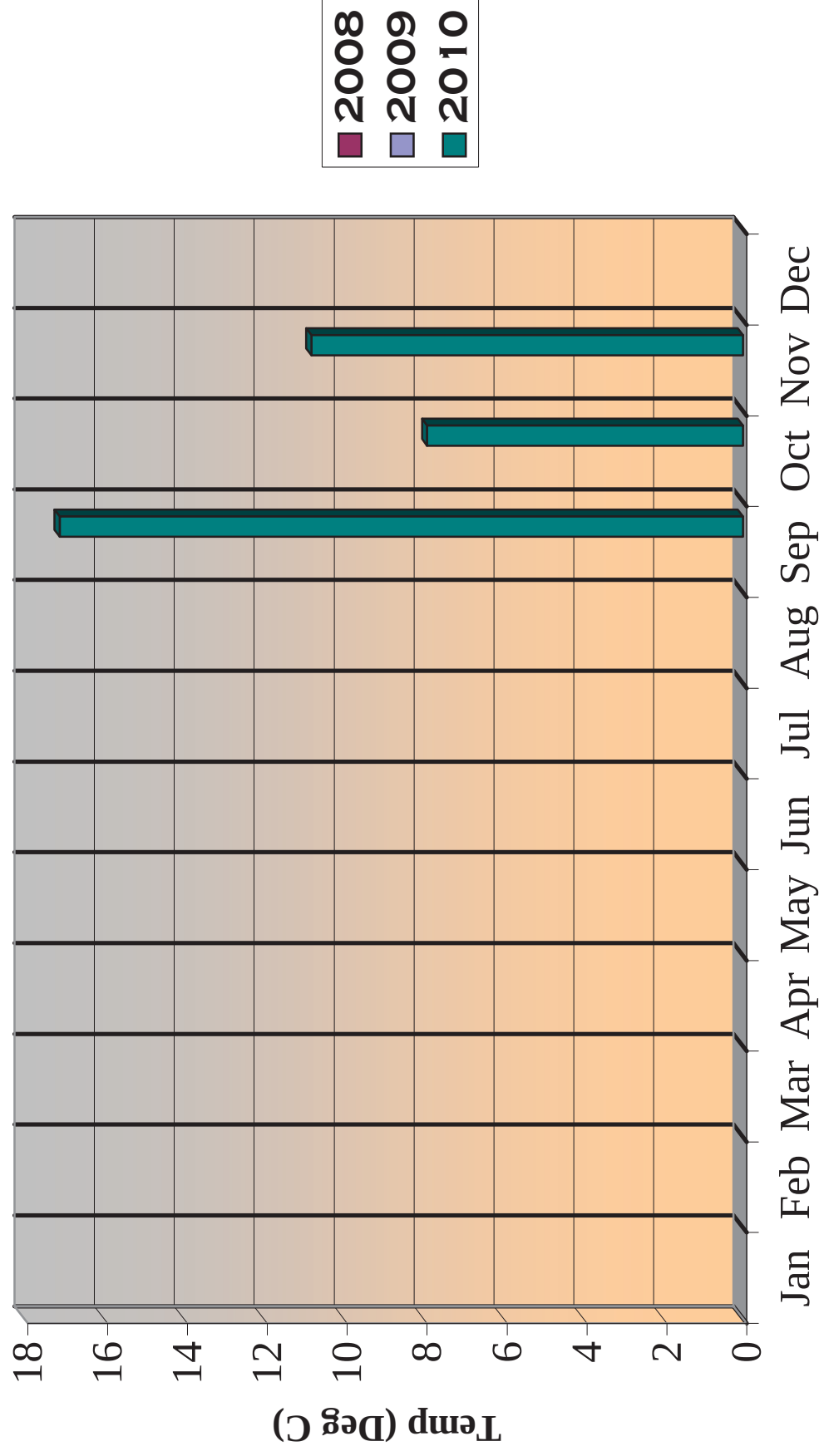
# Temperature for SNOH10 South End of Lakecrest Dr.



## Temperature for SNOH11 - Upper Swifty Creek

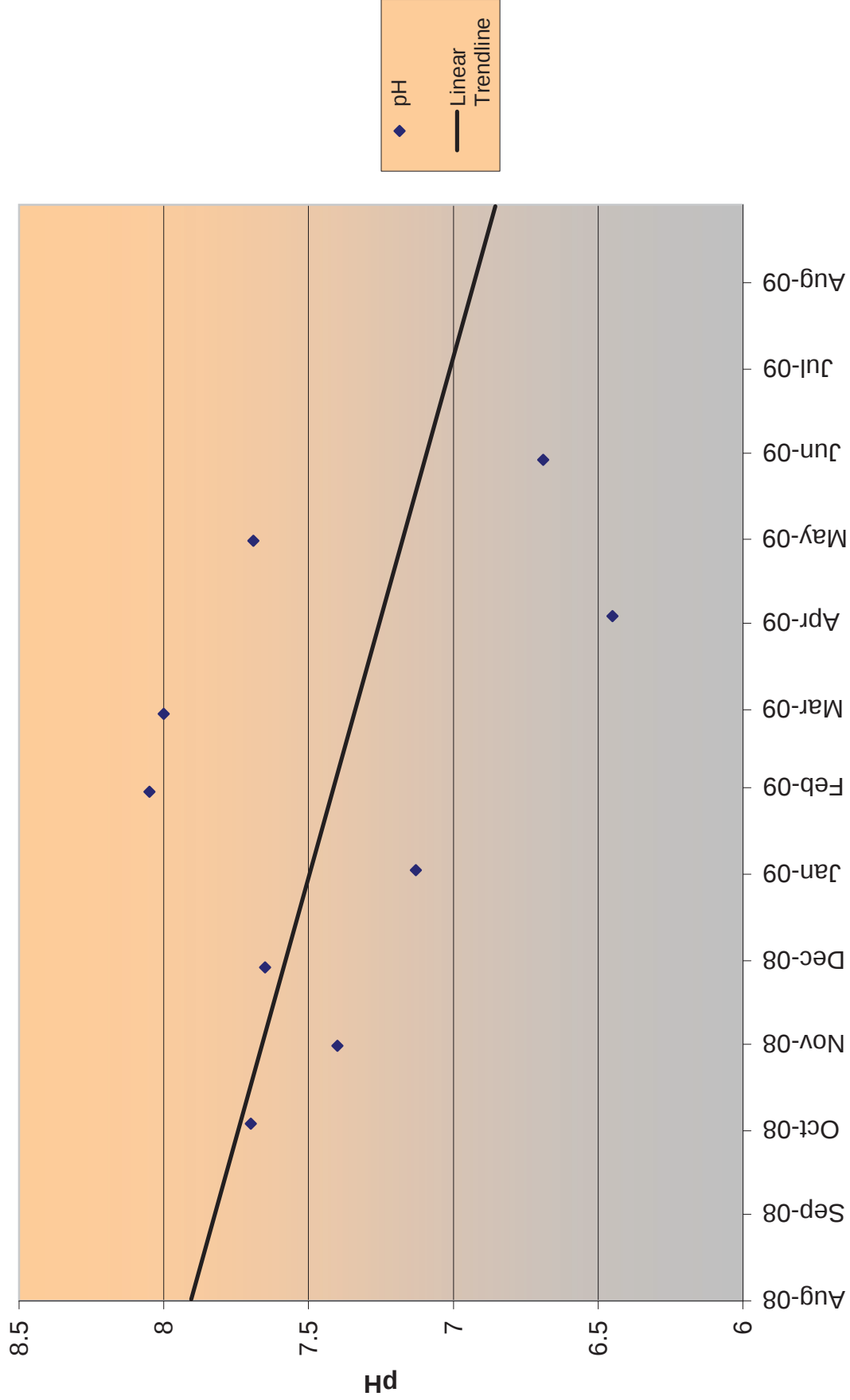


## Temperature for SNOH12 - Lower Swift Creek

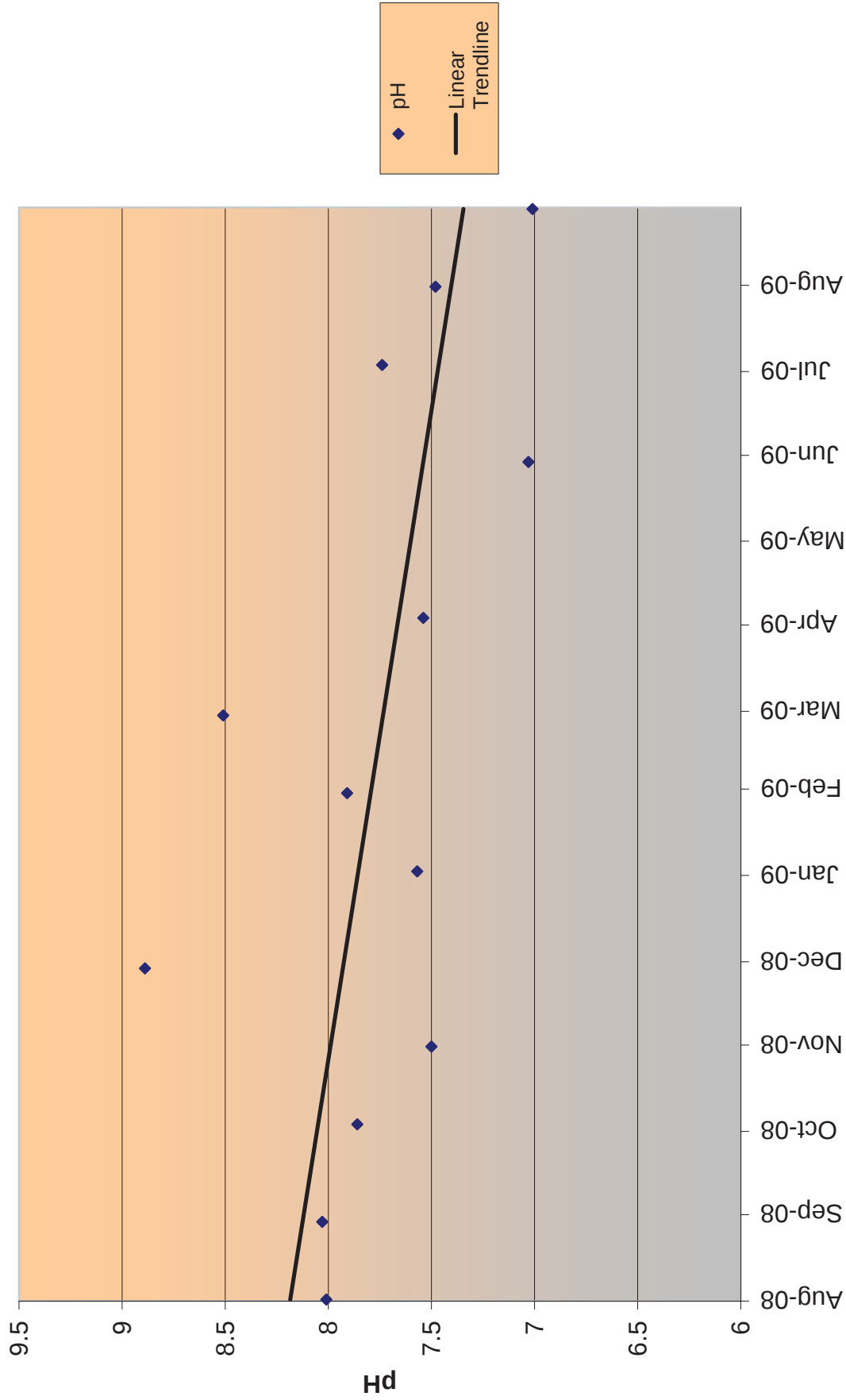


**PH  
GRAPHS  
(2008-2010)**

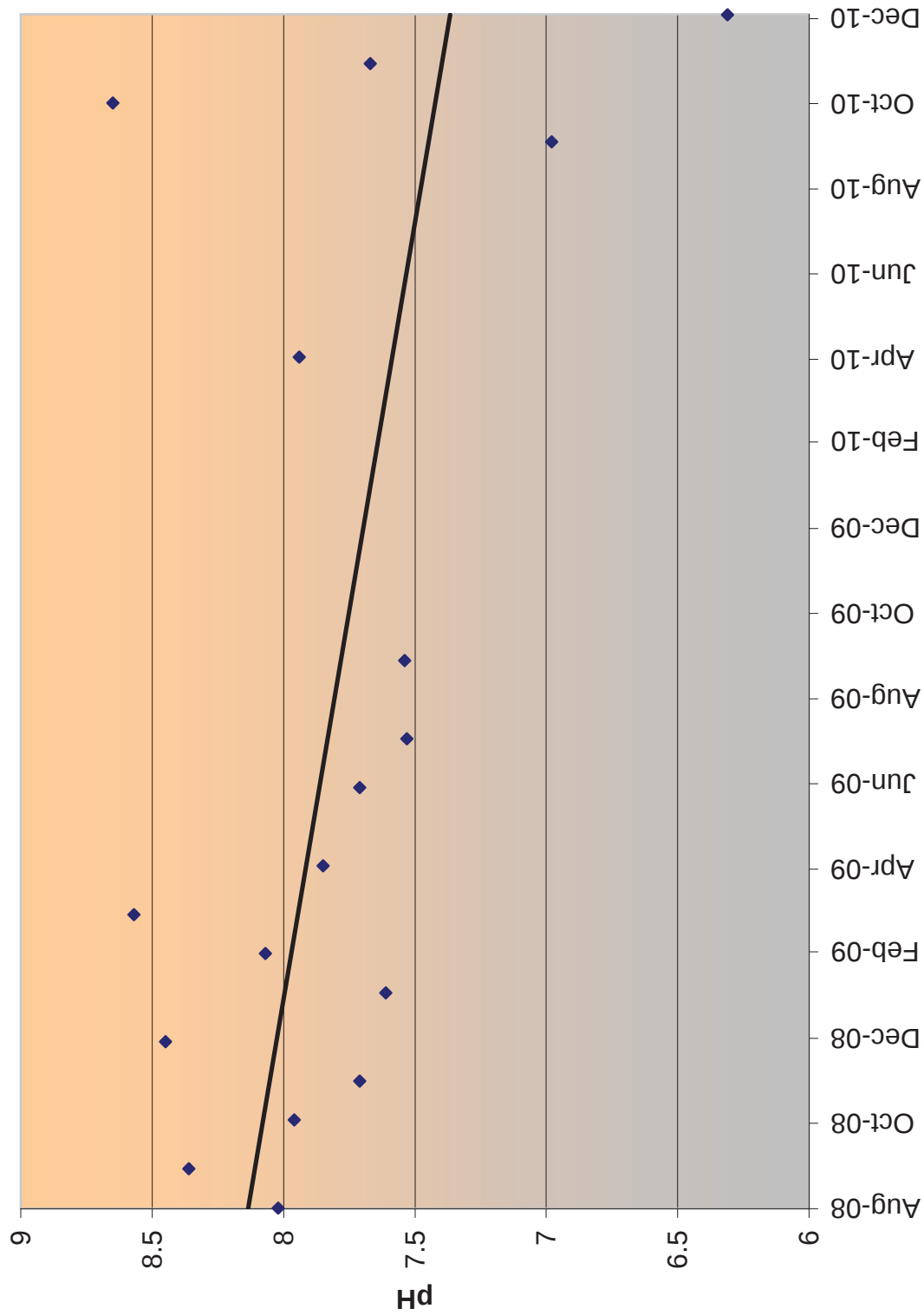
pH for SNOH1 - Fobes Rd.



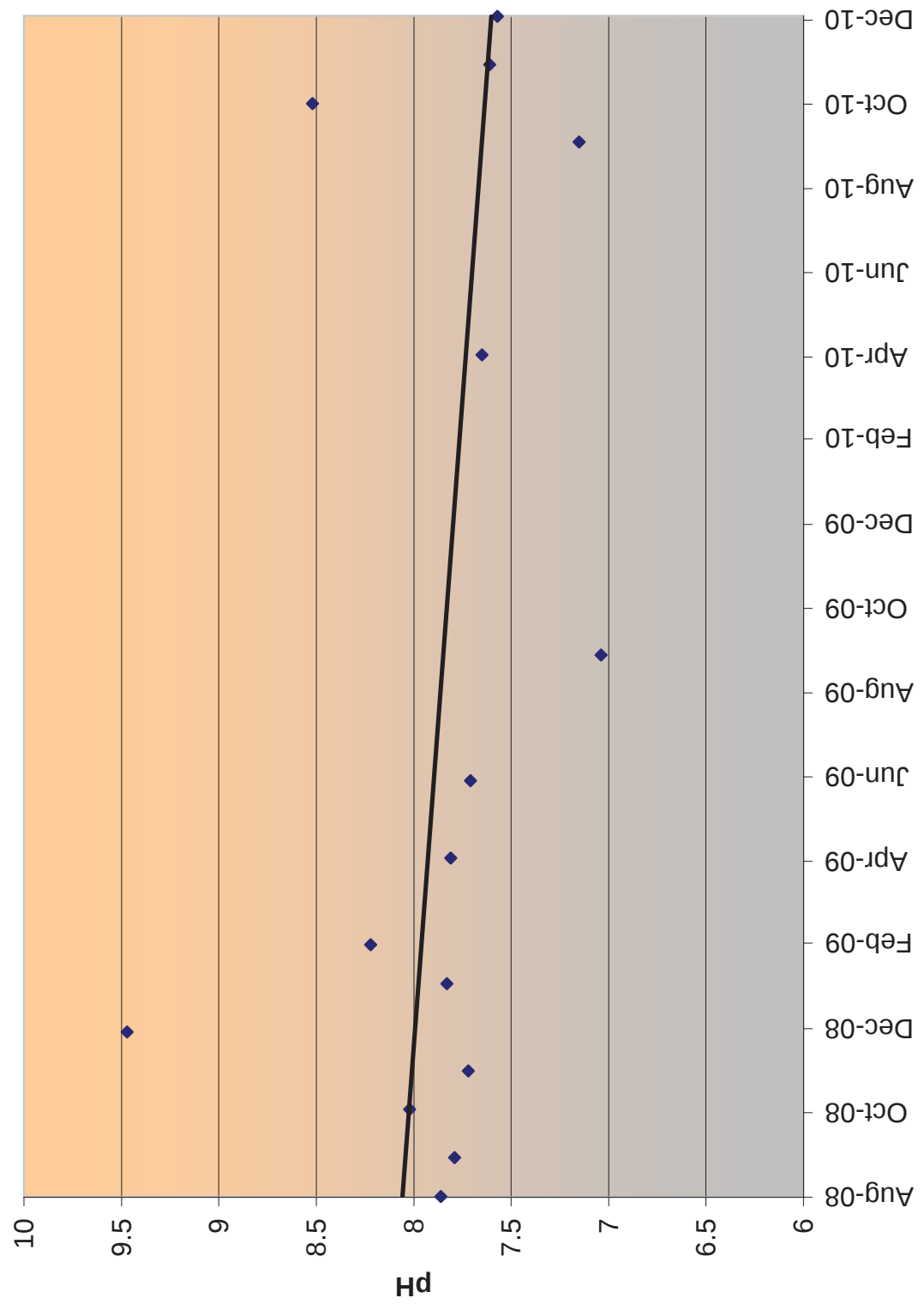
pH for SNOH2 - Near SR 2, East of 52nd



pH for SNOH3 - Weaver Rd.

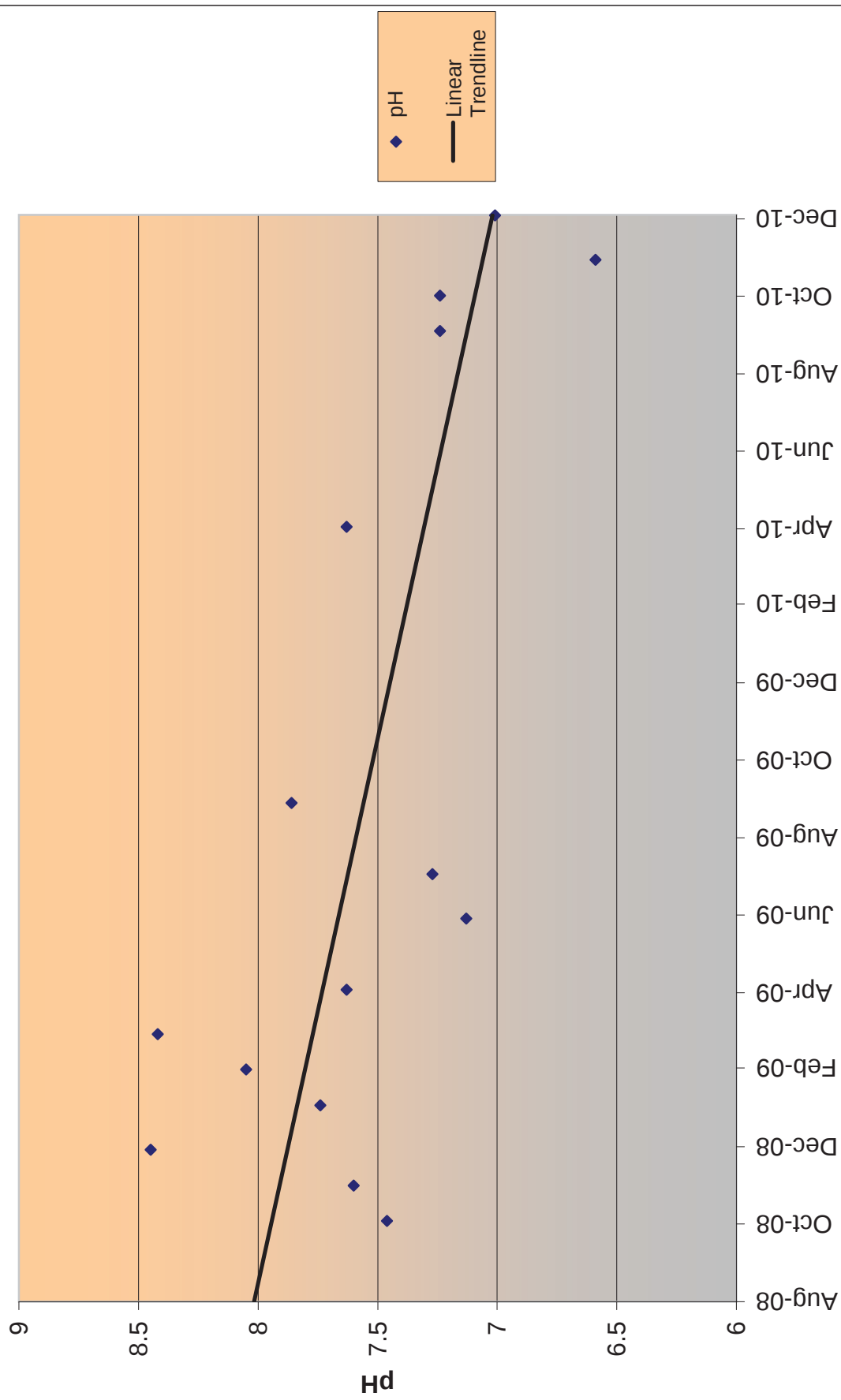


pH for SNOH4 - 72nd St. SE

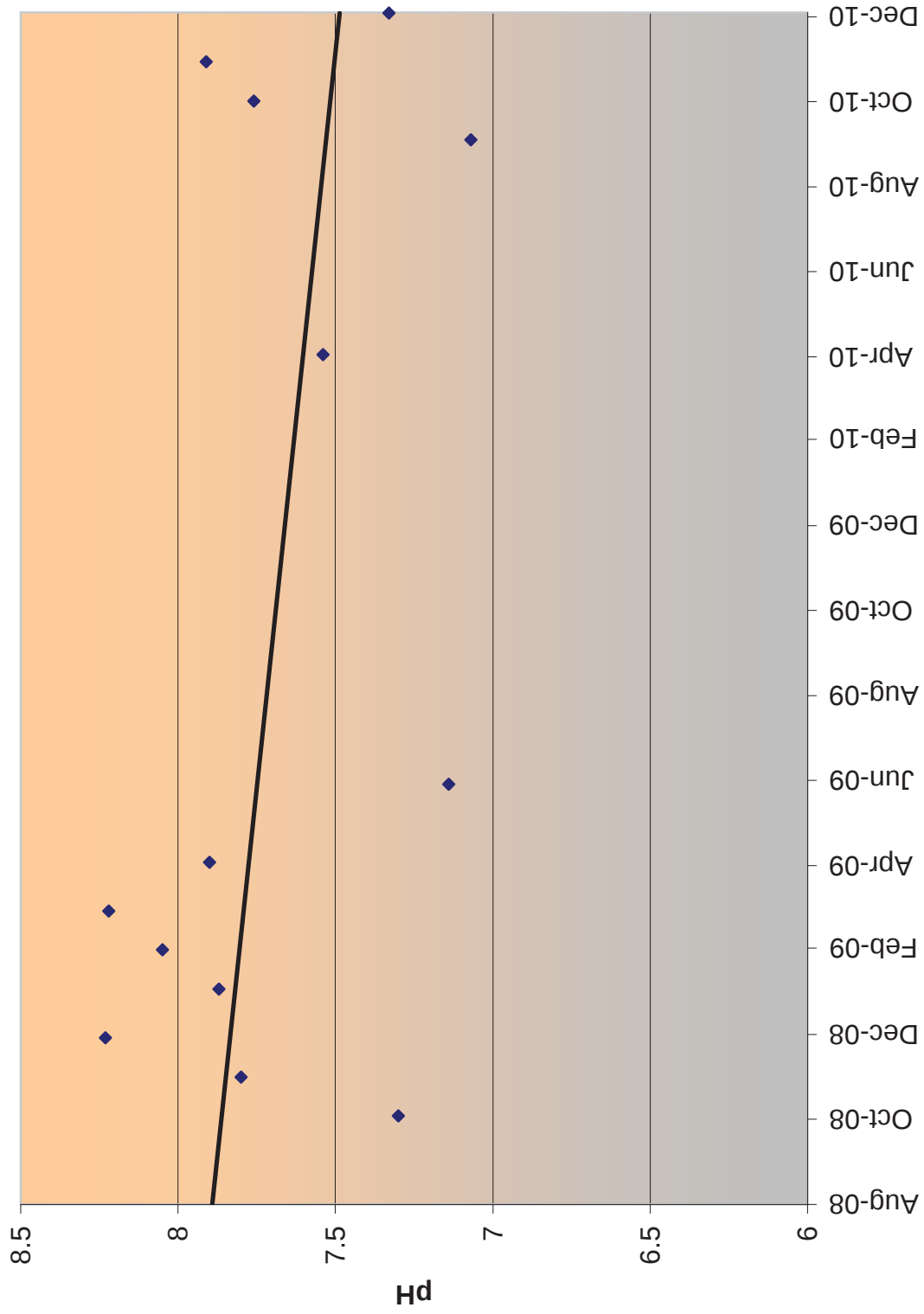


— pH  
— Linear Trendline

pH for SNOH5 - 64th St. SE



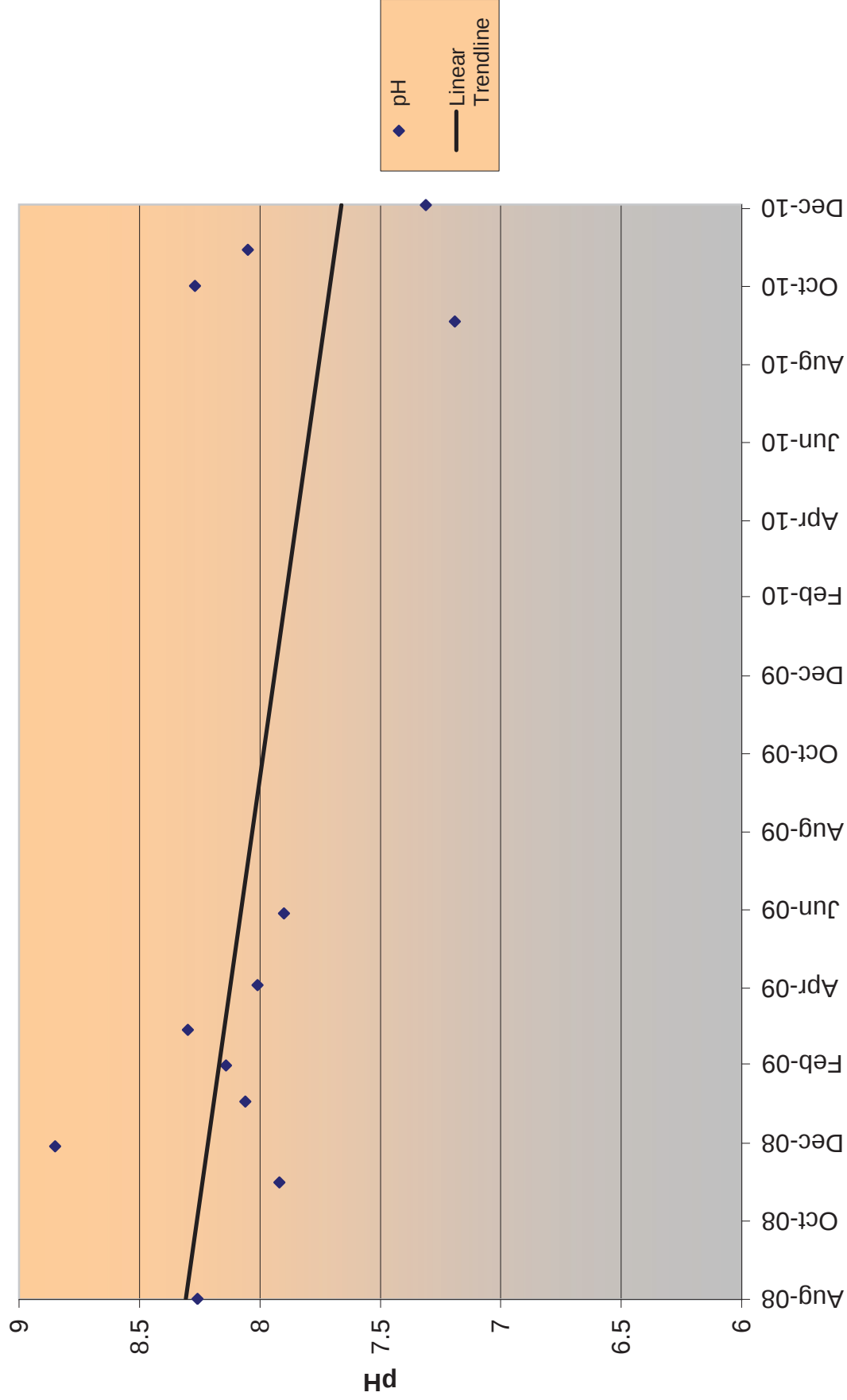
pH for SNOH6 - 13th St.



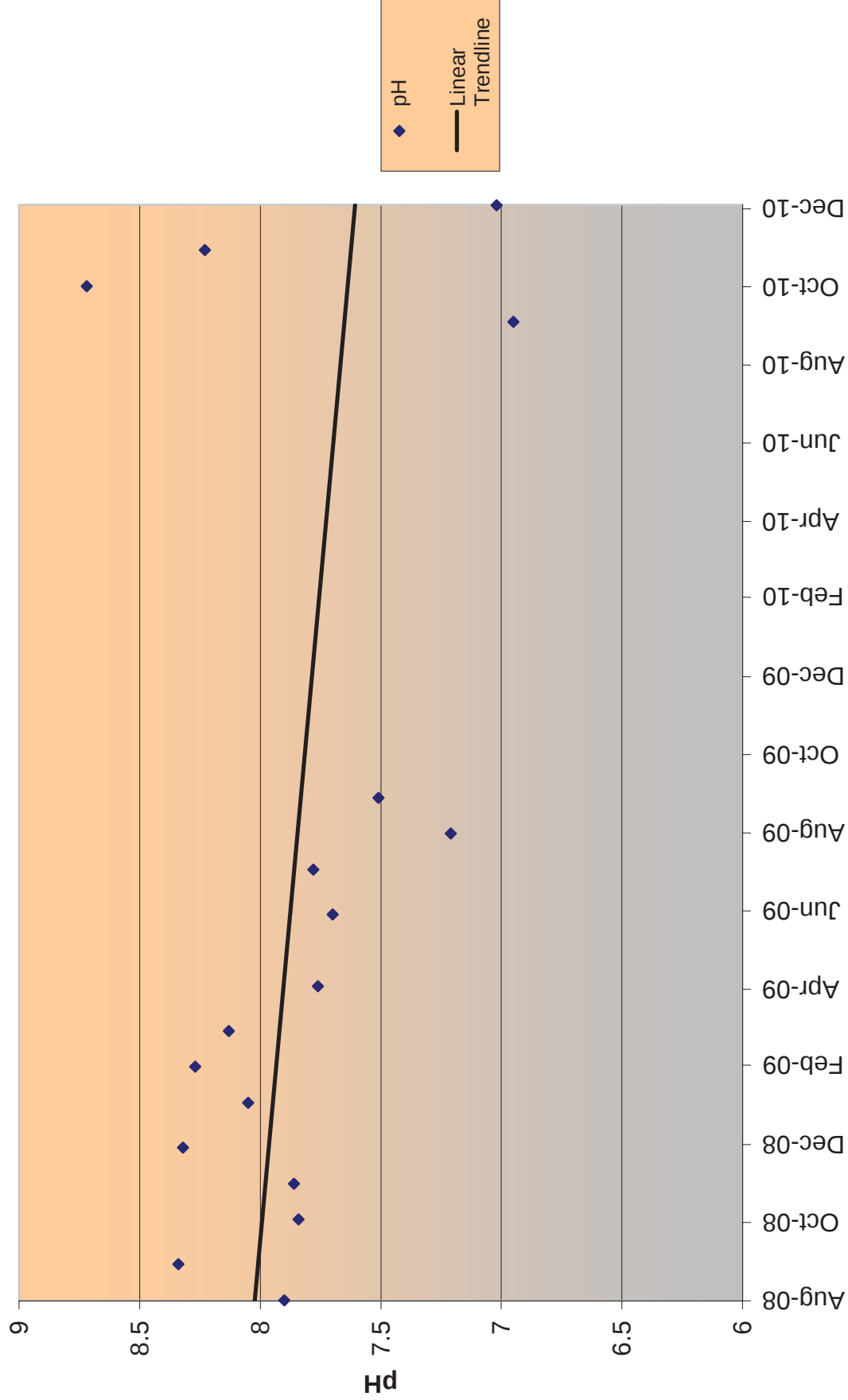
Linear  
Trendline

pH

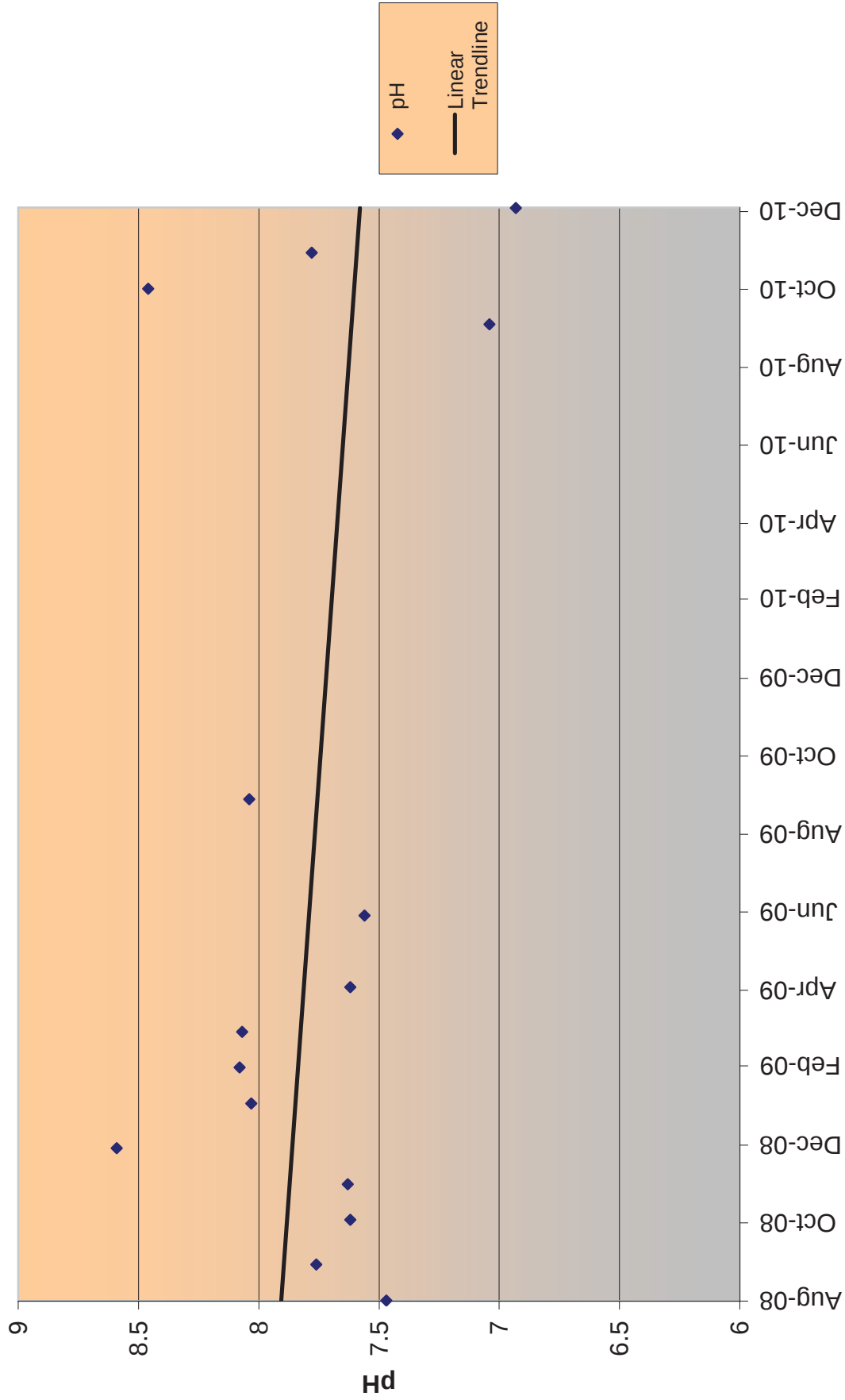
pH for SNOH7 - East of Ave. A



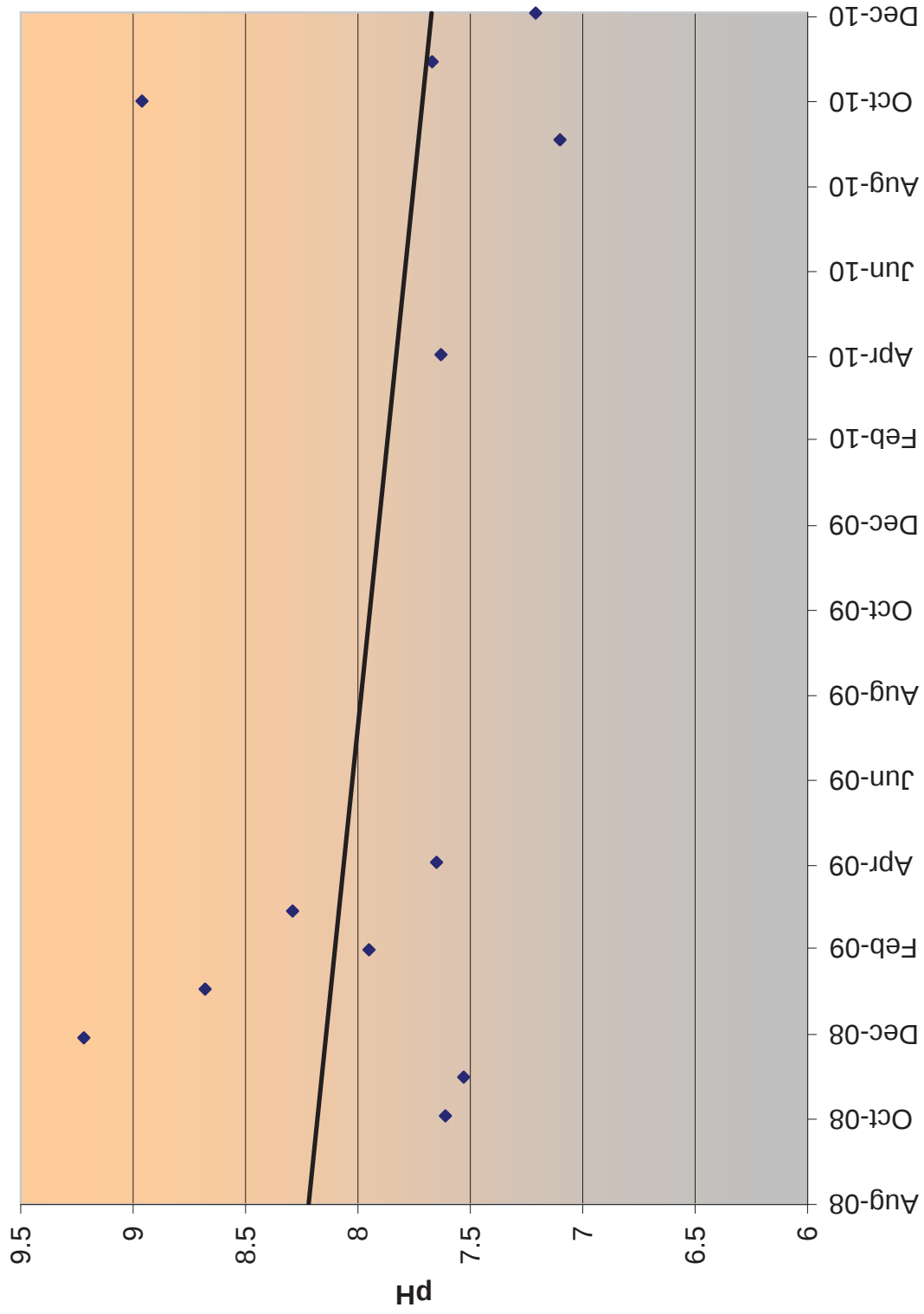
pH for SNOH8 - Cady Park



pH for SNOH9 - North of Riverview

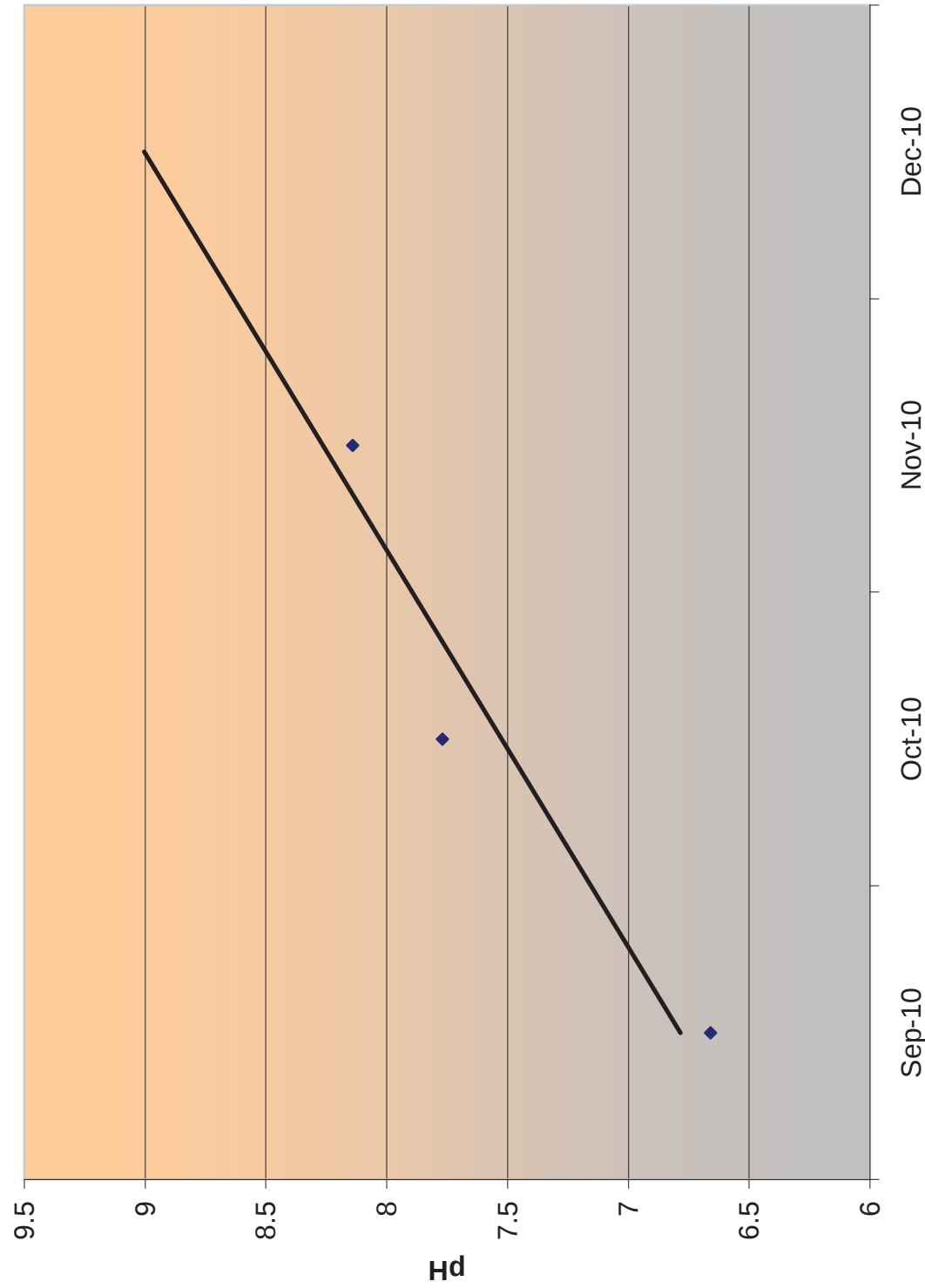


pH for SNOH10 - South End of Lakecrest Dr.



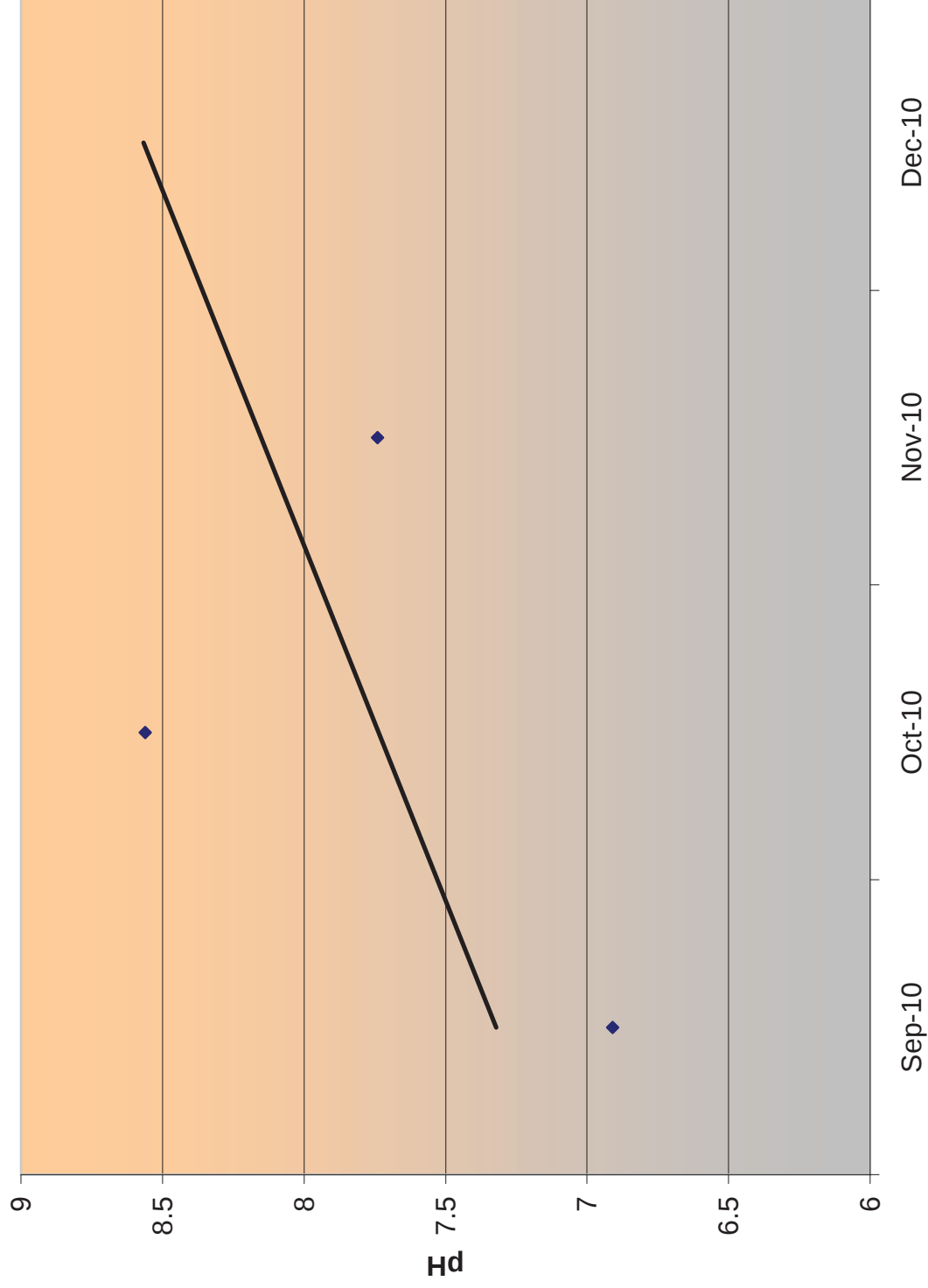
◆ pH  
— Linear Trendline

pH for SNOH11 - Upper Swifty Creek



◆ pH  
— Linear Trendline

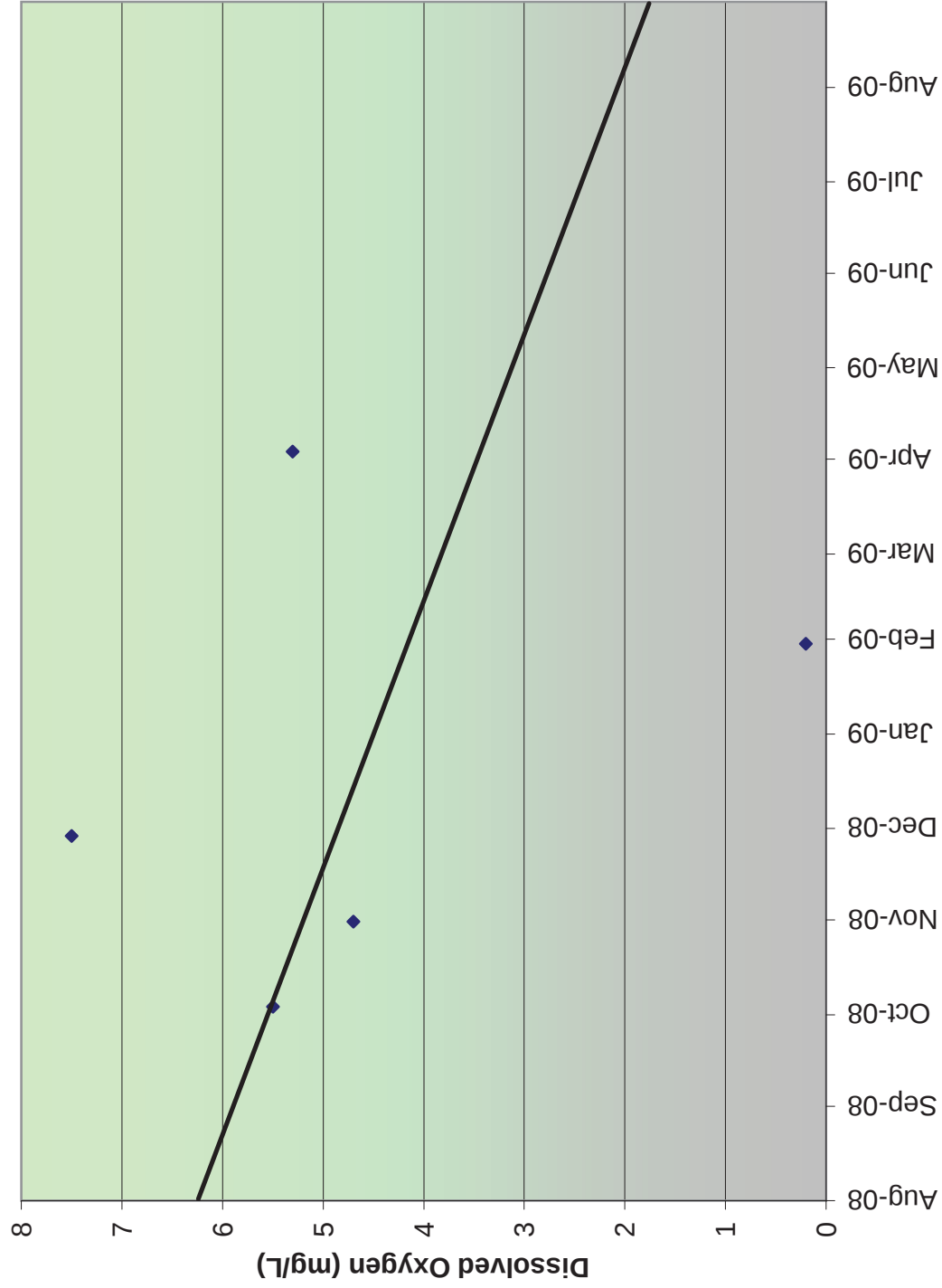
pH for SNOH12 - Lower Swifty Creek



◆ pH  
— Linear  
Trendline

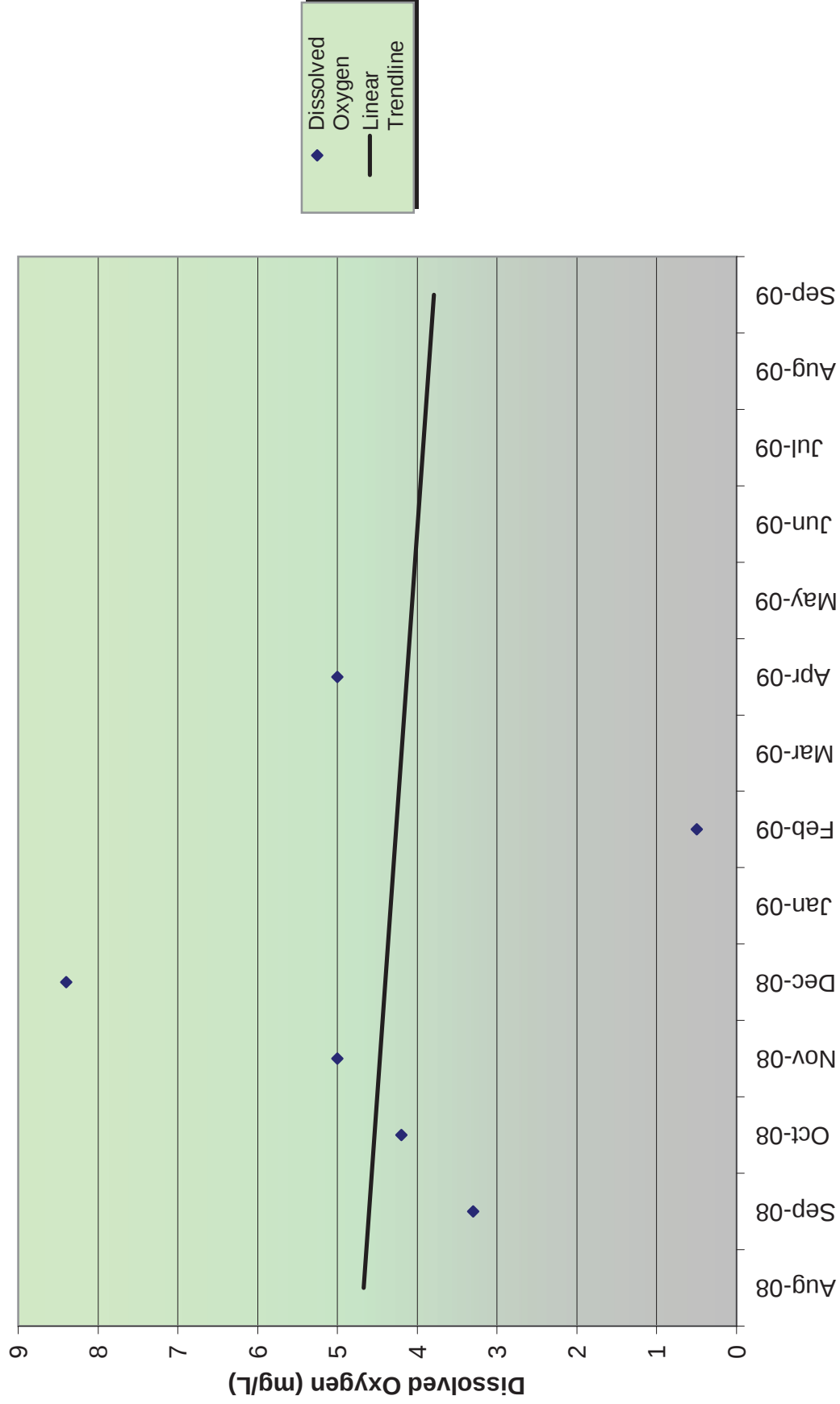
**DISSOLVED OXYGEN  
GRAPHS  
(2008-2010)**

# Dissolved Oxygen for SNOH1 - Fobes Rd.

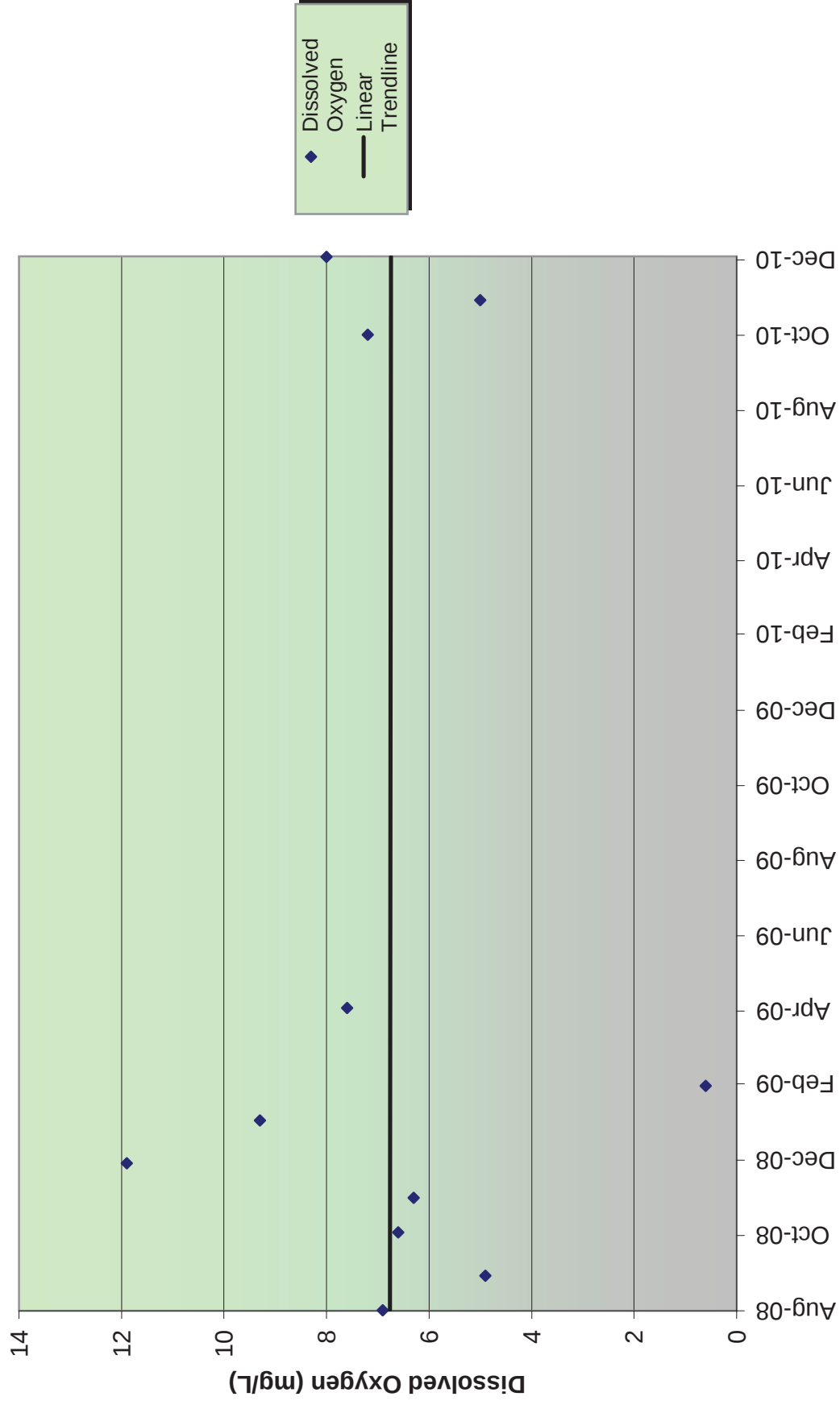


Dissolved  
Oxygen  
Linear  
Trendline

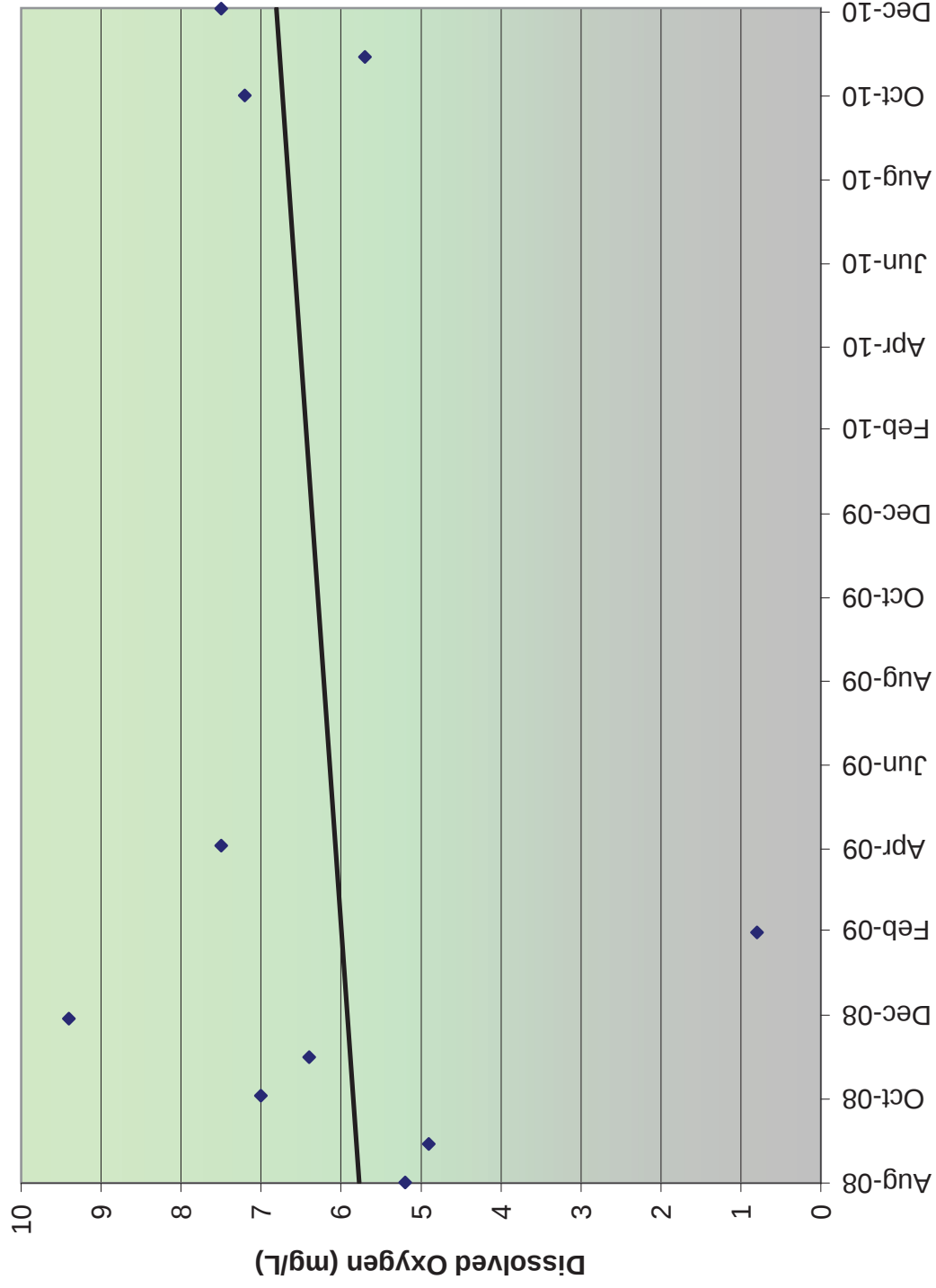
Dissolved Oxygen for SNOH2 - Near SR 2, East of 52nd



# Dissolved Oxygen for SNOH3 - Weaver Rd.

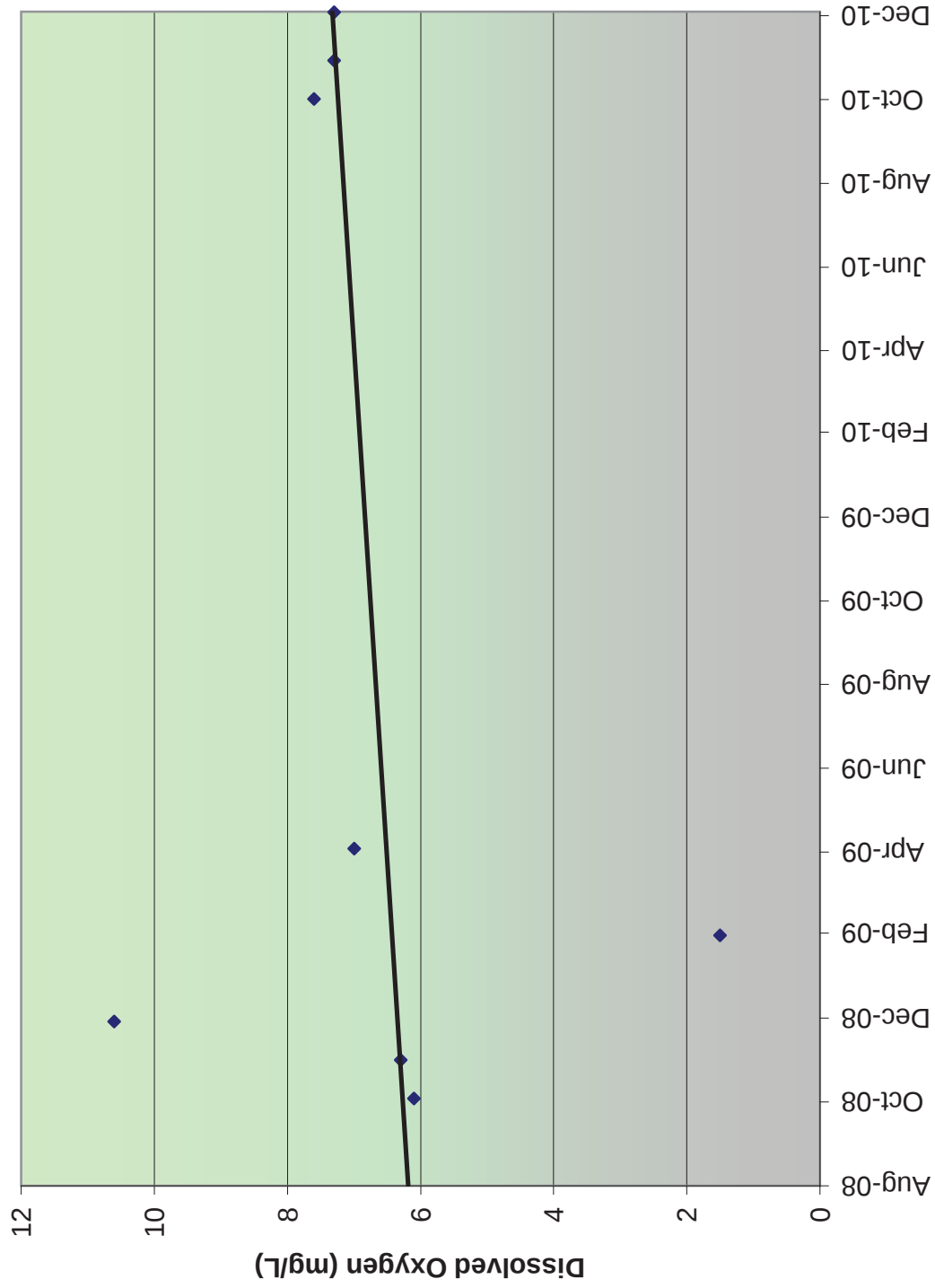


# Dissolved Oxygen for SNOH4 - 72nd St. SE



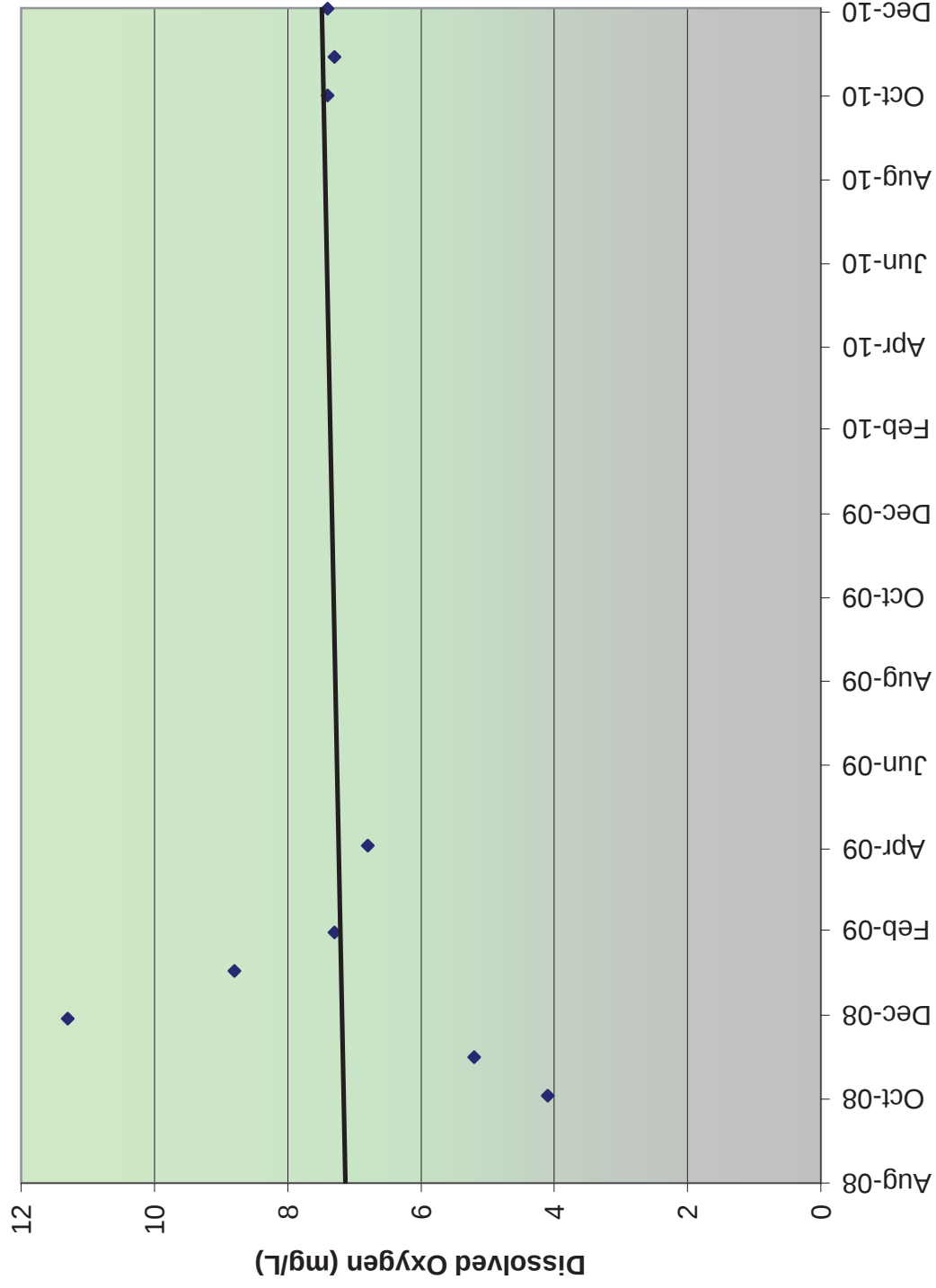
◆ Dissolved  
Oxygen  
— Linear  
Trendline

# Dissolved Oxygen for SNOH5 - 64th St. SE



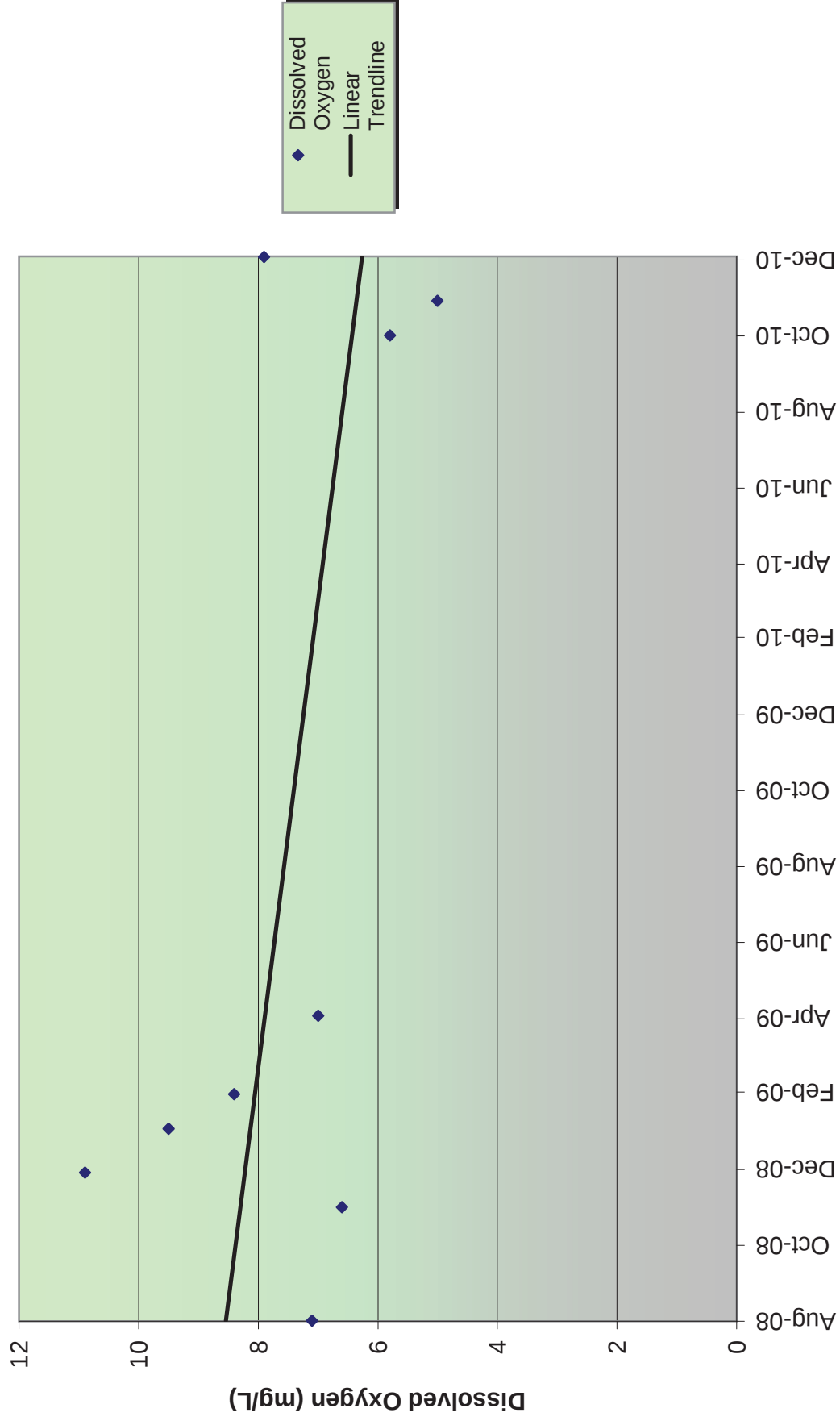
Dissolved  
Oxygen  
Linear  
Trendline

# Dissolved Oxygen for SNOH6 - 13th St.

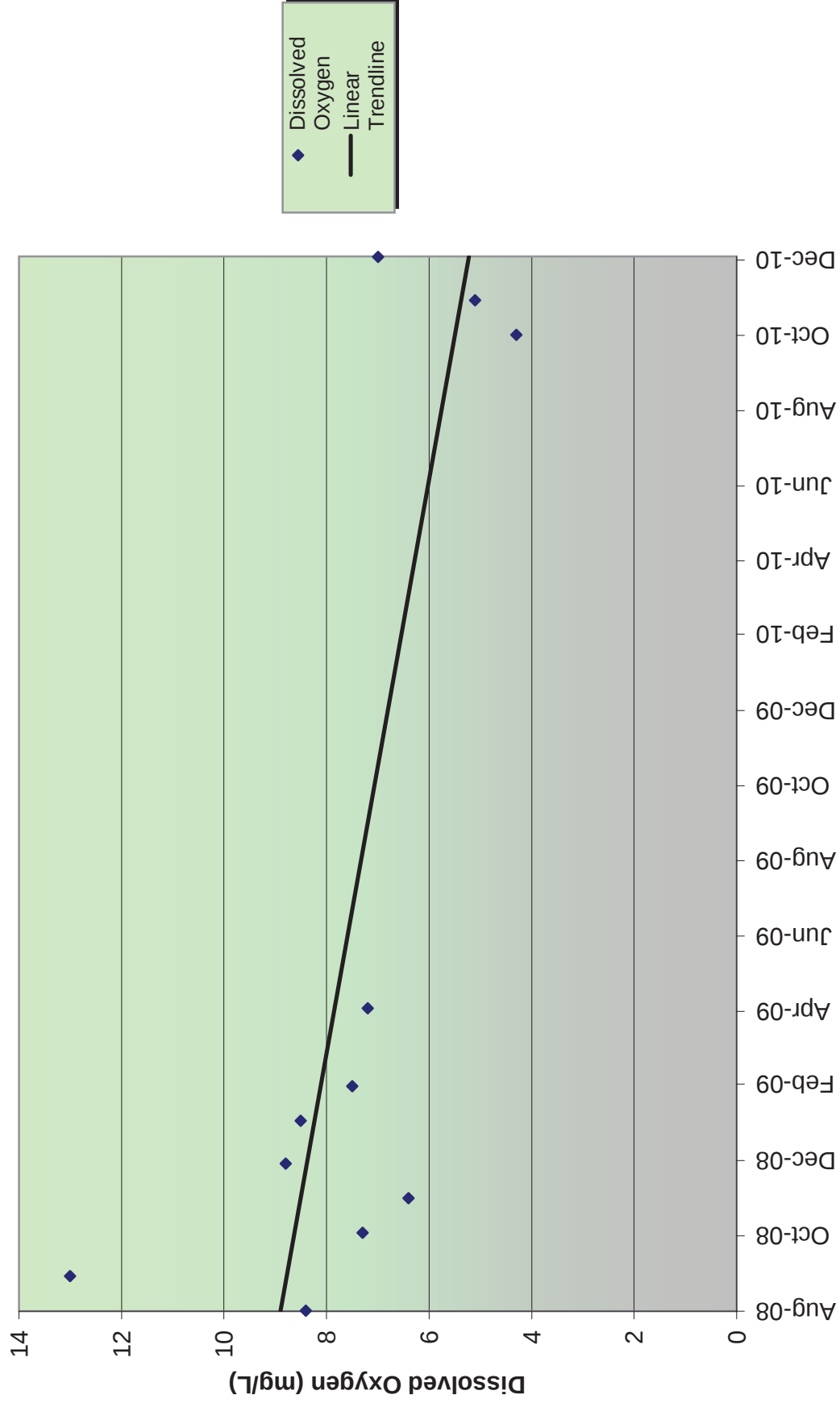


Dissolved  
Oxygen  
Linear  
Trendline

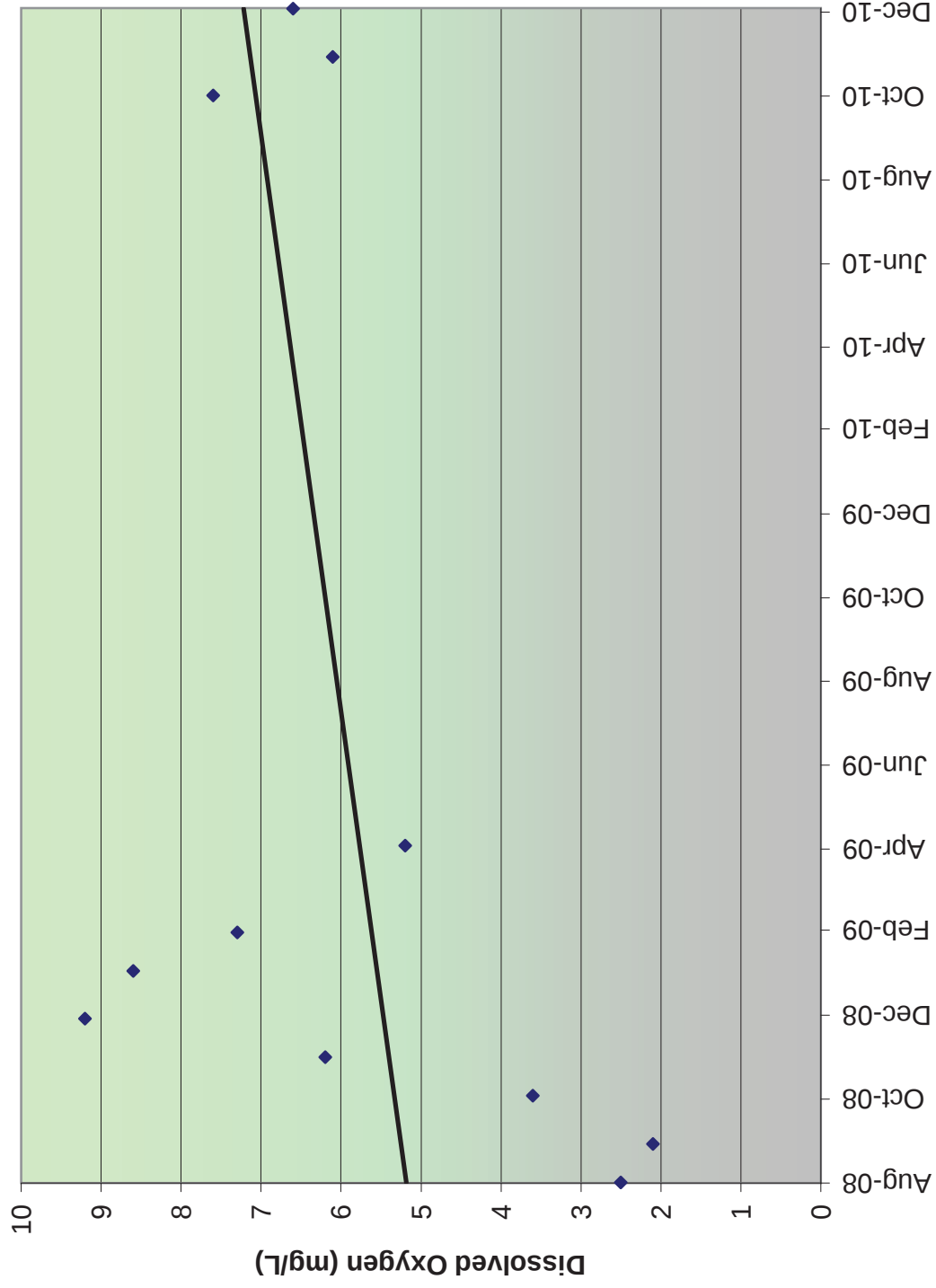
# Dissolved Oxygen for SNOH7 - East of Ave. A



# Dissolved Oxygen for SNOH8 - Cady Park

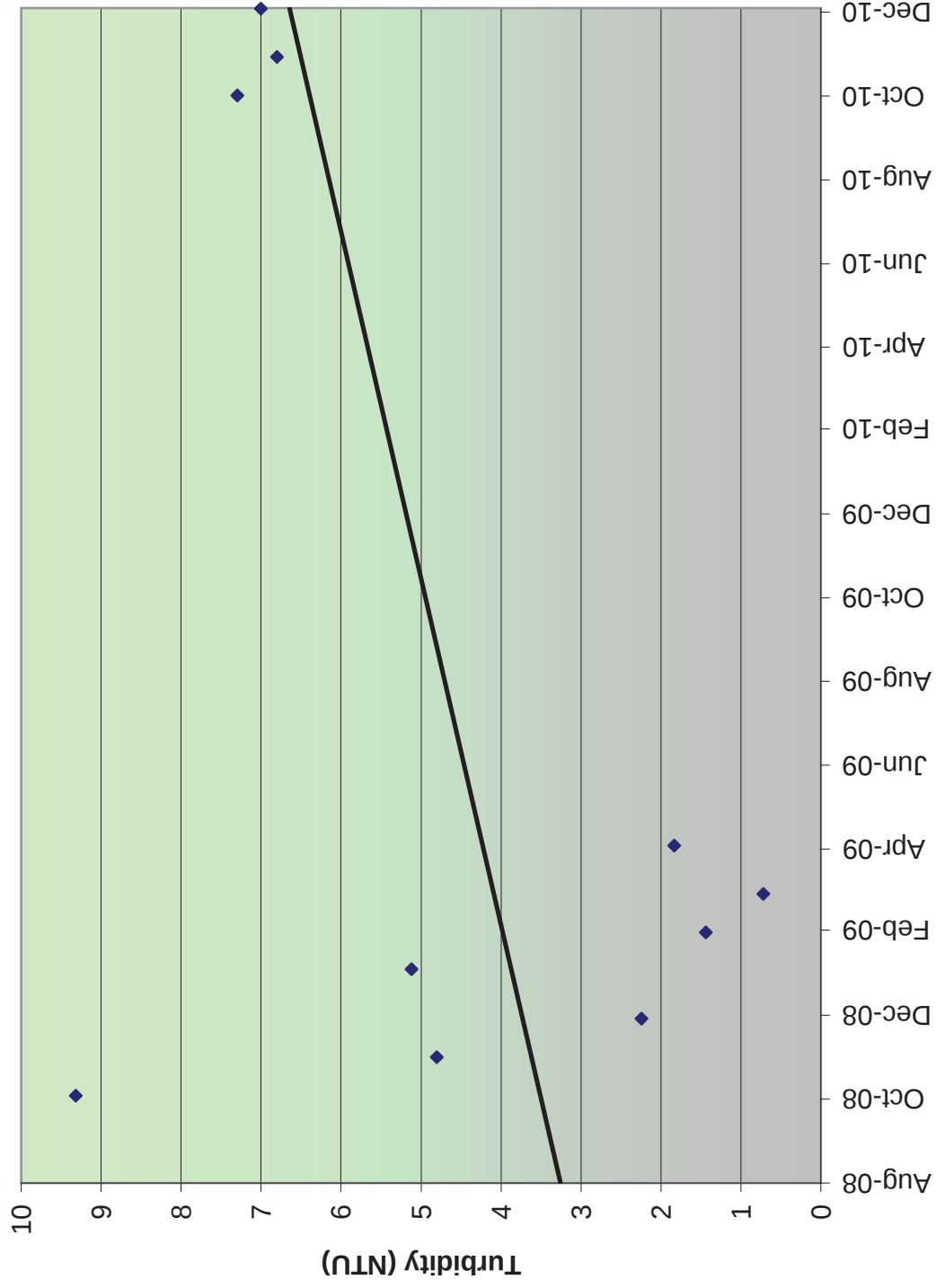


# Dissolved Oxygen for SNOH9 - North of Riverview



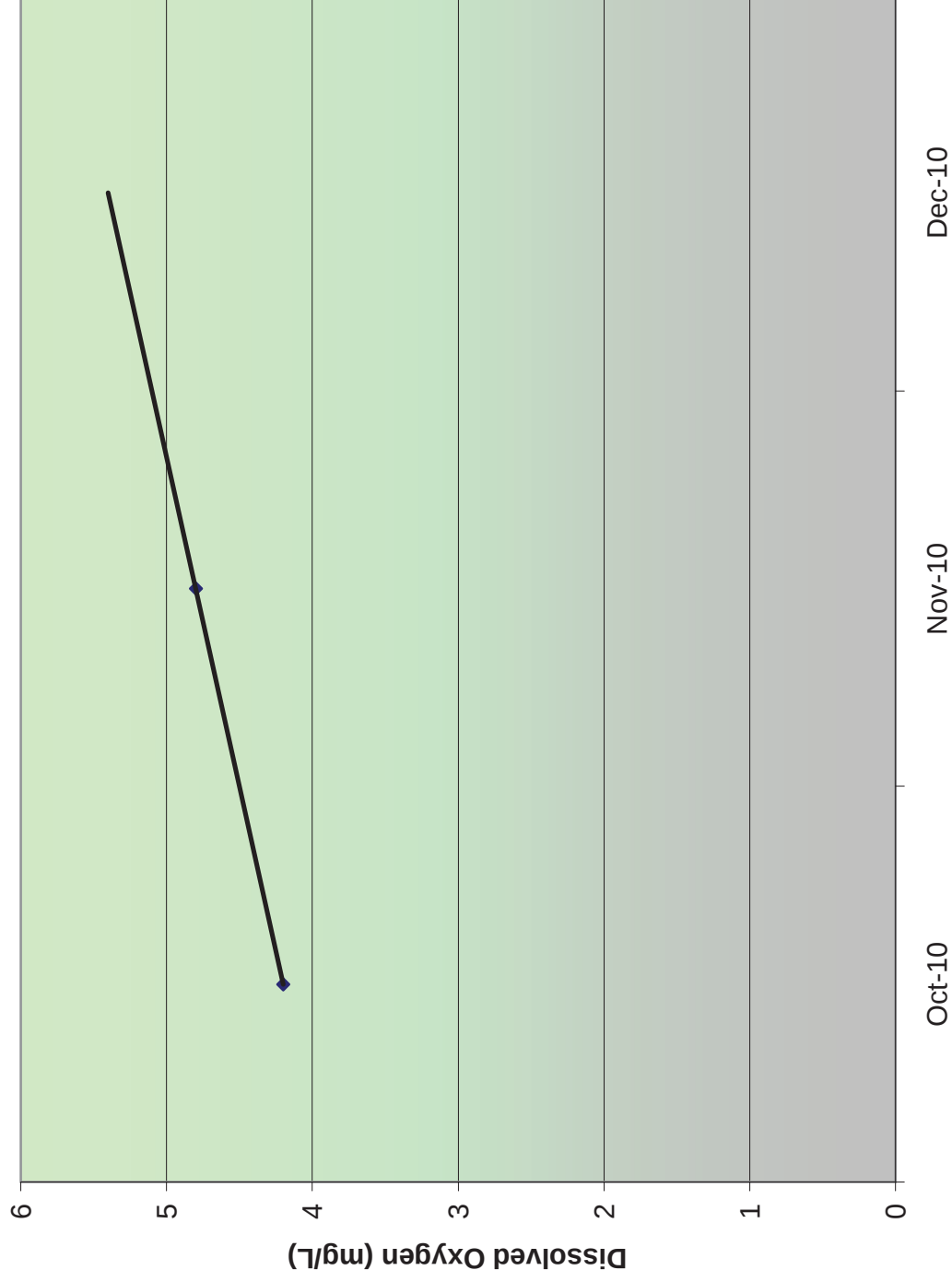
Dissolved  
Oxygen  
Linear  
Trendline

# Dissolved Oxygen for SNOH10 - South End of Lakecrest Dr.



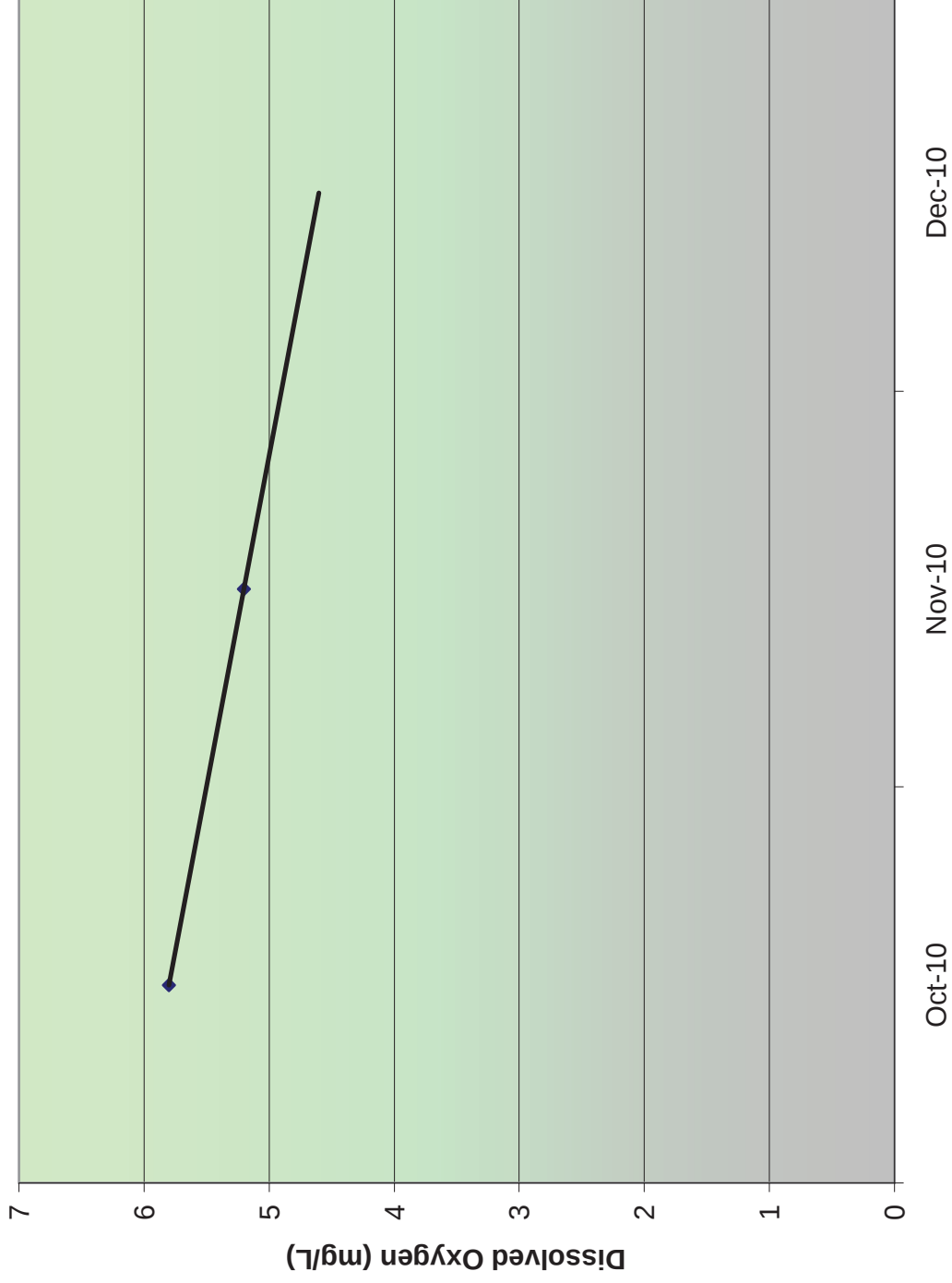
Dissolved  
Oxygen  
Linear  
Trendline

# Dissolved Oxygen for SNOH11 - Upper Swifty Creek



◆ Dissolved  
Oxygen  
— Linear  
Trendline

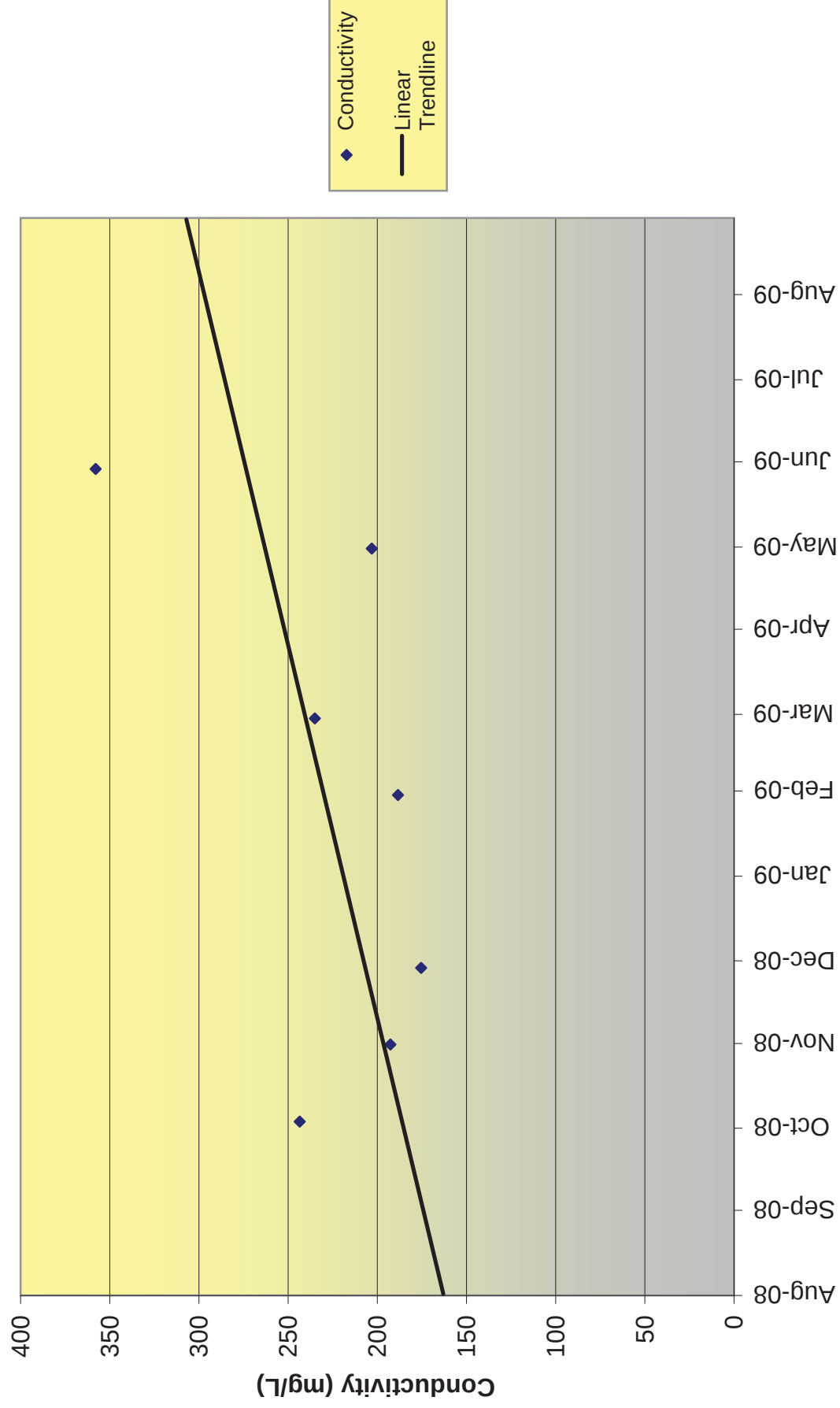
## Dissolved Oxygen for SNOH12 - Lower Swifty Creek



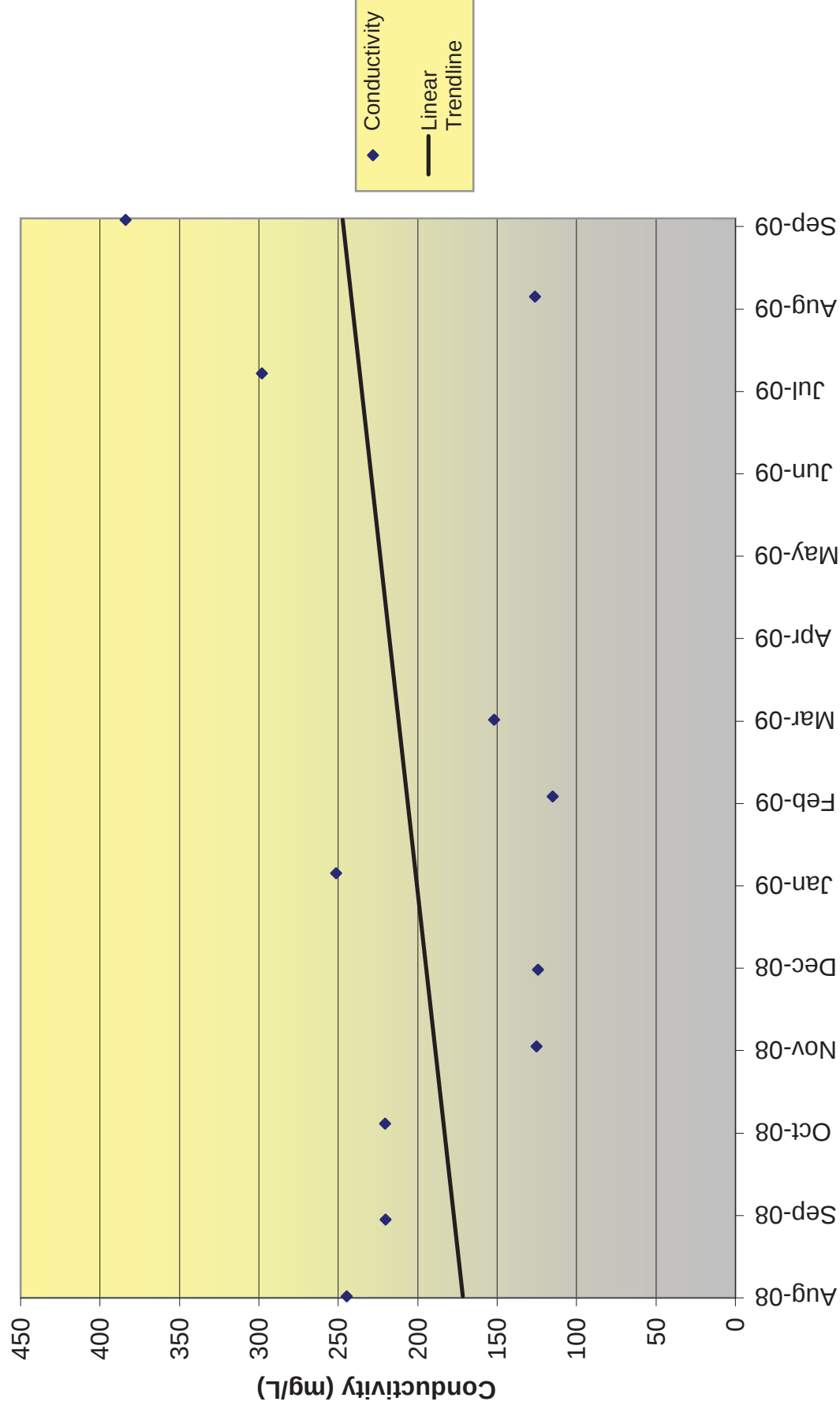
◆ Dissolved  
Oxygen  
— Linear  
Trendline

**CONDUCTIVITY  
GRAPHS  
(2008-2010)**

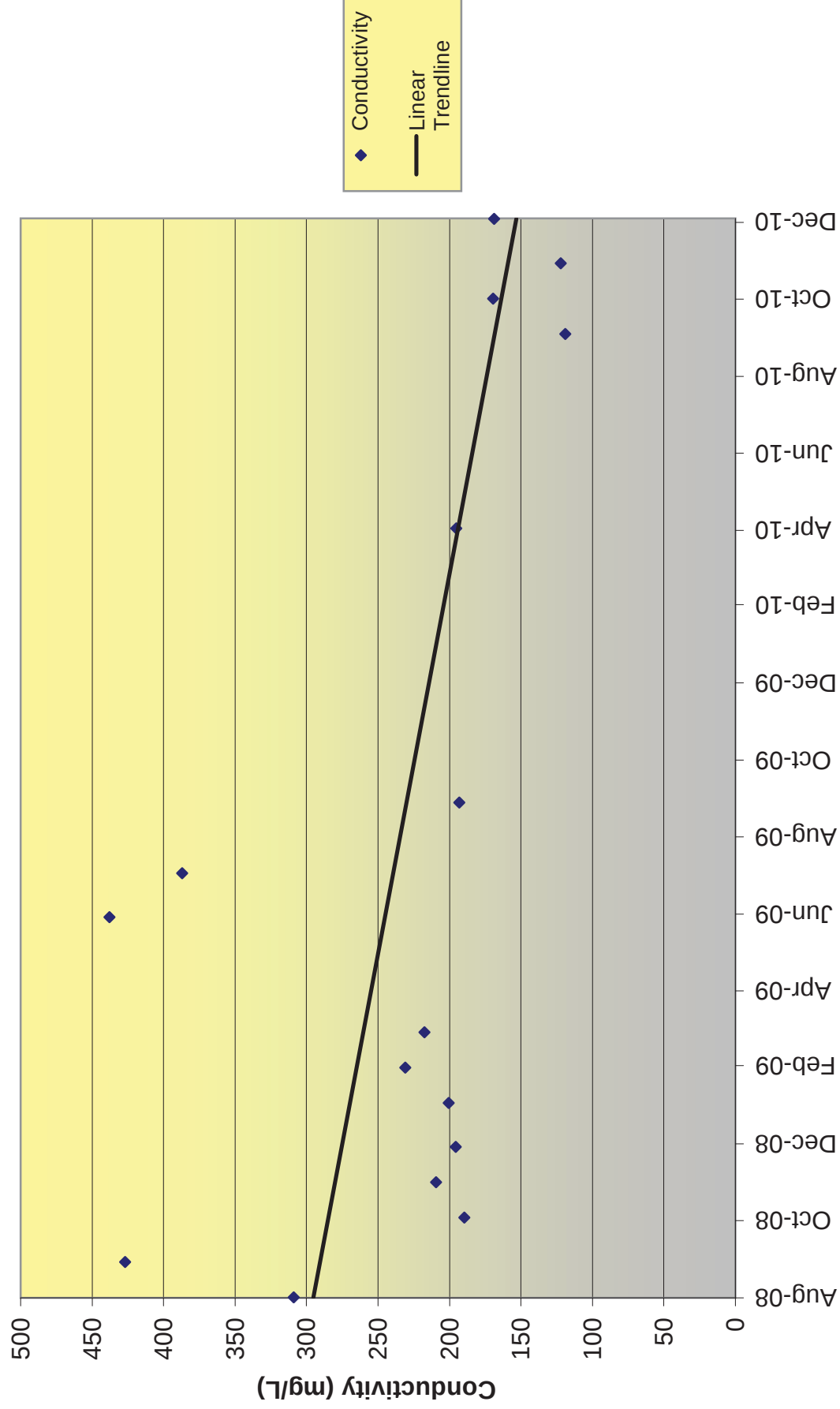
Conductivity for SNOH1 - Fobes Rd.



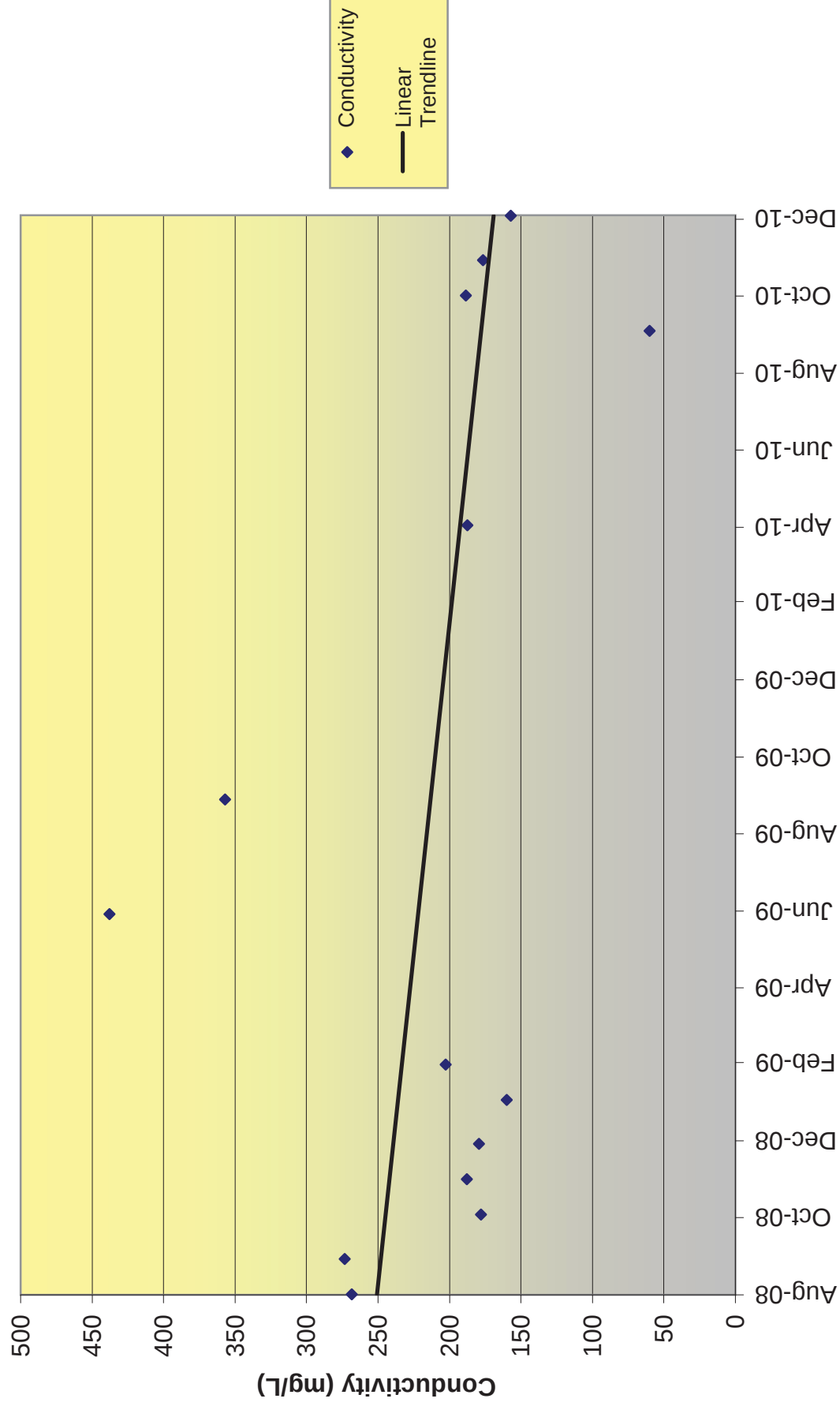
Conductivity for SNOH2 - Near SR 2, East of 52nd



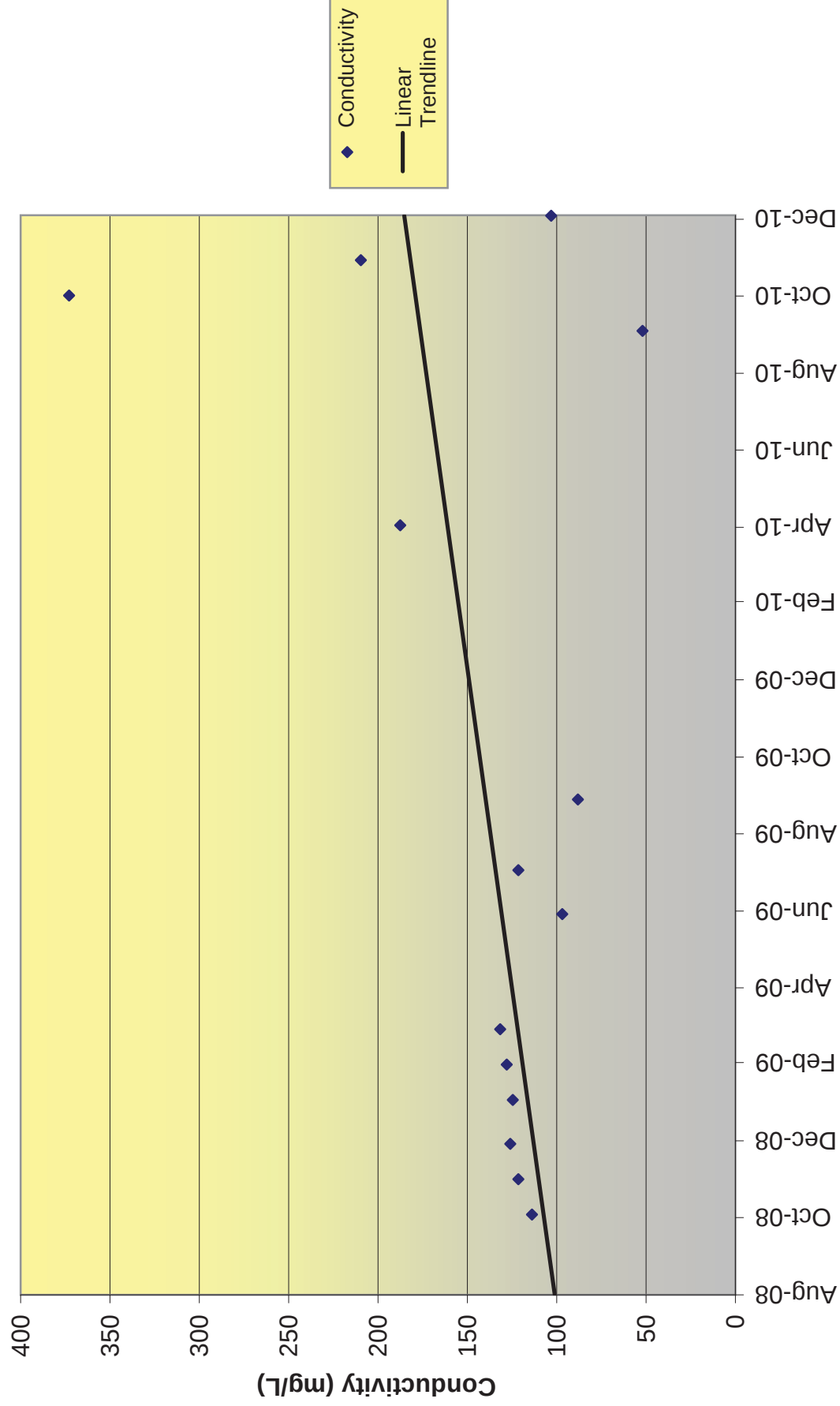
# Conductivity for SNOH3 - Weaver Rd.



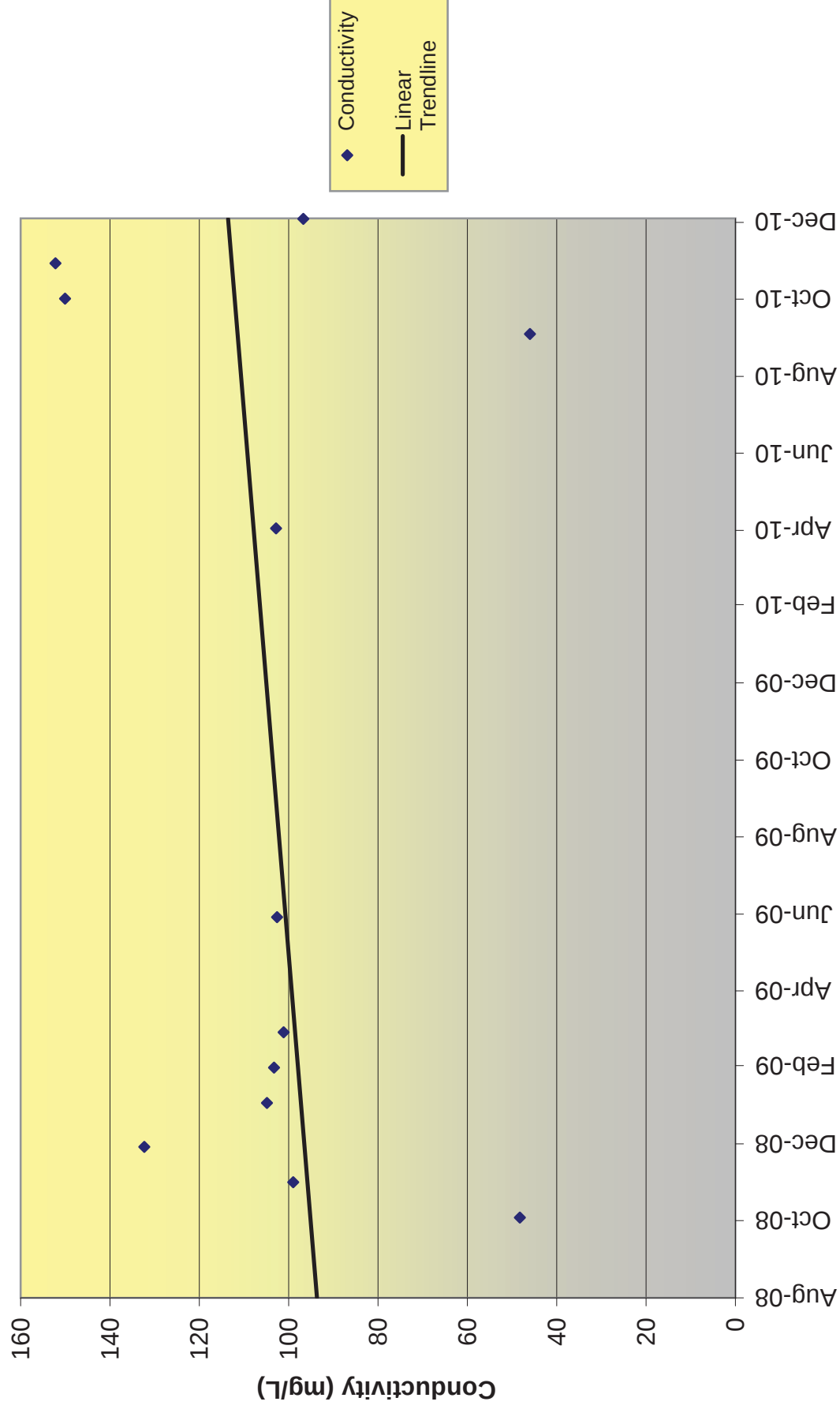
# Conductivity for SNOH4 - 72nd St. SE



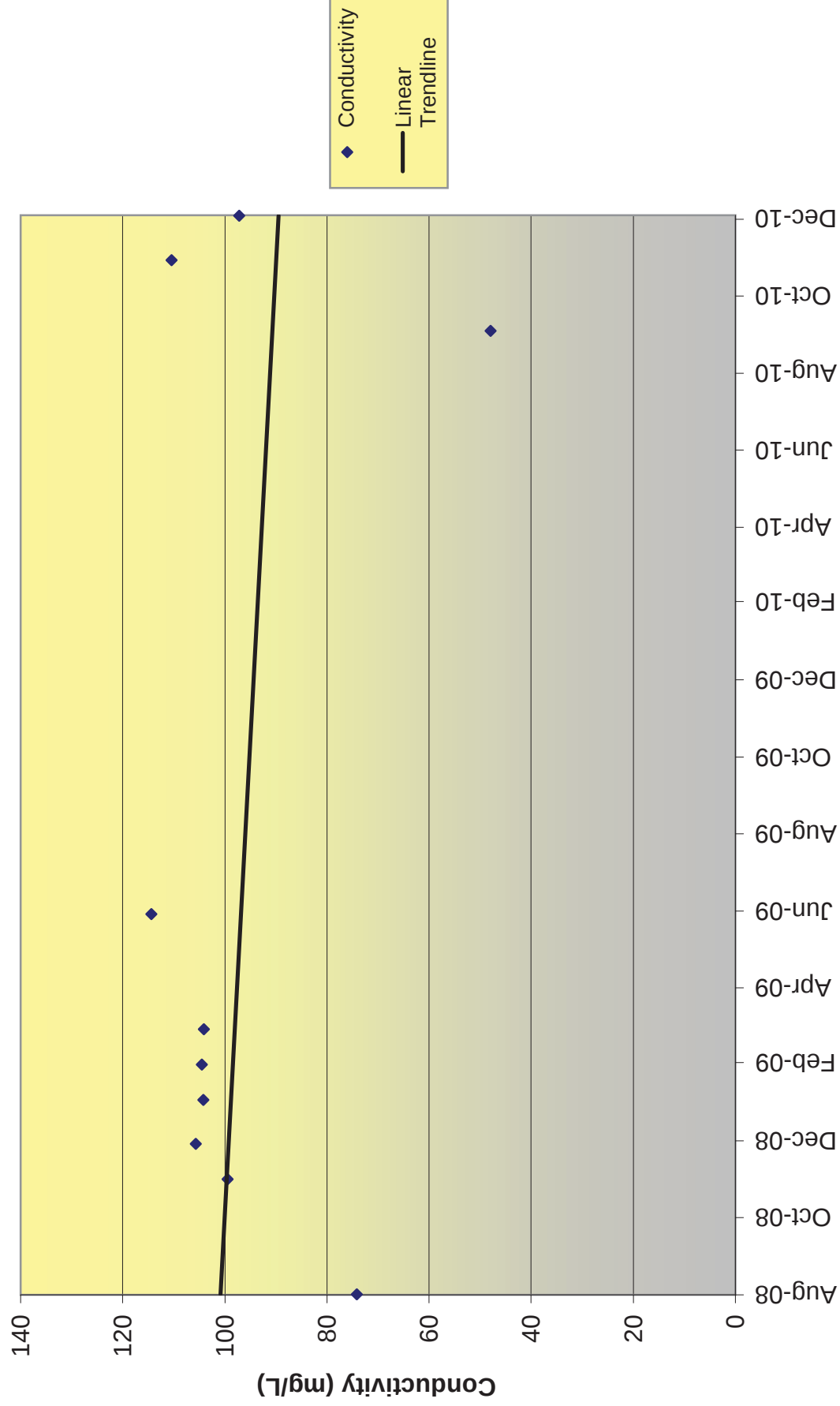
# Conductivity for SNOH5 - 64th St. SE



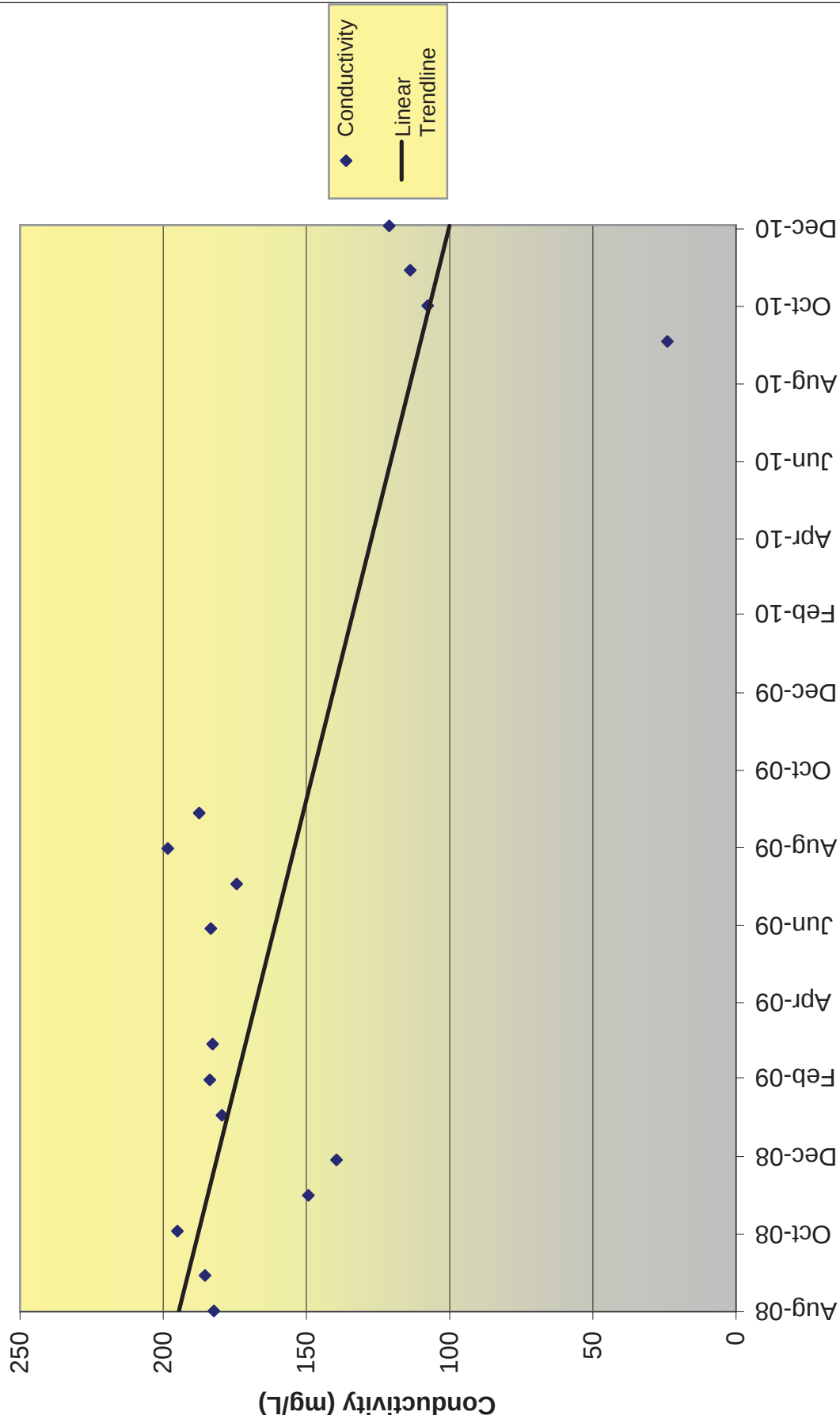
# Conductivity for SNOH6 - 13th St.



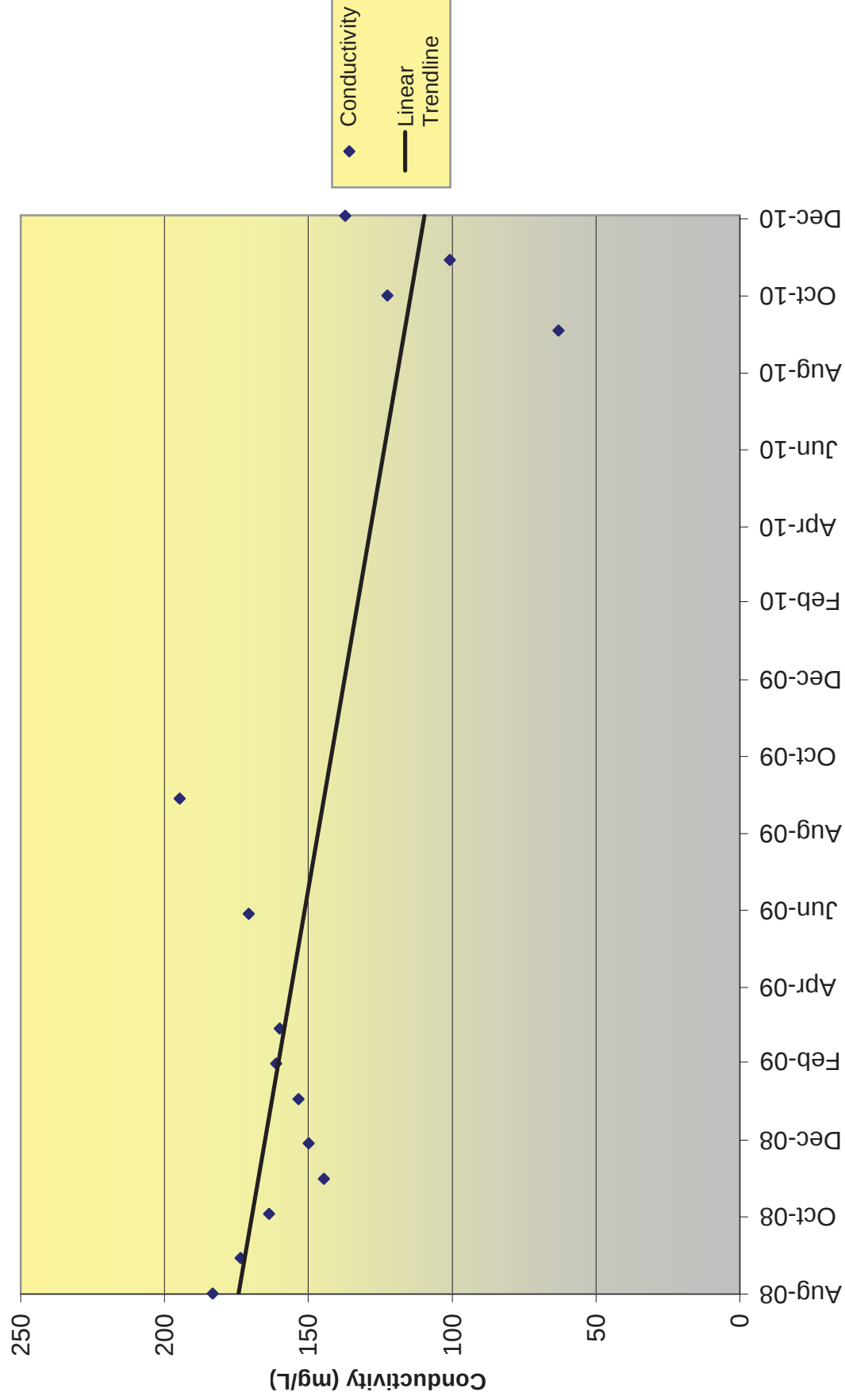
Conductivity for SNOH7 - East of Ave. A



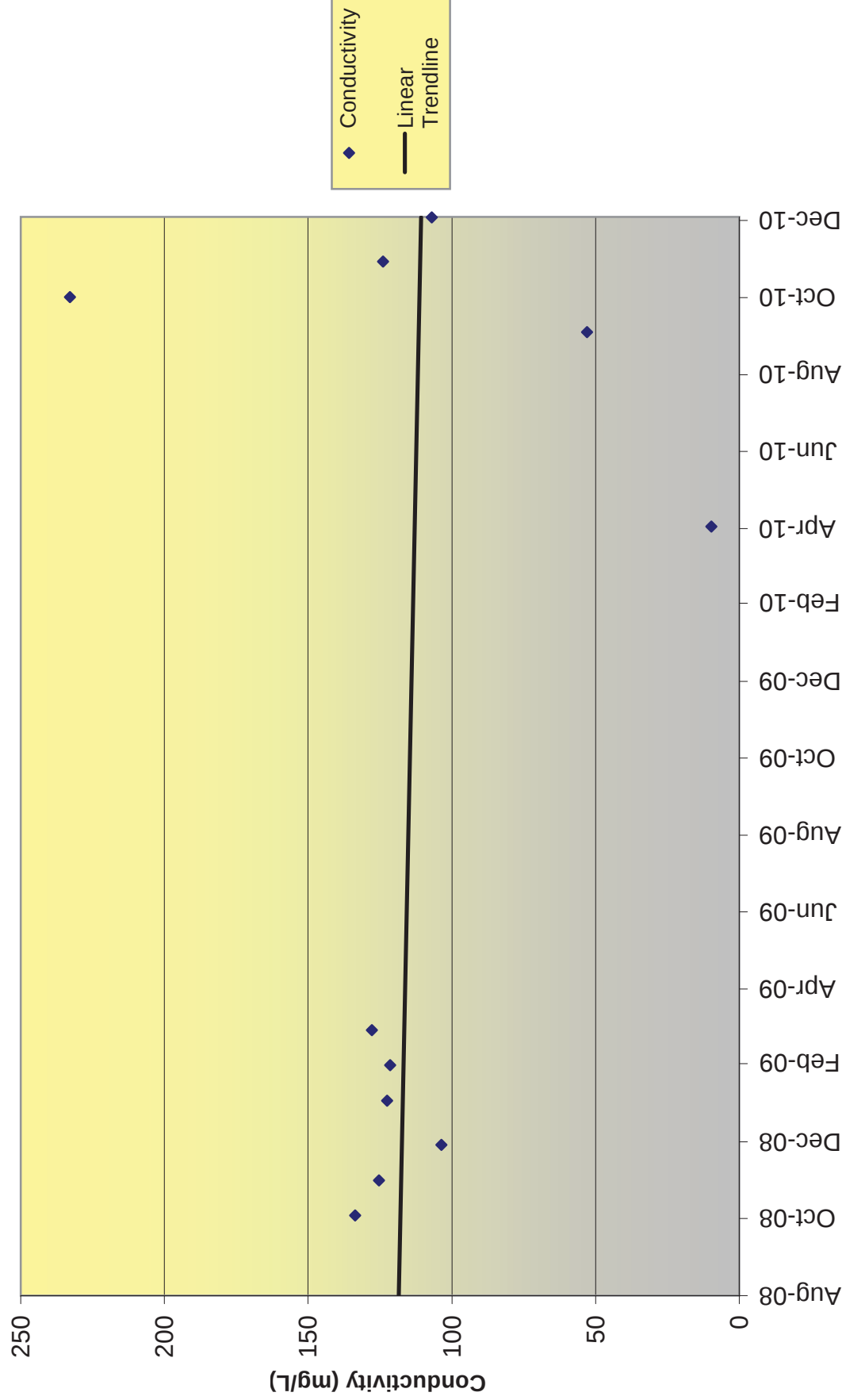
# Conductivity for SNOH8 - Cady Park



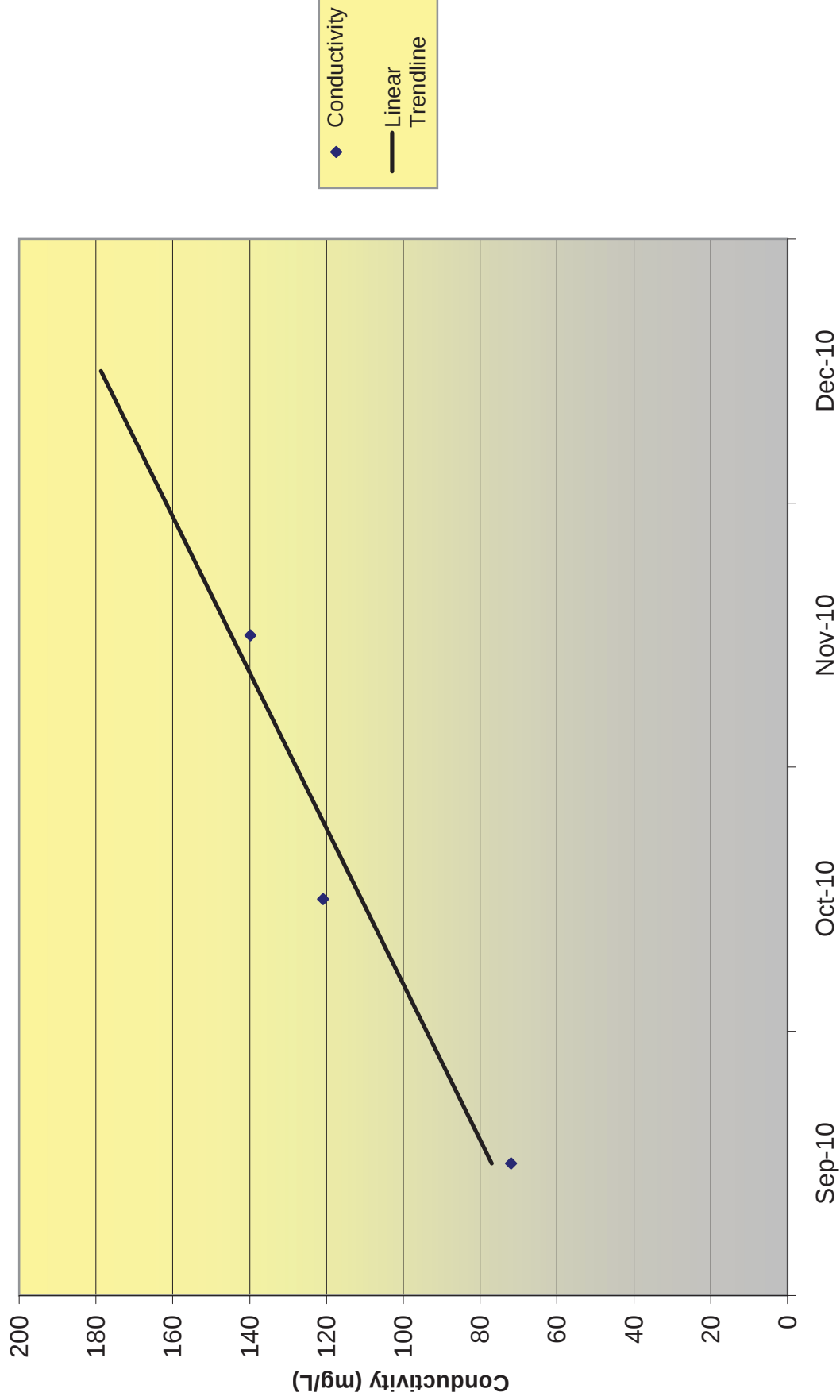
## Conductivity for SNOH9 - North of Riverview



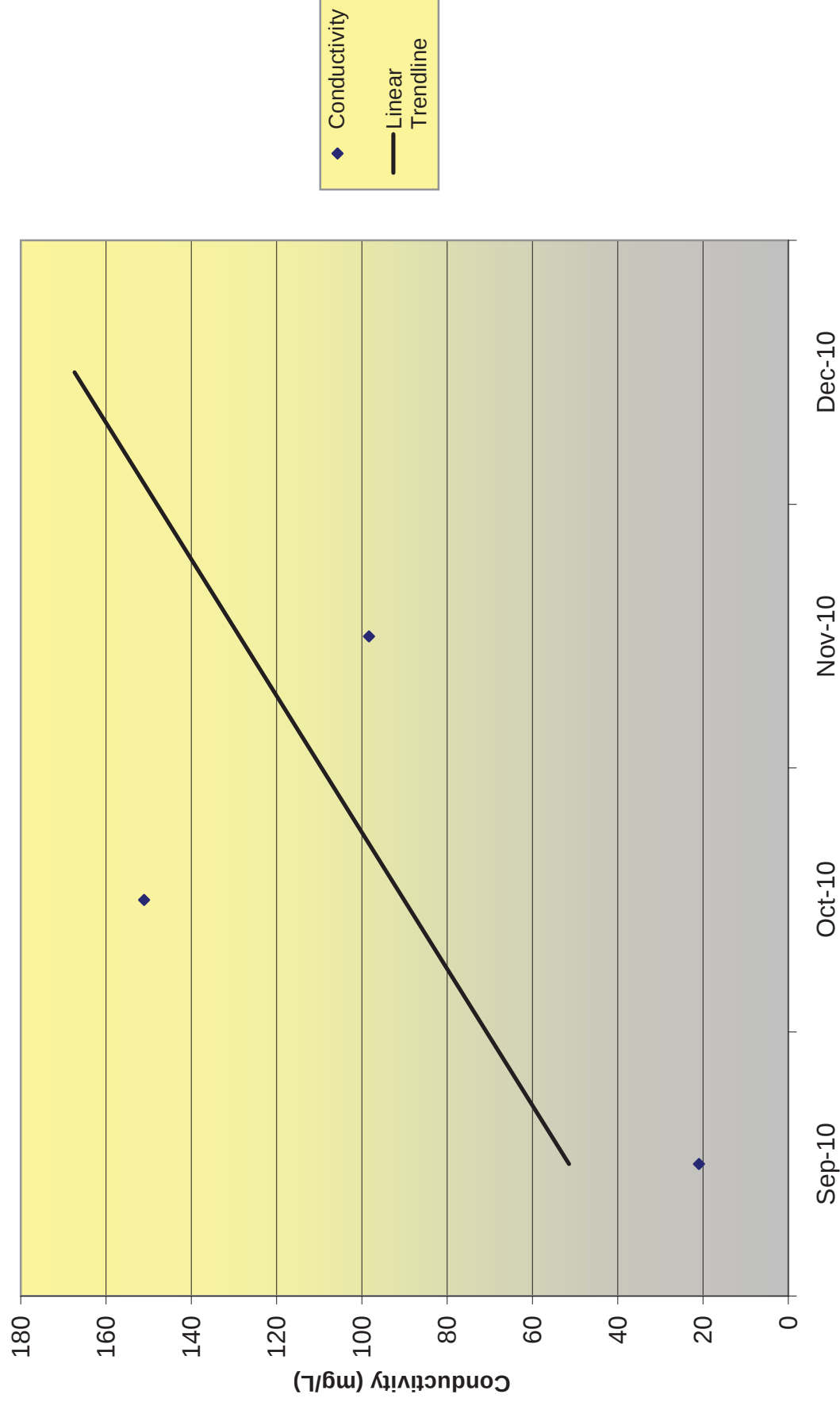
Conductivity for SNOH10 - South End of Lakecrest Dr.



# Conductivity for SNOH11 - Upper Swifty Creek

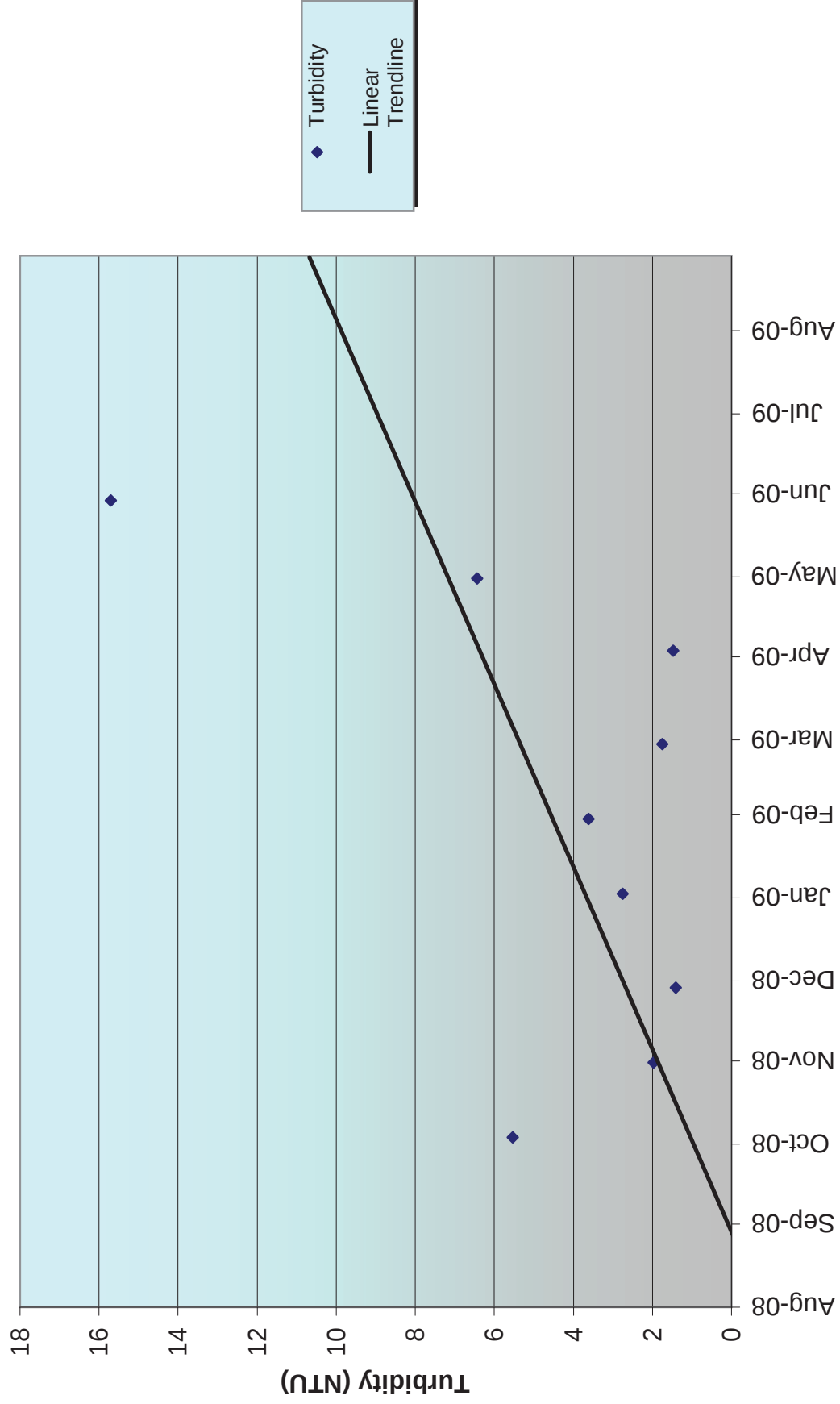


### Conductivity for SNOH12 - Lower Swifty Creek

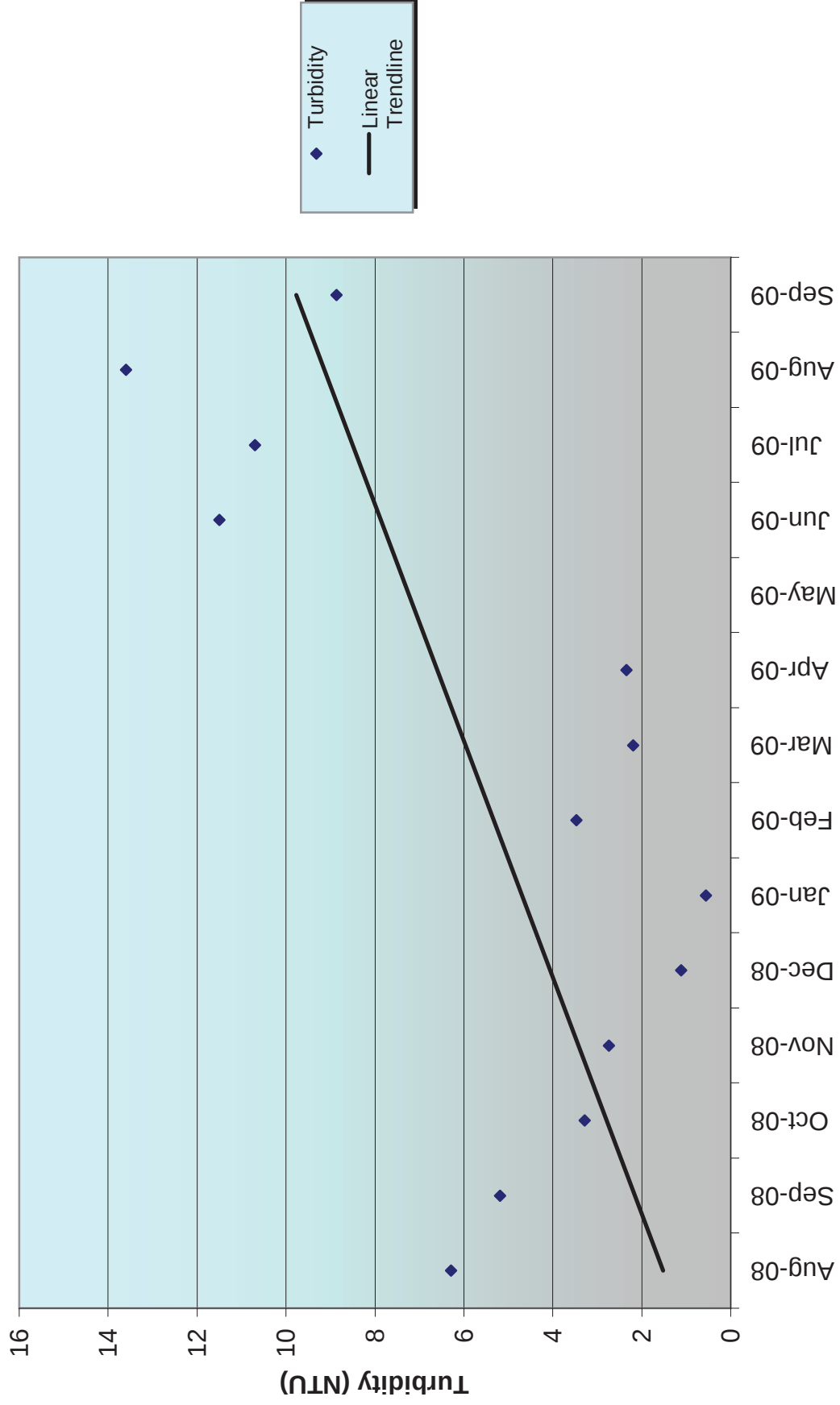


**TURBIDITY  
GRAPHS  
(2008-2010)**

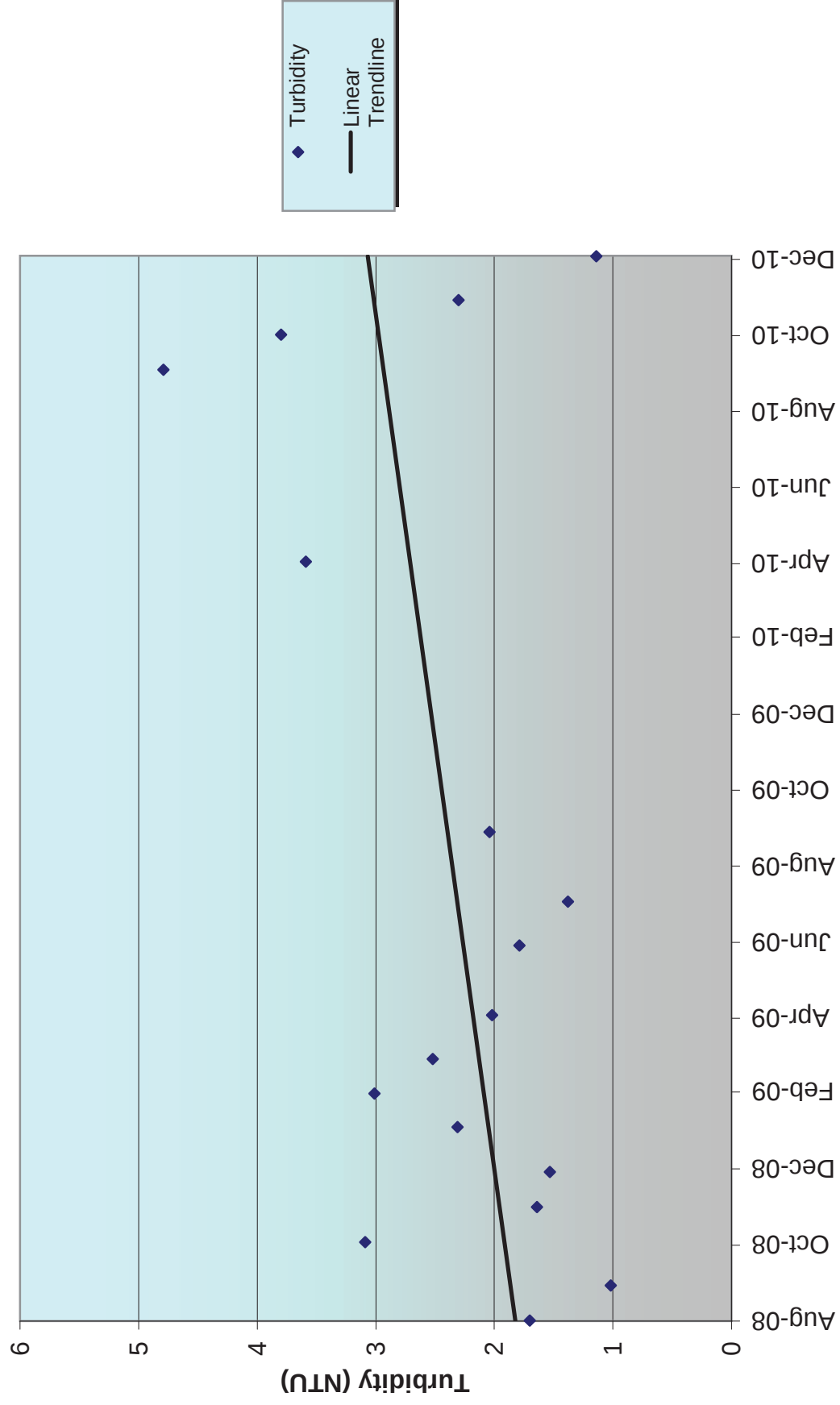
Turbidity for SNOH1 - Fobes Rd.



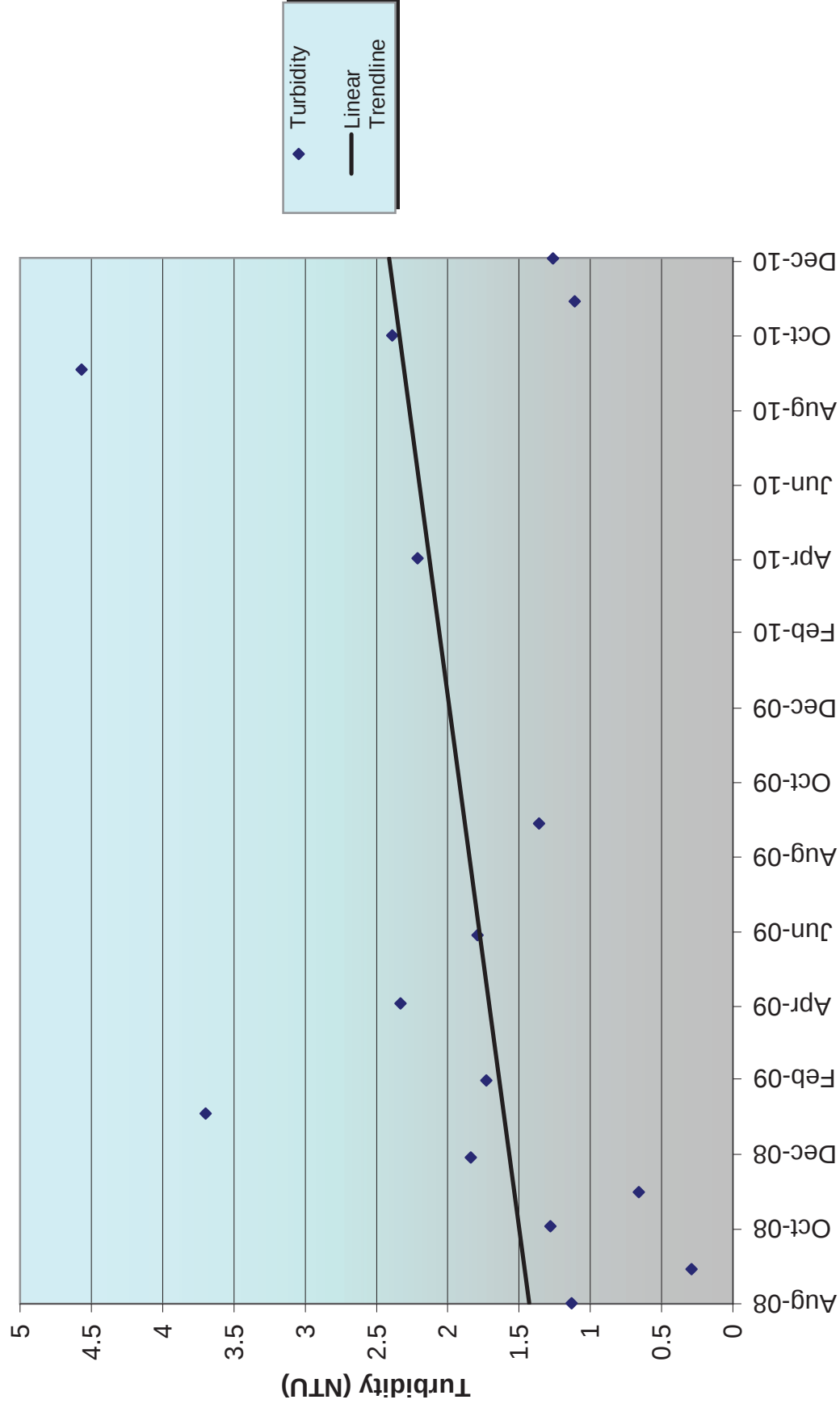
Turbidity for SNOH2 - Near SR 2, East of 52nd



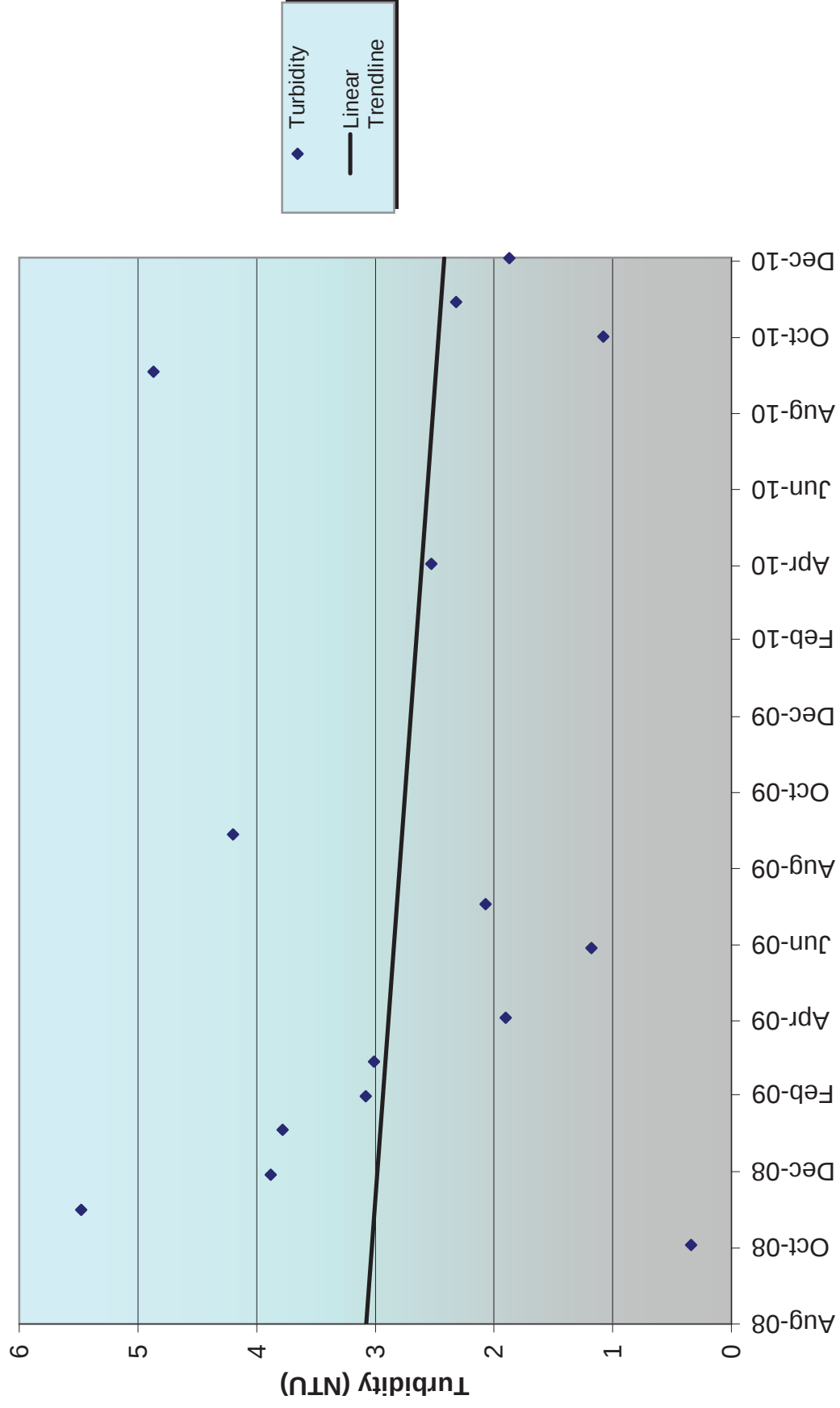
Turbidity for SNOH3 - Weaver Rd.



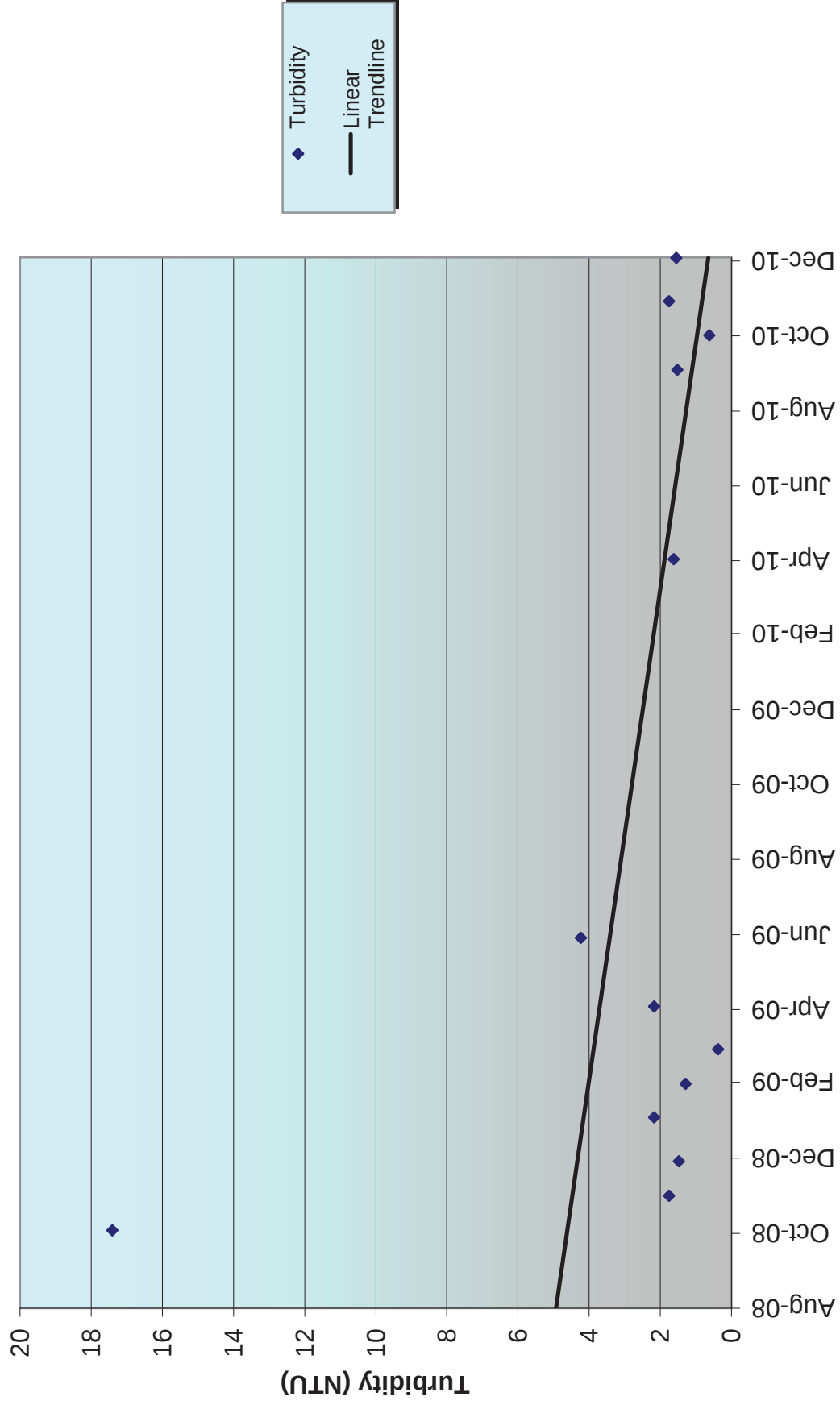
Turbidity for SNOH4 - 72nd St. SE



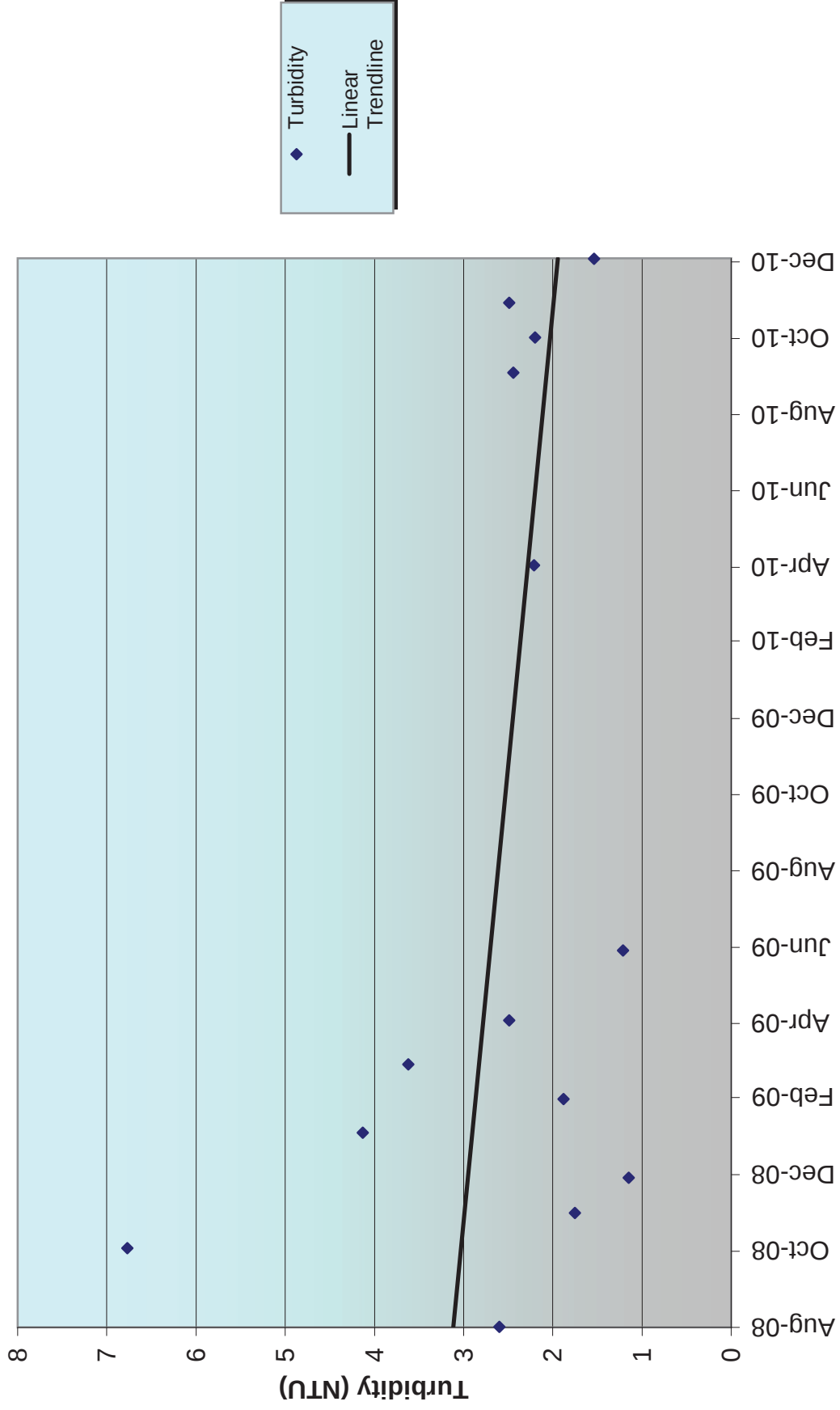
Turbidity for SNOH5 - 64th St. SE



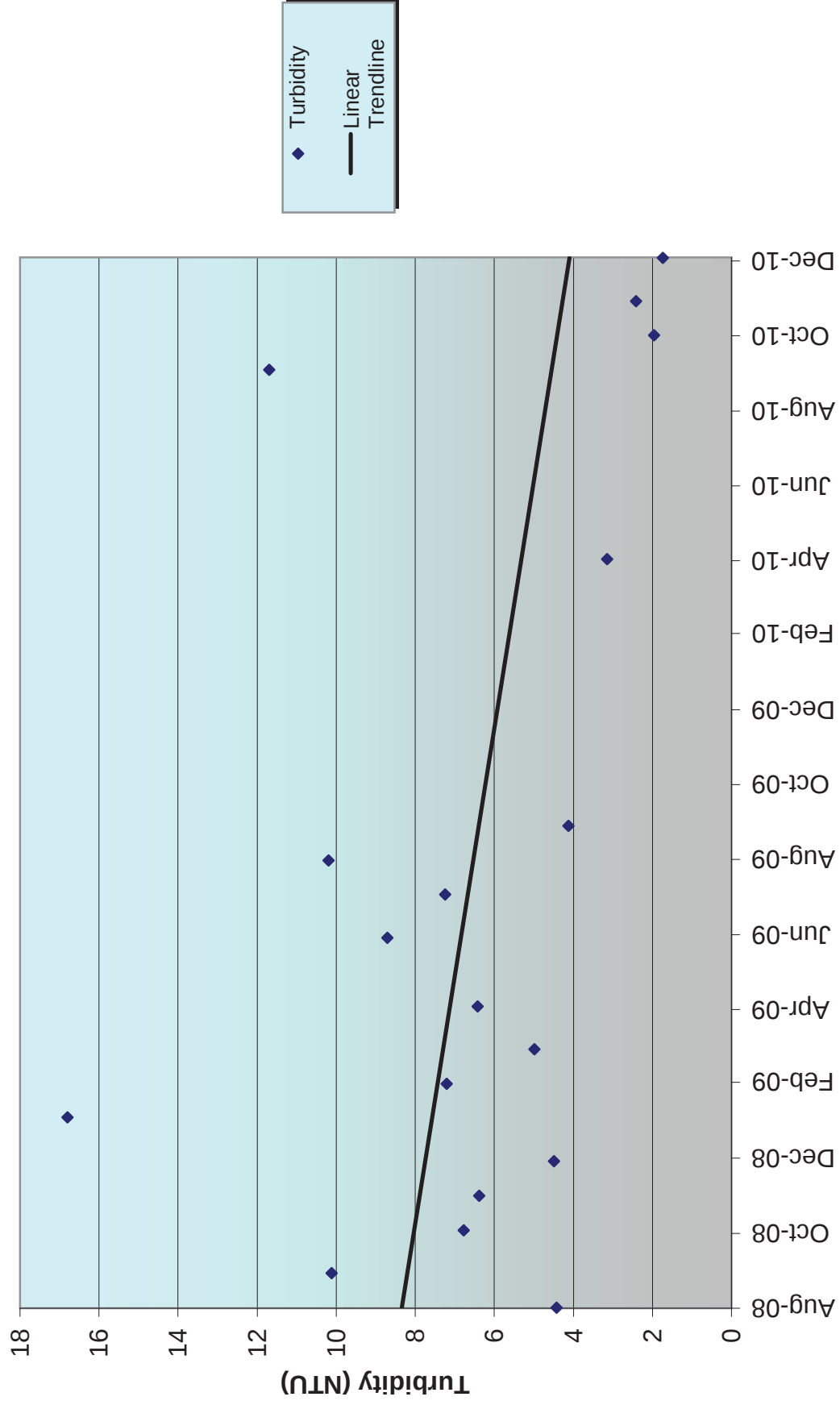
Turbidity for SNOH6 - 13th St.



Turbidity for SNOH7 - East of Ave. A

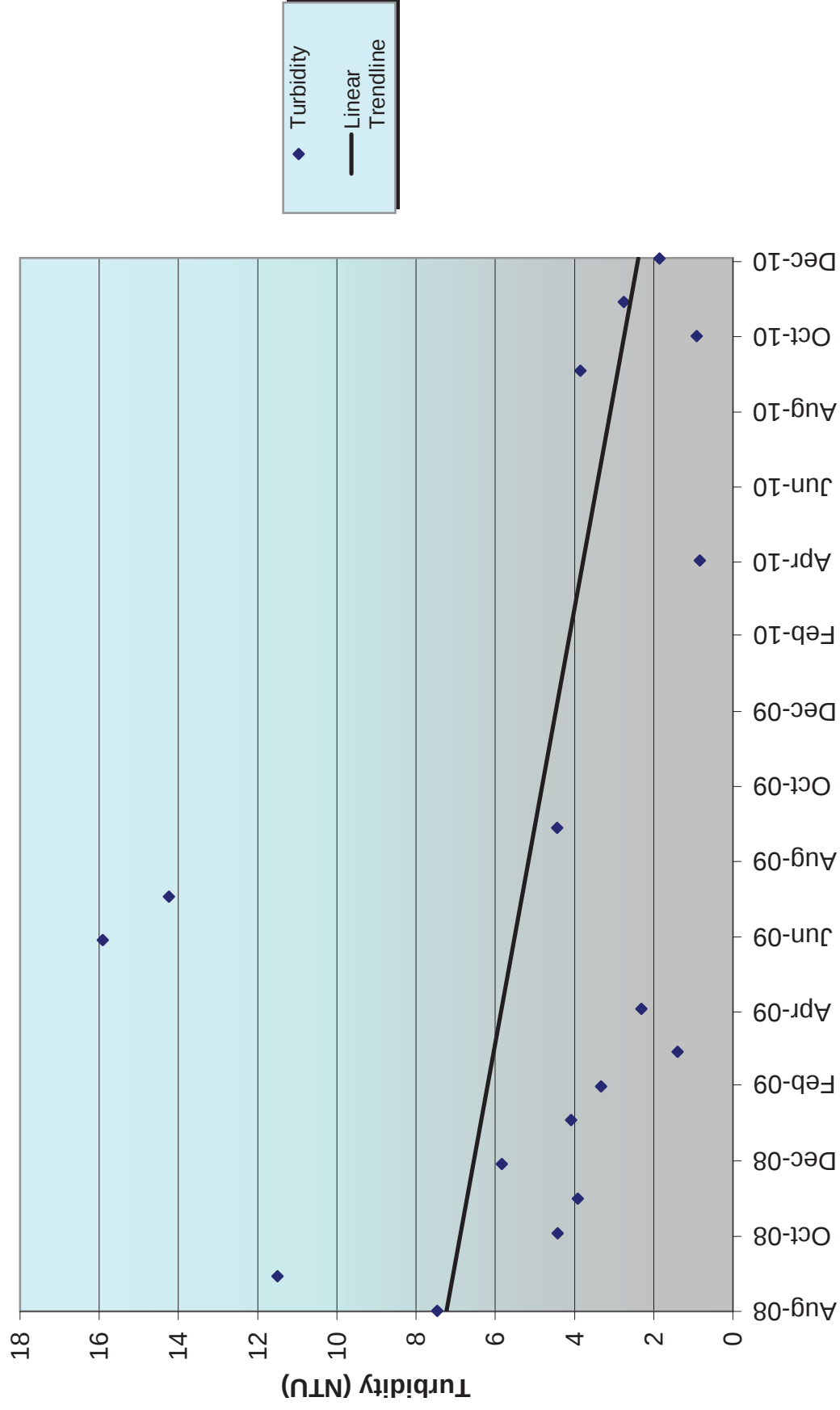


# Turbidity for SNOH8 - Cady Park

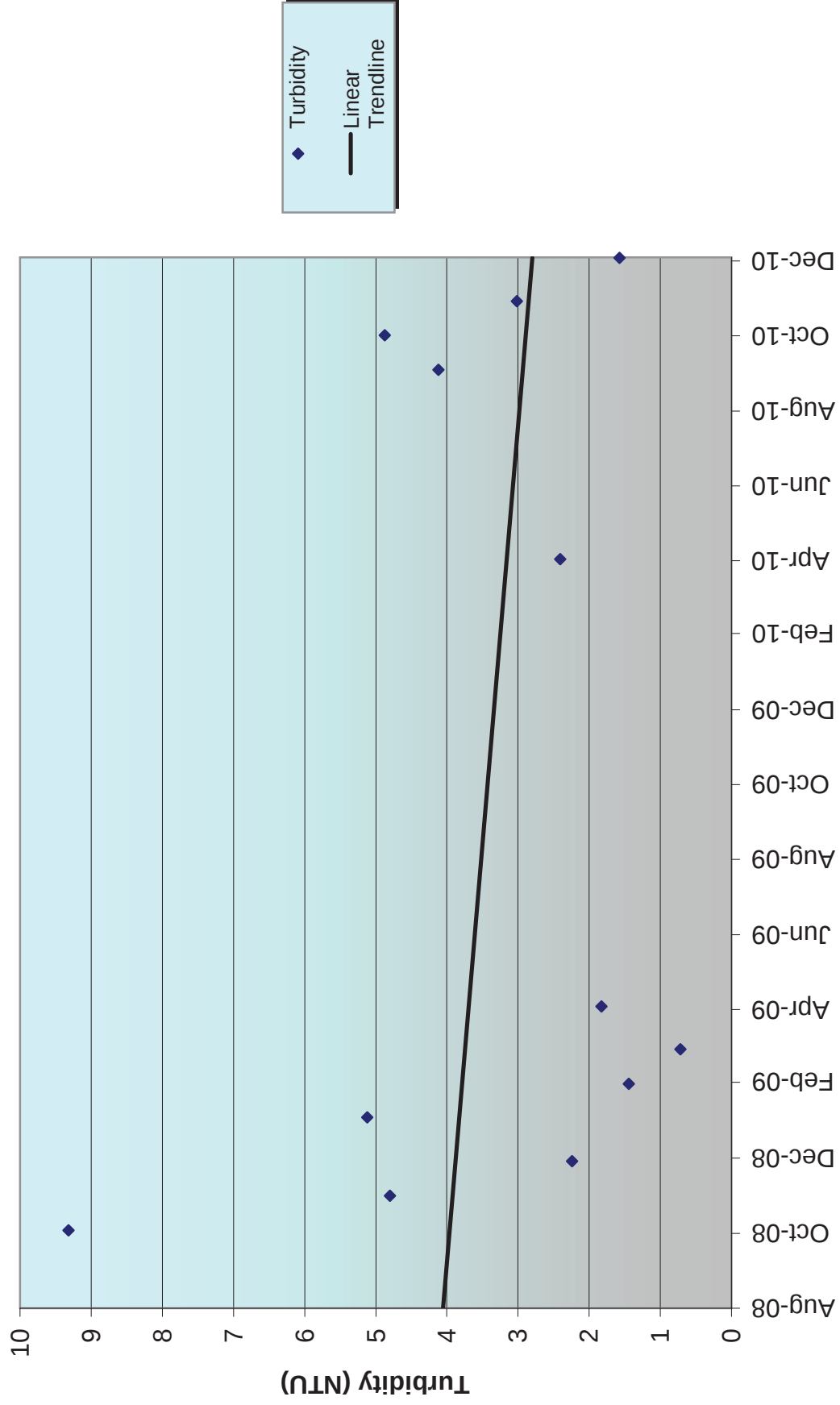


◆ Turbidity  
— Linear  
Trendline

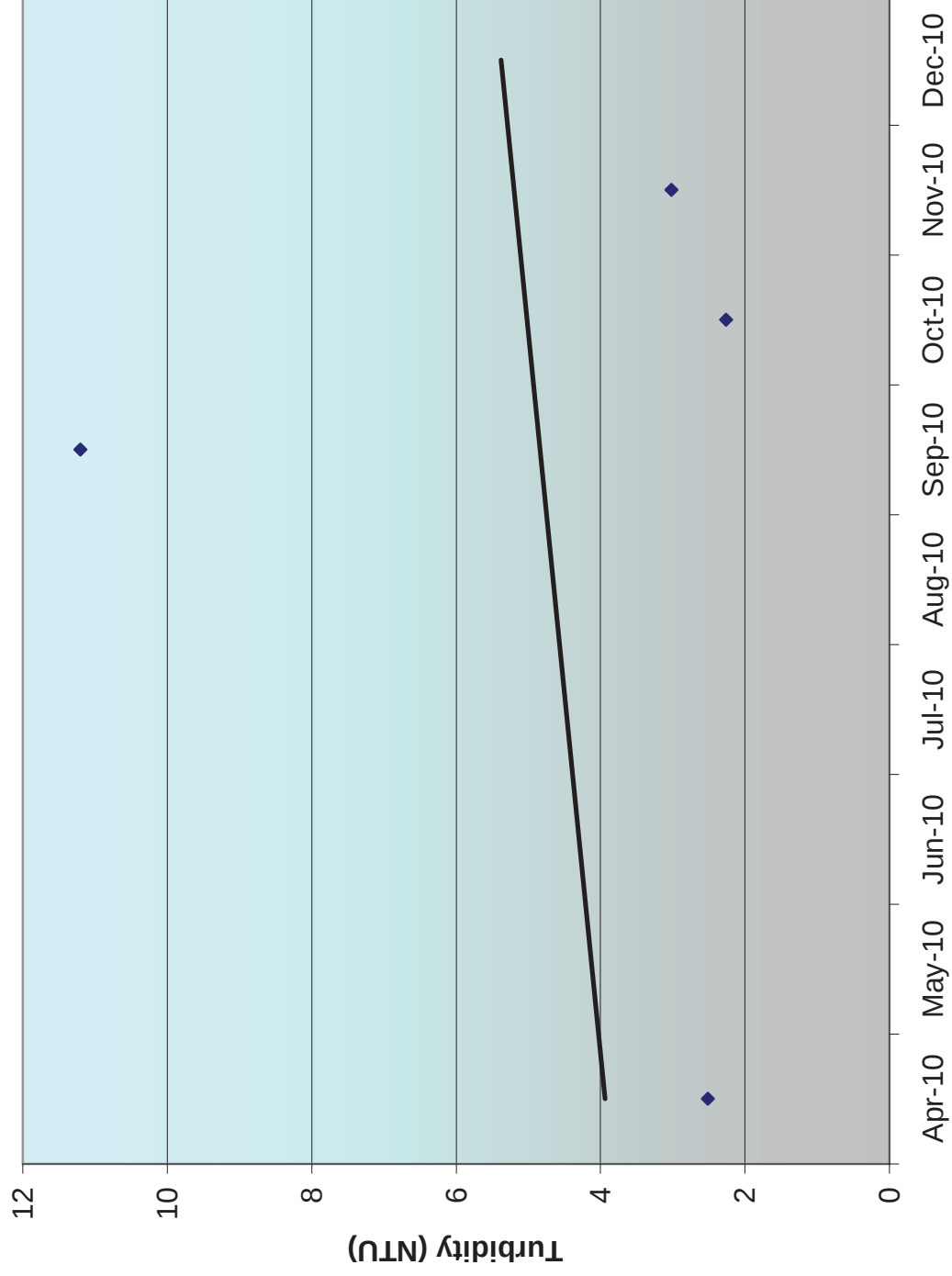
Turbidity for SNOH9 - North of Riverview



Turbidity for SNOH10 - South End of Lakecrest Dr.

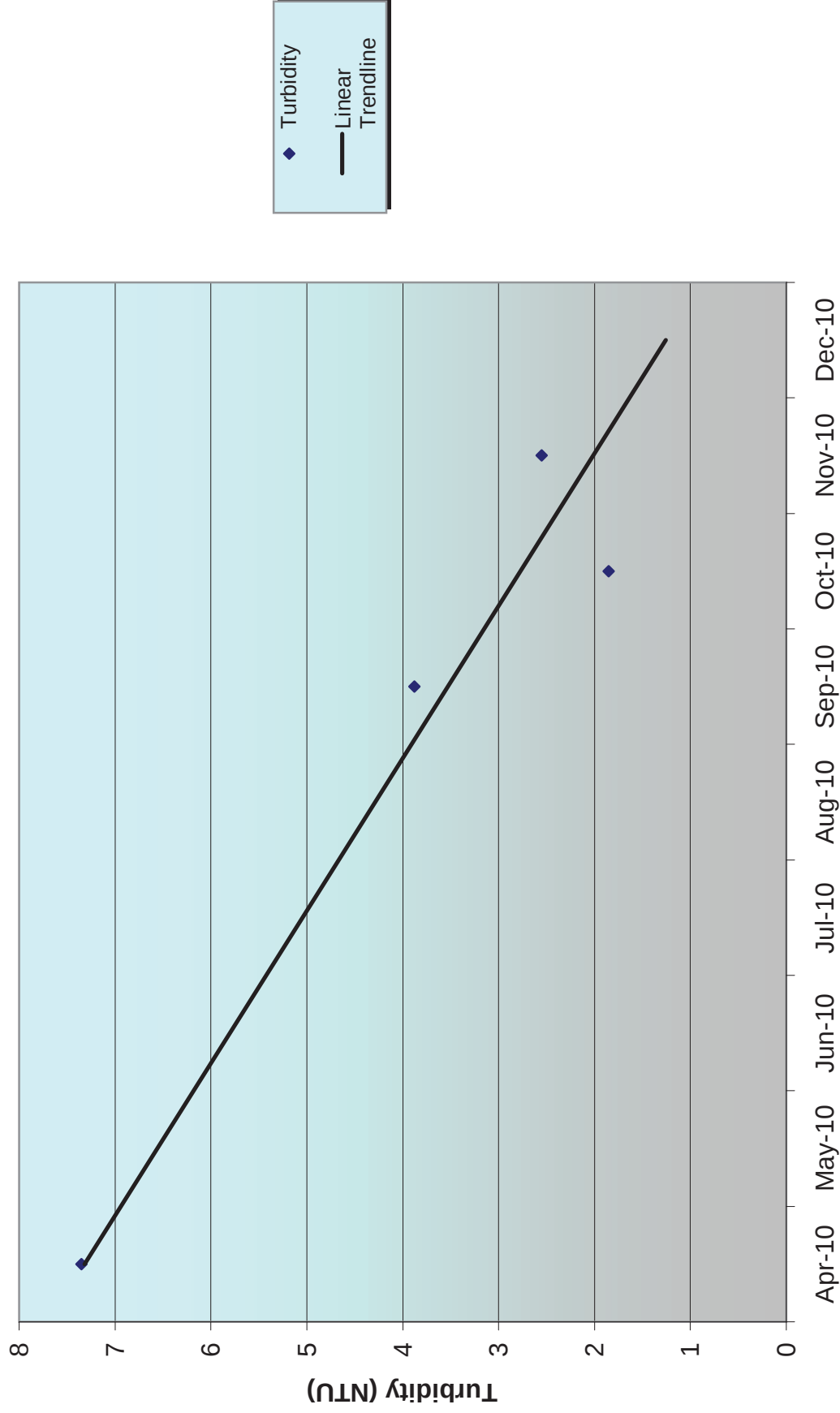


### Turbidity for SNOH11 - Upper Swifty Creek



◆ Turbidity  
— Linear  
Trendline

### Turbidity for SNOH12 - Lower Swifty Creek



# **APPENDIX B**

## **RAW DATA**

## City of Snohomish

### Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2008                                              | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 |     |
|---------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|-----|
| 3/18/2008                                         | 26E    | 2E    | 18E   | 14E   | 6E    | 6E    | 380E  | 10E                  | 40    | 24E    |     |
| 4/15/2008                                         | 30E    | 10E   | 62    | 94    | 8E    | 14E   | 70    | 220                  | 72E   | 6E     |     |
| 5/20/2008                                         | 52     | 20E   | 58    | 110   | 52    | TNTC  | 450E  | TNTC                 | 180   | 120    |     |
| 6/26/2008                                         | 400E   | 12E   | 230   | 28E   | 30E   | 170   | 260E  | 490                  | 380E  | 42     |     |
| 7/24/2008                                         | 400E   | 42    | 220   | 24E   | 140   | NS    | NS    | 160                  | 36E   | NS     |     |
| 8/19/2008                                         | NS     | 23E   | 100E  | 110E  | NS    | NS    | 1100E | 330                  | 30E   | NS     |     |
| 9/16/2008                                         | NS     | 5E    | 72E   | 12E   | NS    | NS    | NS    | 190E                 | 18E   | NS     |     |
| 10/21/2008                                        | 430E   | 100   | 103   | 66    | 10E   | 2200E | NS    | 100                  | 14E   | 50     |     |
| 11/18/2008                                        | 76     | ND    | 28E   | 12E   | 16E   | 220   | 120   | 18E                  | 26E   | 90     |     |
| 12/16/2008                                        | 100    | 12E   | 270   | 88    | 2E    | 200   | 230   | 540                  | 48E   | 38E    |     |
| Annual Avg Mean                                   | 189    | 25    | 116   | 56    | 33    | 1830  | 373   | 1206                 | 84    | 53     |     |
| Geometric Mean                                    | 110    | 14    | 84    | 39    | 16    | 202   | 266   | 201                  | 48    | 38     |     |
| State Geomean Standard                            | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100 |
| Meet State Geomean Std?                           | No     | Yes   | Yes   | Yes   | Yes   | No    | No    | No                   | Yes   | Yes    |     |
| 10% sampled > State Std of 200 (or 100 in lake or | Yes    | No    | Yes   | No    | Yes   | Yes   | Yes   | Yes                  | No    | No     |     |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

# City of Snohomish

## Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2009                                                    | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 |     |
|---------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|-----|
| 1/20/2009                                               | <2     | <2    | 2 E   | 8 E   | 2 E   | 26 E  | 32    | 14 E                 | 4E    | 42     |     |
| 2/17/2009                                               | 12 E   | <2    | <2    | 18 E  | <2    | 30 E  | 520 E | <2                   | 30 E  | 16 E   |     |
| 3/17/2009                                               | 75     | 3 E   | 20 E  | 78    | 13 E  | 15 E  | 110 E | 28 E                 | 20 E  | 270    |     |
| 4/21/2009                                               | 56     | 26E   | 4E    | 22E   | 4E    | 12E   | 70    | 26E                  | 60    | 40     |     |
| 5/19/2009                                               | 1200E  | 46    | 350E  | 780E  | 380E  | 410E  | 800E  | 1100E                | 160   | 250E   |     |
| 6/16/2009                                               | 35E    | 18E   | 570   | 50    | 35E   | 70    | 140   | 480                  | 100   | NS     |     |
| 7/21/2009                                               | NS     | 10E   | 98    | NS    | 88    | NS    | NS    | 1860E                | 210   | NS     |     |
| 8/18/2009                                               | NS     | 33E   | NS    | NS    | NS    | NS    | NS    | 1000                 | 30E   | NS     |     |
| 9/15/2009                                               | NS     | 8E    | 68    | 95    | 5E    | NS    | NS    | 240                  | 48E   | NS     |     |
| 10/20/2009                                              | 25E    | 8E    | 83    | 75    | 28E   | 190   | 550   | 200                  | 13E   | 470    |     |
| 11/24/2009                                              | 470    | 93    | 200   | 250   | 120   | 190   | 530   | 4200                 | 160   | 130    |     |
| 12/18/2009                                              | 470    | 3     | 360   | 1100  | 250   | 12    | 620   | 550                  | 390   | 260    |     |
| Annual Avg Mean                                         | 260    | 21    | 160   | 248   | 84    | 106   | 375   | 808                  | 102   | 185    |     |
| Geometric Mean                                          | 61     | 9     | 44    | 85    | 22    | 49    | 240   | 179                  | 54    | 114    |     |
| State Geomean Standard                                  | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100 |
| Meet State Geomean Std?                                 | Yes    | Yes   | Yes   | Yes   | Yes   | Yes   | No    | No                   | Yes   | No     |     |
| 10% sampled>State Std of 200 (or 100 in lake or above)? | Yes    | No    | Yes   | Yes   | Yes   | Yes   | Yes   | Yes                  | Yes   | Yes    |     |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

# City of Snohomish

## Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2010                                                    | SNOH 1 | SNOH2 | SNOH3  | SNOH4  | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 | SNOH11 | SNOH12 |
|---------------------------------------------------------|--------|-------|--------|--------|-------|-------|-------|----------------------|-------|--------|--------|--------|
| 1/27/2010                                               | 18     | 23    | 3      | 18     | 8     | 35    | 130   | 190                  | 93    | 30     |        |        |
| 2/16/2010                                               | 250    | 18 E  | 68     | 100    | 45 E  | 63    | 150 E | 720 E                | 48 E  | 38 E   |        |        |
| 3/16/2010                                               | 20 E   | 6 E   | 28 E   | 50     | 8 E   | 4 E   | 30 E  | 60                   | 24 E  | 300 E  |        |        |
| 4/20/2010                                               |        |       | 34 E   | 110    | 18 E  | 62    | 84    | 78                   | 62    | 20 E   | 70     | <2     |
| 5/21/2010                                               |        |       | 3300 E | 260 E  | 38 E  | 34 E  | 300 E | 120                  | 180   | 3100 E | 410 E  | 270 E  |
| 6/15/2010                                               |        |       | 260    | 110    | 23 E  | 58    | 83    | 83                   | <3    | 83     | 80     | 10 E   |
| 7/20/2010                                               |        |       | 220    | 10 E   | 28 E  | 30 E  | 400   | 250                  | 230   |        | 350    |        |
| 8/17/2010                                               |        |       | 310 E  | 3000 E | 2 E   | 120   | 308 E | 220                  | 32 E  |        | 12 E   | 280 E  |
| 9/21/2010                                               |        |       | 410    | 730 E  | 520   | 290   | 470   | 100 E                | 670 E | 670 E  | 10 E   | 190    |
| 10/19/2010                                              |        |       | 23 E   | 25 E   | 8 E   | 25 E  | 190   | 300                  | 23 E  | 18 E   | 3 E    | 340    |
| 11/23/2010                                              |        |       | 15 E   | 13 E   | 30 E  | 58    | 40 E  | 63                   | 8 E   | 33 E   | 130    | 140    |
| 12/21/2010                                              |        |       | 28 E   | 35 E   | 5 E   | 5 E   | 15 E  | 13 E                 | 8 E   | 3 E    |        |        |
| Annual Avg Mean                                         | 96     | 16    | 392    | 372    | 61    | 65    | 183   | 183                  | 115   | 430    | 133    | 176    |
| Geometric Mean                                          | 45     | 14    | 77     | 80     | 18    | 38    | 119   | 120                  | 40    | 68     | 50     | 68     |
| State Geomean Standard                                  | 100    | 100   | 100    | 100    | 50    | 100   | 100   | 100                  | 100   | 50     | 100    | 100    |
| Meet State Geomean Std?                                 | Yes    | Yes   | Yes    | Yes    | Yes   | Yes   | No    | No                   | Yes   | No     | Yes    | Yes    |
| 10% sampled>State Std of 200 (or 100 in lake or above)? | Yes    | No    | Yes    | Yes    | Yes   | No    | Yes   | Yes                  | Yes   | Yes    | Yes    | Yes    |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

## City of Snohomish

### Fecal Coliform Monitoring Results <sup>(1)</sup>

|                                                           | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 | SNOH11 | SNOH12 |
|-----------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|--------|--------|
| <b>2011</b>                                               |        |       |       |       |       |       |       |                      |       |        |        |        |
| 1/27/2011                                                 |        |       | 30E   | 15E   | 3E    | 98    | 60    | 30E                  | 95    | 3E     |        |        |
| 2/25/2011                                                 |        |       | 15E   | 12E   | 160E  | 5E    | 10E   | 8E                   | 18E   | 230    |        | 12E    |
| 3/1/2011                                                  |        |       |       |       |       |       |       |                      |       |        |        |        |
| 4/1/2011                                                  |        |       |       |       |       |       |       |                      |       |        |        |        |
| 5/1/2011                                                  |        |       |       |       |       |       |       |                      |       |        |        |        |
| 6/21/2011                                                 |        |       | 130   | 50    | <2    | 90    | 53    | 110                  |       | 8E     |        |        |
| 7/19/2011                                                 |        |       | 93    | 40E   | 63    | 240   | 140   | 18E                  |       | 4E     |        |        |
| 8/16/2011                                                 |        |       | 85    | 40E   | 16E   | 55    | 110   | 8E                   |       | 55E    |        |        |
| 9/20/2011                                                 |        |       | 370   | 78    | 470   | 120   |       | 4500E                |       |        |        |        |
| 10/18/2011                                                |        |       | 24E   | 140   | 14E   | 8E    |       | 60                   |       |        |        |        |
| 11/21/2011                                                |        |       | 6E    | 28E   | 12E   | 140   | 730E  | 90                   |       | 80     |        |        |
| 12/1/2011                                                 |        |       |       |       |       |       |       |                      |       |        |        |        |
| Annual Avg Mean                                           |        |       | 94    | 50    | 105   | 95    | 184   | 603                  |       | 63     |        |        |
| Geometric Mean                                            |        |       | 47    | 38    | 32    | 55    | 84    | 56                   |       | 21     |        |        |
| State Geomean Std                                         | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100    | 100    |
| Meet State Geomean Std?                                   |        |       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes                  |       | Yes    |        |        |
| 10% sampled > State Std of 200 (or 100 in lake or above)? |        |       | Yes   | No    | Yes   | Yes   | Yes   | Yes                  |       | Yes    |        |        |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

## City of Snohomish

### Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2012                                                    | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 | SNOH11 | SNOH12 |
|---------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|--------|--------|
| 1/24/2012                                               |        |       |       | 12E   | 16E   | 60    | 80    | 70                   |       | 8E     |        |        |
| 2/22/2012                                               |        |       | 480   | 370   |       | 350   | 380   |                      |       | 58     |        |        |
| 3/20/2012                                               |        |       | 6E    | 16E   | 8E    | 8E    | 50E   | 38E                  |       | 8E     |        |        |
| 4/17/2012                                               |        |       | 130   | 38E   | 4E    | 14E   | 30E   | 42E                  |       | 75     |        |        |
| 5/15/2012                                               |        |       | 22E   | 8E    | 12E   | 30E   | 48E   | 12E                  |       | 16E    |        |        |
| 6/1/2012                                                |        |       |       |       |       |       |       |                      |       |        |        |        |
| 7/25/2012                                               |        |       | 63    | 78    | 2E    | 140   | 110   | 24E                  |       | 24E    |        |        |
| 8/1/2012                                                |        |       |       |       |       |       |       | 110                  |       |        |        |        |
| 9/27/2012                                               |        |       | 10E   | 100   | 2E    |       |       |                      |       |        |        |        |
| 10/17/2012                                              |        |       | 250   | 260   | 660E  | 280   | 490   | 480                  |       |        |        |        |
| 11/21/2011                                              |        |       | 60    | 68    | 14E   | 110   | 130   | 55                   |       | 16E    |        |        |
| 12/1/2011                                               |        |       | 75    | 40E   | 10E   | 110   | 170   | 28E                  |       | 8E     |        |        |
| Annual Avg Mean                                         |        |       | 122   | 99    | 81    | 122   | 165   | 95                   |       | 27     |        |        |
| Geometric Mean                                          |        |       | 56    | 51    | 11    | 69    | 111   | 52                   |       | 18     |        |        |
| State Geomean Std                                       | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100    | 100    |
| Meet State Geomean Std?                                 |        |       | Yes   | Yes   | Yes   | Yes   | No    | Yes                  |       | Yes    |        |        |
| 10% sampled>State Std of 200 (or 100 in lake or above)? |        |       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes                  |       | No     |        |        |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

## City of Snohomish

### Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2013                                                    | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 | SNOH11 | SNOH12 |
|---------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|--------|--------|
| 2/19/2013                                               |        |       | 80    | 28E   | 8E    | 22E   | 55    | 6E                   |       | 8E     |        |        |
| 3/19/2013                                               |        |       | 10E   | 2E    | 130   | 30E   | 36E   | 58                   |       | 4E     |        |        |
| 4/16/2013                                               |        |       | 6E    | 12E   | 22E   | 4E    | 36E   | 14E                  |       | 8E     |        |        |
| 5/23/2013                                               |        |       | 88    | 250   | 350   | 2000E | 85    | 660E                 |       | 32E    |        |        |
| 6/18/2013                                               |        |       | 58    | 52    | <1    | 780E  | 58    | 180E                 |       | 36E    |        |        |
| 7/16/2013                                               |        |       | 100   | 120   | 150   | 150   | 98    | 46E                  |       |        |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
| 9/4/2013                                                |        |       |       | 670E  | 570   | 360   |       | 230                  |       |        |        |        |
| 9/17/2013                                               |        |       | 120   | 140   | 550   |       | 760E  | 140                  |       |        |        |        |
| 10/16/2013                                              |        |       | 65    | 24E   | 6E    | 50    | 160   | 8E                   |       | 16E    |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
| 12/17/2013                                              |        |       | 48E   | 22E   | 16E   | 34E   | 68    | 24E                  |       | 4E     |        |        |
| Annual Avg Mean                                         |        |       | 64    | 132   | 180   | 381   | 151   | 137                  |       | 15     |        |        |
| Geometric Mean                                          |        |       | 46    | 47    | 45    | 90    | 87    | 53                   |       | 11     |        |        |
| State Geomean Standard                                  | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100    | 100    |
| Meet State Geomean Std?                                 |        |       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes                  |       | Yes    |        |        |
| 10% sampled>State Std of 200 (or 100 in lake or above)? |        |       | No    | Yes   | Yes   | Yes   | Yes   | Yes                  |       | No     |        |        |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

## City of Snohomish

### Fecal Coliform Monitoring Results <sup>(1)</sup>

| 2014                                                    | SNOH 1 | SNOH2 | SNOH3 | SNOH4 | SNOH5 | SNOH6 | SNOH7 | SNOH8 <sup>(2)</sup> | SNOH9 | SNOH10 | SNOH11 | SNOH12 |
|---------------------------------------------------------|--------|-------|-------|-------|-------|-------|-------|----------------------|-------|--------|--------|--------|
| 1/22/2014                                               |        |       | 2E    | 30E   | 2E    | 12E   | 24E   | <2                   |       | <2     |        |        |
| 2/19/2014                                               |        |       | 10E   | 12E   | 2E    | 14E   | 10E   | 12E                  |       | <2     |        |        |
| 3/18/2014                                               |        |       | 6E    | 130   | <2    | 12E   | 12E   | 58                   |       | <2     |        |        |
| 4/15/2014                                               |        |       | 160   | 360   | <2    | 88    | 34E   | 130                  |       | 10E    |        |        |
| 5/30/2014                                               |        |       | 24    | 130   | 6E    | 63    | 90    | 12E                  |       | 14E    |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
| 7/29/2014                                               |        |       | 100   | 120   |       | 90    |       | 600                  |       |        |        |        |
| 8/22/2014                                               |        |       | 120   | 1200E |       | 220   |       | 20E                  |       |        |        |        |
| 9/30/2014                                               |        |       | 120   |       | 130   | 690   | 640   | 390                  |       |        |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
|                                                         |        |       |       |       |       |       |       |                      |       |        |        |        |
| Annual Avg Mean                                         |        |       | 60    | 283   | 3     | 71    | 34    | 119                  |       | 6      |        |        |
| Geometric Mean                                          |        |       | 25    | 118   | 2     | 42    | 24    | 31                   |       | 4      |        |        |
| State Geomean Standard                                  | 100    | 100   | 100   | 100   | 50    | 100   | 100   | 100                  | 100   | 50     | 100    | 100    |
| Meet State Geomean Std?                                 |        |       | Yes   | Yes   | Yes   | Yes   | Yes   | Yes                  |       | Yes    |        |        |
| 10% sampled>State Std of 200 (or 100 in lake or above)? |        |       | No    | Yes   | Yes   | Yes   | Yes   | Yes                  |       | Yes    |        |        |

1. Units are colonies/100mL; E = Estimated Count; NS = Not Sampled (dry, low flow, etc.); ND = Non Detect; TNTC = Too numerous to count; ( ) = Duplicate Sample

2. The SNOH8 site at Cady Park is sampled at the outfall of a pipe but 100 colonies/100mL is listed as the State Standard for this site due to its close proximity to the Snohomish River.

**City of Snohomish Expanded Parameters for Water Quality Monitoring**

| <b>Sample Site</b> | <b>Date</b> | <b>Temp (°C)</b> | <b>pH</b> | <b>Conductivity(μ/cm)</b> | <b>DO (mg/L)</b> | <b>Turbidity (NTU)</b> |
|--------------------|-------------|------------------|-----------|---------------------------|------------------|------------------------|
| SNOH1              | 8/19/2008   |                  |           |                           |                  |                        |
| SNOH2              | 8/19/2008   | 17.7             | 8.01      | 244.8                     |                  | 6.29                   |
| SNOH3              | 8/19/2008   | 16.1             | 8.02      | 309                       | 6.9              | 1.7                    |
| SNOH4              | 8/19/2008   | 16               | 7.86      | 268.3                     | 5.2              | 1.13                   |
| SNOH5              | 8/19/2008   |                  |           |                           |                  |                        |
| SNOH6              | 8/19/2008   |                  |           |                           |                  |                        |
| SNOH7              | 8/19/2008   | 17.5             | 8.26      | 74.2                      | 7.1              | 2.6                    |
| SNOH8              | 8/19/2008   | 14.6             | 7.9       | 182.3                     | 8.4              | 4.42                   |
| SNOH9              | 8/19/2008   | 18.8             | 7.47      | 183.3                     | 2.5              | 7.47                   |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 9/16/2008   |                  |           |                           |                  |                        |
| SNOH2              | 9/16/2008   | 12.8             | 8.03      | 220.1                     | 3.3              | 5.19                   |
| SNOH3              | 9/16/2008   | 11.7             | 8.36      | 427                       | 4.9              | 1.02                   |
| SNOH4              | 9/16/2008   | 12.5             | 7.79      | 273.4                     | 4.9              | 0.29                   |
| SNOH5              | 9/16/2008   |                  |           |                           |                  |                        |
| SNOH6              | 9/16/2008   |                  |           |                           |                  |                        |
| SNOH7              | 9/16/2008   |                  |           |                           |                  |                        |
| SNOH8              | 9/16/2008   | 12.2             | 8.34      | 185.4                     | 13               | 10.12                  |
| SNOH9              | 9/16/2008   | 13.2             | 7.76      | 173.6                     | 2.1              | 11.5                   |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 10/21/2008  | 8.1              | 7.7       | 243.5                     | 5.5              | 5.54                   |
| SNOH2              | 10/21/2008  | 8.4              | 7.86      | 220.6                     | 4.2              | 3.28                   |
| SNOH3              | 10/21/2008  | 7.5              | 7.96      | 189.7                     | 6.6              | 3.09                   |
| SNOH4              | 10/21/2008  | 7.3              | 8.02      | 178.1                     | 7                | 1.28                   |
| SNOH5              | 10/21/2008  | 9.4              | 7.46      | 113.8                     | 6.1              | 0.34                   |
| SNOH6              | 10/21/2008  | 8.7              | 7.3       | 48.3                      | 4.1              | 17.4                   |
| SNOH7              | 10/21/2008  |                  |           |                           |                  | 6.77                   |
| SNOH8              | 10/21/2008  | 9.2              | 7.84      | 195.1                     | 7.3              | 6.77                   |
| SNOH9              | 10/21/2008  | 9.1              | 7.62      | 163.7                     | 3.6              | 4.42                   |
| SNOH10             | 10/21/2008  | 6.7              | 7.61      | 133.7                     | 6.7              | 9.32                   |
| SNOH1              | 11/18/2008  | 10.6             | 7.4       | 192.7                     | 4.7              | 1.97                   |
| SNOH2              | 11/18/2008  | 9                | 7.5       | 125.2                     | 5                | 2.74                   |
| SNOH3              | 11/18/2008  | 9.6              | 7.71      | 209.5                     | 6.3              | 1.64                   |
| SNOH4              | 11/18/2008  | 9.5              | 7.72      | 187.9                     | 6.4              | 0.66                   |
| SNOH5              | 11/18/2008  | 9.5              | 7.6       | 121.4                     | 6.3              | 5.48                   |
| SNOH6              | 11/18/2008  | 10.4             | 7.8       | 99                        | 5.2              | 1.75                   |
| SNOH7              | 11/18/2008  | 10.4             | 7.92      | 99.5                      | 6.6              | 1.75                   |
| SNOH8              | 11/18/2008  | 10.3             | 7.86      | 149.3                     | 6.4              | 6.38                   |
| SNOH9              | 11/18/2008  | 9.5              | 7.63      | 144.6                     | 6.2              | 3.91                   |
| SNOH10             | 11/18/2008  | 9.7              | 7.53      | 125.3                     | 5.2              | 4.8                    |
| SNOH1              | 12/16/2008  | 2.8              | 7.65      | 175.5                     | 7.5              | 1.41                   |
| SNOH2              | 12/16/2008  | 1.2              | 8.89      | 124.3                     | 8.4              | 1.11                   |
| SNOH3              | 12/16/2008  | 1.7              | 8.45      | 195.6                     | 11.9             | 1.53                   |
| SNOH4              | 12/16/2008  | 0.9              | 9.47      | 179.3                     | 9.4              | 1.84                   |
| SNOH5              | 12/16/2008  | 1.3              | 8.45      | 126                       | 10.6             | 3.88                   |
| SNOH6              | 12/16/2008  | 1.3              | 8.23      | 132.3                     | 11.3             | 1.48                   |
| SNOH7              | 12/16/2008  | 3.4              | 8.85      | 105.7                     | 10.9             | 1.15                   |

**City of Snohomish Expanded Parameters for Water Quality Monitoring**

| Sample Site | Date       | Temp (°C) | pH   | Conductivity(μ/cm) | DO (mg/L) | Turbidity (NTU) |
|-------------|------------|-----------|------|--------------------|-----------|-----------------|
| SNOH8       | 12/16/2008 | 4.5       | 8.32 | 139.5              | 8.8       | 4.49            |
| SNOH9       | 12/16/2008 | 0.6       | 8.59 | 149.9              | 9.2       | 5.84            |
| SNOH10      | 12/16/2008 | 3.7       | 9.22 | 103.6              | 7.2       | 2.24            |
| SNOH1       | 1/20/2009  | 5         | 7.13 | 1133               |           | 2.76            |
| SNOH2       | 1/21/2009  | 1.8       | 7.57 | 251.3              |           | 0.56            |
| SNOH3       | 1/22/2009  | 1.2       | 7.61 | 200.6              | 9.3       | 2.31            |
| SNOH4       | 1/23/2009  | 2.6       | 7.83 | 159.9              |           | 3.7             |
| SNOH5       | 1/24/2009  | 2.3       | 7.74 | 124.6              |           | 3.78            |
| SNOH6       | 1/25/2009  | 2.6       | 7.87 | 104.9              | 8.8       | 2.17            |
| SNOH7       | 1/26/2009  | 2.8       | 8.06 | 104.2              | 9.5       | 4.13            |
| SNOH8       | 1/27/2009  | 6.4       | 8.05 | 179.5              | 8.5       | 16.8            |
| SNOH9       | 1/28/2009  | 1.4       | 8.03 | 153.5              | 8.6       | 4.08            |
| SNOH10      | 1/29/2009  | 2.8       | 8.68 | 122.5              | 8.6       | 5.12            |
| SNOH1       | 2/17/2009  | 5.2       | 8.05 | 188.5              | 0.2       | 3.62            |
| SNOH2       | 2/17/2009  | 4.5       | 7.91 | 115.1              | 0.5       | 3.47            |
| SNOH3       | 2/17/2009  | 4.6       | 8.07 | 231.1              | 0.6       | 3.01            |
| SNOH4       | 2/17/2009  | 4.2       | 8.22 | 202.6              | 0.8       | 1.73            |
| SNOH5       | 2/17/2009  | 4.4       | 8.05 | 128.1              | 1.5       | 3.08            |
| SNOH6       | 2/17/2009  | 5         | 8.05 | 103.3              | 7.3       | 1.29            |
| SNOH7       | 2/17/2009  | 5         | 8.14 | 104.5              | 8.4       | 1.88            |
| SNOH8       | 2/17/2009  | 8.4       | 8.27 | 183.7              | 7.5       | 7.2             |
| SNOH9       | 2/17/2009  | 5.3       | 8.08 | 161.2              | 7.3       | 3.33            |
| SNOH10      | 2/17/2009  | 5.1       | 7.95 | 121.4              | 7.8       | 1.44            |
| SNOH1       | 3/17/2009  | 6         | 8    | 235.1              |           | 1.75            |
| SNOH2       | 3/17/2009  | 4.7       | 8.51 | 151.8              |           | 2.19            |
| SNOH3       | 3/17/2009  | 4.8       | 8.57 | 217.4              |           | 2.52            |
| SNOH4       | 3/17/2009  |           |      |                    |           |                 |
| SNOH5       | 3/17/2009  | 4.4       | 8.42 | 131.5              |           | 3.01            |
| SNOH6       | 3/17/2009  | 6         | 8.22 | 101.1              |           | 0.38            |
| SNOH7       | 3/17/2009  | 5.9       | 8.3  | 104.1              |           | 3.62            |
| SNOH8       | 3/17/2009  | 7.9       | 8.13 | 182.8              |           | 4.99            |
| SNOH9       | 3/17/2009  | 6.1       | 8.07 | 159.9              |           | 1.4             |
| SNOH10      | 3/17/2009  | 4.7       | 8.29 | 127.9              |           | 0.72            |
| SNOH1       | 4/21/2009  | 11.7      | 6.45 |                    | 5.3       | 1.47            |
| SNOH2       | 4/21/2009  | 15.6      | 7.54 |                    | 5         | 2.34            |
| SNOH3       | 4/21/2009  | 10.6      | 7.85 |                    | 7.6       | 2.02            |
| SNOH4       | 4/21/2009  | 11.3      | 7.81 |                    | 7.5       | 2.33            |
| SNOH5       | 4/21/2009  | 12.4      | 7.63 |                    | 7         | 1.9             |
| SNOH6       | 4/21/2009  | 15.6      | 7.9  |                    | 6.8       | 2.18            |
| SNOH7       | 4/21/2009  | 15.1      | 8.01 |                    | 7         | 2.49            |
| SNOH8       | 4/21/2009  | 13.5      | 7.76 |                    | 7.2       | 6.42            |
| SNOH9       | 4/21/2009  | 14.9      | 7.62 |                    | 5.2       | 2.31            |
| SNOH10      | 4/21/2009  | 12.6      | 7.65 |                    | 6.6       | 1.83            |
| SNOH1       | 5/18/2009  | 11.2      | 7.69 | 203.2              |           | 6.44            |
| SNOH2       | 5/18/2009  |           |      |                    |           |                 |
| SNOH3       | 5/18/2009  |           |      |                    |           |                 |
| SNOH4       | 5/18/2009  |           |      |                    |           |                 |

**City of Snohomish Expanded Parameters for Water Quality Monitoring**

| <b>Sample Site</b> | <b>Date</b> | <b>Temp (°C)</b> | <b>pH</b> | <b>Conductivity(μ/cm)</b> | <b>DO (mg/L)</b> | <b>Turbidity (NTU)</b> |
|--------------------|-------------|------------------|-----------|---------------------------|------------------|------------------------|
| SNOH5              | 5/18/2009   |                  |           |                           |                  |                        |
| SNOH6              | 5/18/2009   |                  |           |                           |                  |                        |
| SNOH7              | 5/18/2009   |                  |           |                           |                  |                        |
| SNOH8              | 5/18/2009   |                  |           |                           |                  |                        |
| SNOH9              | 5/18/2009   |                  |           |                           |                  |                        |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 6/16/2009   | 13.4             | 6.69      | 358                       |                  | 15.7                   |
| SNOH2              | 6/16/2009   | 16.7             | 7.03      | 0.27                      |                  | 11.5                   |
| SNOH3              | 6/16/2009   | 13.6             | 7.71      | 438                       |                  | 1.79                   |
| SNOH4              | 6/16/2009   | 14.5             | 7.45      | 247.2                     |                  | 3.21                   |
| SNOH5              | 6/16/2009   | 15.1             | 7.13      | 96.8                      |                  | 1.18                   |
| SNOH6              | 6/16/2009   | 16.4             | 7.14      | 102.6                     |                  | 4.24                   |
| SNOH7              | 6/16/2009   | 16.2             | 7.9       | 114.4                     |                  | 1.21                   |
| SNOH8              | 6/16/2009   | 14.7             | 7.7       | 183.4                     |                  | 8.7                    |
| SNOH9              | 6/16/2009   | 18.8             | 7.56      | 170.8                     |                  | 15.91                  |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 7/21/2009   |                  |           |                           |                  |                        |
| SNOH2              | 7/21/2009   | 18.4             | 7.74      | 298                       |                  | 10.7                   |
| SNOH3              | 7/21/2009   | 14.1             | 7.53      | 387                       |                  | 1.38                   |
| SNOH4              | 7/21/2009   |                  |           |                           |                  |                        |
| SNOH5              | 7/21/2009   | 15.7             | 7.27      | 121.4                     |                  | 2.07                   |
| SNOH6              | 7/21/2009   |                  |           |                           |                  |                        |
| SNOH7              | 7/21/2009   |                  |           |                           |                  |                        |
| SNOH8              | 7/21/2009   | 15.1             | 7.78      | 174.4                     |                  | 7.24                   |
| SNOH9              | 7/21/2009   |                  |           |                           |                  | 14.24                  |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH2              | 8/18/2009   | 17.4             | 7.48      | 126.3                     |                  | 13.6                   |
| SNOH3              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH4              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH5              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH6              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH7              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH8              | 8/18/2009   | 15.6             | 7.21      | 198.4                     |                  | 10.2                   |
| SNOH9              | 8/18/2009   |                  |           |                           |                  |                        |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH1              | 9/15/2009   |                  |           |                           |                  |                        |
| SNOH2              | 9/15/2009   | 15.4             | 7.01      | 384                       |                  | 8.86                   |
| SNOH3              | 9/15/2009   | 13.1             | 7.54      | 193                       |                  | 2.04                   |
| SNOH4              | 9/15/2009   | 15               | 7.04      | 357                       |                  | 1.36                   |
| SNOH5              | 9/15/2009   | 15.9             | 7.86      | 88.1                      |                  | 4.2                    |
| SNOH6              | 9/15/2009   |                  |           |                           |                  |                        |
| SNOH7              | 9/15/2009   |                  |           |                           |                  |                        |
| SNOH8              | 9/15/2009   | 14.8             | 7.51      | 187.5                     |                  | 4.13                   |
| SNOH9              | 9/15/2009   | 17.5             | 8.04      | 194.8                     |                  | 4.44                   |
| SNOH10             |             |                  |           |                           |                  |                        |
| SNOH3              | 4/20/2010   | 12               | 7.94      | 195.4                     |                  | 3.59                   |

**City of Snohomish Expanded Parameters for Water Quality Monitoring**

| Sample Site | Date       | Temp (°C) | pH   | Conductivity(μ/cm) | DO (mg/L) | Turbidity (NTU) |
|-------------|------------|-----------|------|--------------------|-----------|-----------------|
| SNOH4       | 4/20/2010  | 12.2      | 7.65 | 187.6              |           | 2.21            |
| SNOH5       | 4/20/2010  | 12.1      | 7.63 | 111.3              |           | 2.53            |
| SNOH6       | 4/20/2010  | 12.5      | 7.54 | 102.8              |           | 1.63            |
| SNOH7       | 4/20/2010  |           |      |                    |           | 2.21            |
| SNOH8       | 4/20/2010  |           |      |                    |           | 3.14            |
| SNOH9       | 4/20/2010  |           |      |                    |           | 0.83            |
| SNOH10      | 4/20/2010  | 15.2      | 7.63 | 9.64               |           | 2.41            |
| SNOH11      | 4/20/2010  |           |      |                    |           | 2.51            |
| SNOH12      | 4/20/2010  |           |      |                    |           | 7.35            |
| SNOH3       | 9/21/2010  | 13.6      | 6.98 | 119                |           | 4.79            |
| SNOH4       | 9/21/2010  | 13.1      | 7.15 | 60                 |           | 4.57            |
| SNOH5       | 9/21/2010  | 13.4      | 7.24 | 52                 |           | 4.87            |
| SNOH6       | 9/21/2010  | 16.5      | 7.07 | 46                 |           | 1.53            |
| SNOH7       | 9/21/2010  | 15.9      | 7.19 | 48                 |           | 2.44            |
| SNOH8       | 9/21/2010  | 16.1      | 6.95 | 24                 |           | 11.7            |
| SNOH9       | 9/21/2010  | 15.2      | 7.04 | 63                 |           | 3.85            |
| SNOH10      | 9/21/2010  | 13.9      | 7.1  | 53                 |           | 4.12            |
| SNOH11      | 9/21/2010  | 15.1      | 6.66 | 72                 |           | 11.2            |
| SNOH12      | 9/21/2010  | 17.1      | 6.91 | 21                 |           | 3.88            |
| SNOH3       | 10/19/2010 | 10.4      | 8.65 | 169.6              | 7.2       | 3.8             |
| SNOH4       | 10/19/2010 | 9.6       | 8.52 | 188.7              | 7.2       | 2.39            |
| SNOH5       | 10/19/2010 | 7.9       | 7.24 | 373                | 7.6       | 1.08            |
| SNOH6       | 10/19/2010 | 6.9       | 7.76 | 150.1              | 7.4       | 0.63            |
| SNOH7       | 10/19/2010 | 8.1       | 8.27 | 475                | 5.8       | 2.2             |
| SNOH8       | 10/19/2010 | 10.5      | 8.72 | 107.7              | 4.3       | 1.96            |
| SNOH9       | 10/19/2010 | 9.7       | 8.46 | 122.5              | 7.6       | 0.92            |
| SNOH10      | 10/19/2010 | 9.7       | 8.96 | 232.8              | 7.3       | 4.87            |
| SNOH11      | 10/19/2010 | 9.8       | 7.77 | 120.9              | 4.2       | 2.26            |
| SNOH12      | 10/19/2010 | 7.9       | 8.56 | 151.1              | 5.8       | 1.85            |
| SNOH3       | 11/16/2010 | 10.9      | 7.67 | 122.1              | 5         | 2.3             |
| SNOH4       | 11/16/2010 | 11.9      | 7.61 | 176.4              | 5.7       | 1.11            |
| SNOH5       | 11/16/2010 | 10.8      | 6.59 | 209.5              | 7.3       | 2.32            |
| SNOH6       | 11/16/2010 | 10.4      | 7.91 | 152.2              | 7.3       | 1.75            |
| SNOH7       | 11/16/2010 | 10.1      | 8.05 | 110.4              | 5         | 2.49            |
| SNOH8       | 11/16/2010 | 10.3      | 8.23 | 113.8              | 5.1       | 2.42            |
| SNOH9       | 11/16/2010 | 10.7      | 7.78 | 100.8              | 6.1       | 2.75            |
| SNOH10      | 11/16/2010 | 10.5      | 7.67 | 124                | 6.8       | 3.76            |
| SNOH11      | 11/16/2010 | 10.4      | 8.14 | 139.8              | 4.8       | 3.02            |
| SNOH12      | 11/16/2010 | 10.8      | 7.74 | 98.3               | 5.2       | 2.55            |
| SNOH3       | 12/21/2010 | 6.2       | 6.31 | 168.9              | 8         | 1.14            |
| SNOH4       | 12/21/2010 | 6.4       | 7.57 | 157.1              | 7.5       | 1.26            |
| SNOH5       | 12/21/2010 | 6         | 7.01 | 103.2              | 7.3       | 1.87            |
| SNOH6       | 12/21/2010 | 6.4       | 7.33 | 96.7               | 7.4       | 1.55            |
| SNOH7       | 12/21/2010 | 6.7       | 7.31 | 97.2               | 7.9       | 1.54            |
| SNOH8       | 12/21/2010 | 6.7       | 7.02 | 121.1              | 7         | 1.73            |
| SNOH9       | 12/21/2010 | 6.6       | 6.93 | 137.1              | 6.6       | 1.85            |
| SNOH10      | 12/21/2010 | 6.8       | 7.21 | 107                | 7         | 1.57            |

**City of Snohomish Expanded Parameters for Water Quality Monitoring**

| <b>Sample Site</b> | <b>Date</b> | <b>Temp (°C)</b>           | <b>pH</b> | <b>Conductivity(μ/cm)</b> | <b>DO (mg/L)</b> | <b>Turbidity (NTU)</b> |
|--------------------|-------------|----------------------------|-----------|---------------------------|------------------|------------------------|
| <b>SNOH11</b>      | 12/21/2010  | [Flooded - did not sample] |           |                           |                  |                        |
| <b>SNOH12</b>      | 12/21/2010  | [Flooded - did not sample] |           |                           |                  |                        |



## 2014 ECOSS Pollution Prevention Outreach Report For the City of Snohomish

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### Introduction

In 2013, The Environmental Coalition of South Seattle (ECOSS) began an expansion of the Puget Sound Spill Kit Program with funding from Puget Sound Partnership. The goal of the program is to help increase awareness of stormwater pollution, and spill preparedness in small to medium sized businesses with connectivity to Puget Sound. ECOSS has developed partnerships with several cities, including the City of Snohomish to help meet local water quality goals and assist in educating local businesses through this program.

By providing free spill cleanup materials as an incentive, ECOSS seeks to engage businesses on the subject of stormwater pollution prevention, help them save money, and contribute to a cleaner Puget Sound.

### Implementation

#### Business Prioritization

The City of Snohomish provided an initial list of preferred businesses from which ECOSS launched the program. ECOSS' outreach staff added additional businesses to the list through field research based on the level of risk observed in the field. The following facility activities were used as the standard to assess risk:

- Fueling and fuel transfer
- Outdoor manufacturing
- Outdoor equipment/vehicle maintenance
- Outside drum or container storage
- Vehicle, equipment, or building washing
- Loading/unloading of products
- Landscape construction/maintenance
- Outside storage of uncovered materials

A total of 2804 businesses were served between 2013 and 2014 by this program in all of the participating cities. In the City of Snohomish, 51 businesses were identified and served through these approaches in 2014 (see Appendix A for a list of businesses served).

### **Initial Approach**

The outreach staff contacted each business through a site visit during which they introduced themselves as a partner of the City of Snohomish. The outreach staff also took advantage of referrals through property management companies, business associations, networks, and in some cases other agencies as a means of introduction. The program brochure was the primary tool used to introduce the business to the program and inform them of the City of Snohomish's participation. The program brochure (Appendix B) contains information about the issue of polluted runoff, the benefits to participation in the program, and historical background on ECOSS and it is intended to help in gaining the businesses' trust.

### **Training**

Participating businesses were given a brief primer on the subject of stormwater and its effect on water quality. As an incentive to responsibly address onsite spills, each business received a free spill kit (Figure 1) containing either oil or universal sorbent materials capable of cleaning 7 gallons of liquid. The kit contents are as follows:

- 1 - 6.5 Gal UN Rated Pail w/lid
- 2 - Disposal Bag (4 mil)
- 2 - Disposal Bag (6 mil)
- 4 - Poly Zip Ties
- 20 - Heavy Wt. Sorbent Pads
- 2 - 3"x 48" Sorbent Socks
- 1 - Pair Nitrile Gloves
- 2 - Splash Resistant Goggles
- 1 - Instruction/Contents Page
- 2 - Spill Response Labels
- 1 - Grate Hook



Figure 1: Spill kit provided to participating businesses

The outreach staff provided training on the proper use and disposal of kit materials. The businesses were provided with an Instructional Poster and were helped to post it in a visible location and to use it to train their employees (Appendix C). Businesses were asked to sign a pledge, reflecting their understanding of pollution prevention, and

promising future trainings for their staff. During the initial visit a baseline survey (i.e., before participating in the program) was taken to develop an understanding of the level of awareness on the part of the business. This survey helps to paint a picture of businesses' beliefs regarding liability and responsibility before the interaction. Lastly, the information necessary to create a Spill Plan was collected, including site specific risks and contact information for emergency response.

### **Spill Plan and Site Map**

The information collected onsite was used to create a laminated Spill Plan (Appendix D) listing potentially risky activity at each site and the relevant contact information. In addition, if a city provided ECOSS with stormwater infrastructure and drainage basin information (either in the form of Geographic Information System [GIS] data or electronic maps) then a Site Map was provided to each business to illustrate their connectivity to Puget Sound (Appendix E). The outreach team then made a follow-up visit to each business to provide the laminated Spill Plan and Site Map. During this visit, the outreach staff assessed the chosen location of the spill kit on-site and offered suggestions when applicable. The businesses were reminded of ECOSS' role as a resource for future trainings (also available in a variety of languages) for their employees.

### **Follow-up Survey**

After the service, an attempt was made to contact a representative sample (35%) of all of the businesses served in the program. This attempt was made at least six months after the initial service. The purpose was to assess the level of understanding and awareness of the issue retained since the initial interaction. Businesses from all the participating cities were including in this survey.

## Business Served and Their Stormwater Awareness

### Characteristics

In 2014 a total of 51 businesses were served through this program in the City of Snohomish (Appendix A). A breakdown of the types of businesses served in this city is shown in Figure 2.



Figure 2: Business Sector Breakdown

## Languages

Through this program, ECOSS' Multicultural Outreach Team utilized their language capacities to connect with hard-to-reach businesses. As seen in Figure 3, 27% of the businesses served in the City of Snohomish spoke English as a Second Language (ESL).

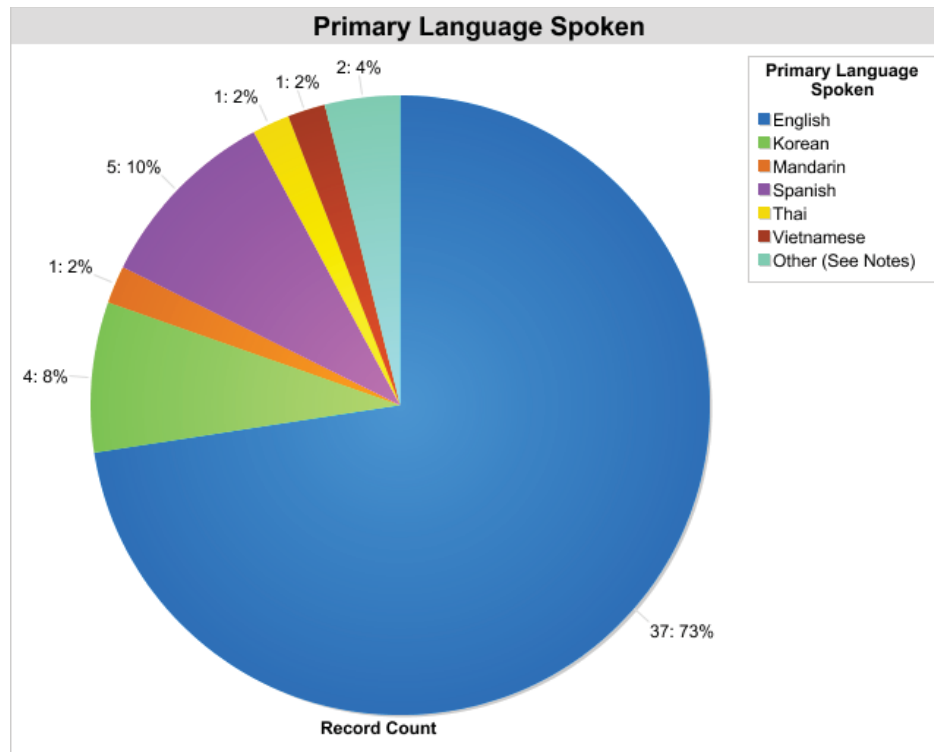


Figure 3: Primary Language Spoken Breakdown

The rest of this section includes results from all the participating cities.

Out of the total businesses served in this program throughout all the cities, 32% spoke ESL. A breakdown of the languages spoken by the businesses program-wide is shown in Table 1.

| Demographic Data of Businesses Served |            |  |
|---------------------------------------|------------|--|
| Language                              | Percentage |  |
| English                               | 68%        |  |
| Korean                                | 11%        |  |
| Spanish                               | 8%         |  |
| Somali                                | 1%         |  |
| Vietnamese                            | 3%         |  |
| Chinese                               | 1%         |  |
| Other                                 | 8%         |  |

Table 1: Primary languages spoken by businesses

## Multilingual Documents

In early 2014, ECOSS translated the Instructional Posters and Spill Plans into 5 different languages: Chinese, Korean, Somali, Spanish, and Vietnamese. The translated documents are available to businesses with employees who speak ESL. These documents were made to further assist multicultural businesses owners and employees to better understand stormwater management, and has been proven effective in the past.

## Survey Results

As described above, a survey was conducted during each visit to understand the level of awareness of the issue on the part of each business, and a follow up survey was conducted with 35% of those businesses to gauge retention and behavior change. As depicted in Figure 4, after participating in the program 73% of the businesses reported knowing where their stormwater runoff went. This is a large improvement as only 41% of the businesses reported having this information before participating in the program.

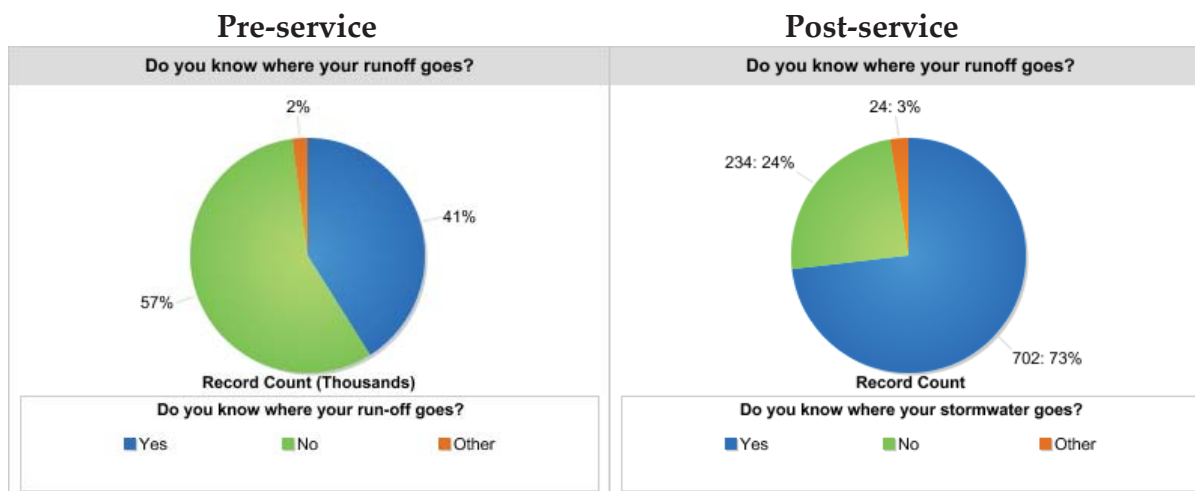


Figure 4: Pre and post-service answer to the question of whether a business knew where their stormwater runoff goes

Businesses were asked if they had spill cleanup materials and a Spill Plan onsite prior to the service. As seen in Figure 5, only 46% of businesses had materials, and only 7% had a Spill Plan. These percentages went up to 100% after program participation.

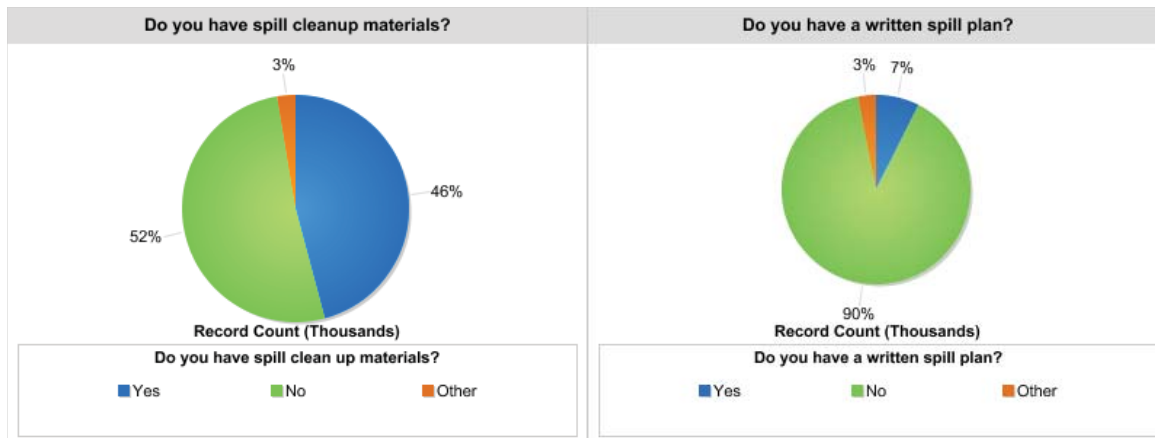


Figure 5: Answer to the question of whether a business had cleanup materials and a Spill Plan prior to the service

Since receiving the spill kit and training, 11% of the businesses surveyed report that they have used the material and information to clean up spills, which consisted most frequently of vehicle fluids (Figure 6).

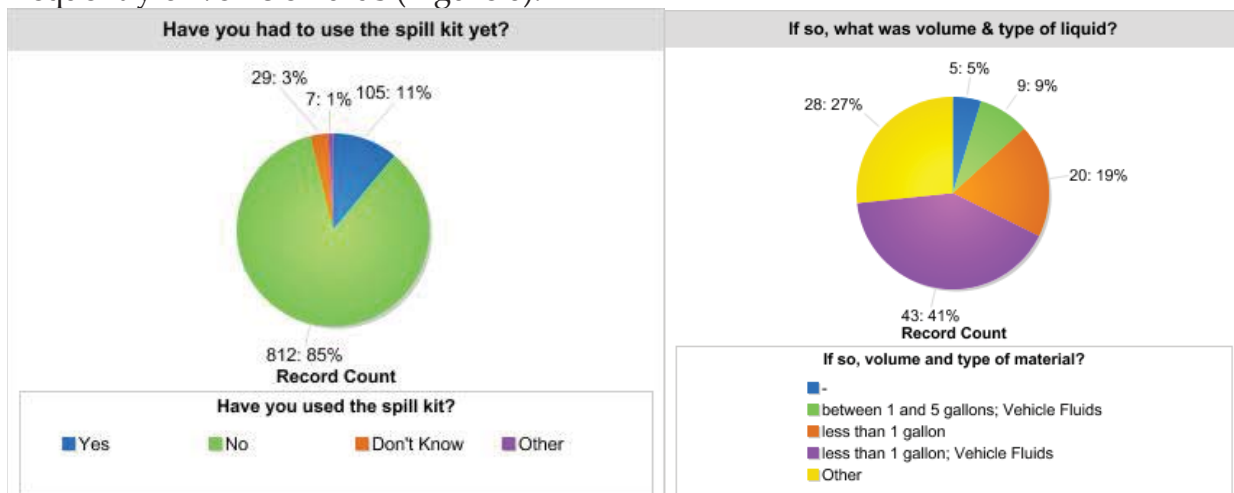


Figure 6: Post Service answer to the question of whether a business used the kit to clean an outdoor spill and what was the type and quantity of the spill

## Conclusions

In summary, the main 2014 outcomes for the City of Snohomish from this project are:

- A total of 51 businesses in City of Snohomish received educational training and a spill kit (Appendix A).
- 27% of the businesses served in the City of Snohomish spoke ESL. The most common languages spoken other than English are Spanish and Korean within the served businesses.
- Program wide results:
  - 32% of business served spoke ESL.
  - Prior to the service, 41% of the businesses that took part in the program were aware of where polluted runoff went. After participating in the program, 73% of the businesses surveyed had this awareness of polluted runoff.
  - 11% of the businesses that participated in the follow-up survey reported having had outdoor spills since receiving a kit and using the kit to address the incident. The most commonly spilled substances were vehicle fluids. Out of our survey samples, at least 3 businesses also reported their spill voluntarily to the local municipalities.
  - Although the program did not track this data, it is thought that roughly 80% of the businesses contacted through outreach ended up participating in the program.
- Expressed support on the part of the municipality was crucial to gaining the trust of the business' representatives
- Collateral materials with the city's logo further reinforced the legitimacy of the program and the outreach team
- In-kind and direct support for the program has proven to be invaluable to ECOSS. It is estimated that in 2014, \$15,000 of in-kind support was provided per city. In addition, some of the cities provided \$2500 to purchase spill kits and other direct expenses.

## Recommendations and Next Steps

- Based on the use of the kits amongst the business community, ECOSS recommends continuing to provide the program for 2015. By both engaging new businesses and revisiting some earlier-served businesses, ECOSS can further solidify the principles of spill prevention and clean-up within City's business community.
- ECOSS recommends revisiting previously served businesses to provide a refresher training. While conducting the Post-Service survey, we found that

though many businesses did provide trainings their employees, due to high staff turnover, inconvenience, and other reasons, a majority of the businesses that we worked with did not provide trainings on these issues to their staff. Not only would a refresher training encourage businesses to recognize instances in which the spill kit would be of use, but it would also help the City to develop meaningful relationships with the businesses by indirectly providing this free resource.

- ECOSS recommends mailing a co-branded postcard about the program in advance of the outreach visits. This will help provide a soft introduction for the business to the program and to ECOSS.
- ECOSS would like to explore funding (both in-kind and direct) to help offset program costs in 2015. By contributing a relatively small dollar amount to a regional program, ECOSS and the cities involved can off-set the high cost of public engagement towards water quality by leveraging all parties' limited resources. Levels of funding would be related to the total number of businesses served (based on the City of Snohomish's annual outreach goals).

## Appendix A: Table of Businesses Served.

| Business name                                      | Address                  | City      | Primary Language Spoken |
|----------------------------------------------------|--------------------------|-----------|-------------------------|
| <b>Type of Business: Automotive (2 records)</b>    |                          |           |                         |
| Honest Trans & Auto                                | 1033 Avenue D            | Snohomish | English                 |
| Pro's Choice Repair                                | 1105 - 2nd Street        | Snohomish | English                 |
| <b>Type of Business: Food Service (47 records)</b> |                          |           |                         |
| KFC - Snohomish                                    | 1209 Ave D               | Snohomish | Spanish                 |
| Starbucks - Snohomish Station                      | 2623 Bickford Ave        | Snohomish | English                 |
| Subway - Bickford Ave                              | 2621 Bickford Ave        | Snohomish | English                 |
| McDonald's - Snohomish                             | 917 Ave D                | Snohomish | Spanish                 |
| Quizno's - Snohomish                               | 1101 Ave D, Suite 101    | Snohomish | Other (See Notes)       |
| Grilla Bites                                       | 1020 - 1st St, Suite 104 | Snohomish | English                 |
| Big Star Pizza                                     | 1101 Ave D, Suite 103    | Snohomish | English                 |
| Papa Murphy's - Snohomish                          | 1207 - 13th St           | Snohomish | English                 |
| Blazing Onion                                      | 2811 Bickford Ave        | Snohomish | English                 |
| Fred's Rivertown Alehouse                          | 1114 - 1st St.           | Snohomish | English                 |
| Skip Rock Distillers                               | 104 Ave C                | Snohomish | English                 |
| 907 Grill & Lounge                                 | 907 - 1st St             | Snohomish | English                 |
| Subway - Ave D - Snohomish                         | 723 Ave D                | Snohomish | English                 |
| Stewart's Place                                    | 709 - 1st St             | Snohomish | English                 |
| The Tap Room                                       | 511 Maple Ave            | Snohomish | English                 |
| Snohomish Bakery Creations                         | 920 First St             | Snohomish | English                 |
| Brava's Pizza & Pasta                              | 120 Glen Ave             | Snohomish | English                 |
| Cabbage Patch Restaurant                           | 111 Ave A                | Snohomish | English                 |
| Cathouse Pizza                                     | 1120 - 1st St            | Snohomish | English                 |
| Burger King - Snohomish                            | 1426 Bickford Ave        | Snohomish | English                 |
| The Hungry Pelican                                 | 113 Ave C                | Snohomish | English                 |
| Time Out Tavern                                    | 921 - 1st St             | Snohomish | English                 |
| El Paraiso                                         | 1431 Ave D               | Snohomish | Spanish                 |

|                                                  |                            |           |                   |
|--------------------------------------------------|----------------------------|-----------|-------------------|
| The Repp                                         | 924 - 1st Street           | Snohomish | English           |
| Collectors Choice Restaurant                     | 215 Cypress Ave            | Snohomish | English           |
| Jung Ga korean restaurant                        | 2801 Bickford ave #105     | Snohomish | Korean            |
| Thai Naan                                        | 1020 - 1st Street          | Snohomish | Thai              |
| King Charley's                                   | 1400 30th St               | Snohomish | English           |
| Alfy's Pizza                                     | 1020 ave D                 | Snohomish | English           |
| Niko Teriyaki                                    | 811 ave D                  | Snohomish | Korean            |
| Peking Duck                                      | 1208 2nd                   | Snohomish | Mandarin          |
| Kami teriyaki                                    | 2707 Bickford ave #A       | Snohomish | Korean            |
| Pho Mimosa                                       | 817 ave D                  | Snohomish | Vietnamese        |
| snohomish Teriyaki                               | 1207 13th st               | Snohomish | Korean            |
| Timeout Tavern                                   | 921 1st St                 | Snohomish | English           |
| Oxford Saloon                                    | 913 - 1st St               | Snohomish | English           |
| Pilchuck Drive in                                | 205 Maple ave              | Snohomish | English           |
| Snohomish Bakery at First & Union                | 101 Union Ave              | Snohomish | English           |
| Ixtapa                                           | 5151 2nd Street            | Snohomish | Spanish           |
| Andy's Fish House                                | 1229 - 1st St              | Snohomish | English           |
| First & Union Kitchen                            | 101 Union Ave              | Snohomish | English           |
| Eddie's Woodfire BBQ                             | 130 Ave D                  | Snohomish | English           |
| Piccola Pizza                                    | 102 Union Ave              | Snohomish | English           |
| Java Haus                                        | 510 - 2nd Street           | Snohomish | English           |
| Calle Tacos & Tequila                            | 2707 Bickford Ave, Suite F | Snohomish | Spanish           |
| Jake's Cafe                                      | 709 2nd Street             | Snohomish | English           |
| Arby's                                           | 2603 Bickford Ave          | Snohomish | English           |
| <b>Type of Business: Grocery Mart (1 record)</b> |                            |           |                   |
| Vic's Market                                     | 615 Bowen Street           | Snohomish | English           |
| <b>Type of Business: Other (1 record)</b>        |                            |           |                   |
| Travel Planner                                   | 807 Ave D                  | Snohomish | Other (See Notes) |
| <b>Grand Totals (51 records)</b>                 |                            |           |                   |

## Appendix B: Program Brochure



### Why is Stormwater Important?

Stormwater is polluted runoff, and the leading source of pollution into Puget Sound. Small amounts of contaminants carried by runoff add up, combining to become a serious threat to local lakes, rivers, and Puget Sound.

#### Do You Know Where Your Storm Drains and Runoff Go?

ECOSS can determine where your stormwater flows, and will provide a drainage map for your site.



*"We have ideas of things we can do to make our workplace better, but most of the time we are simply focused on our bottom line. For ECOSS to come to our door and take the time to show us how we can improve our impact, it makes all the difference."*

— San Vo, Warehouse Manager

### ECOSS Provides Free Pollution Prevention Tools and Resources to Eligible Businesses

#### Why Should My Business Participate?

- Avoid clean up costs and fines
- Help keep pollution out of Puget Sound
- It's easy: training is simple and takes 10-15 minutes

ECOSS is now working with businesses across the Puget Sound. ECOSS provides free & confidential technical assistance.

*To Get a Spill Kit or for assistance, contact:*



**John Loyd, Program Manager**  
[spillkit@ecoss.org](mailto:spillkit@ecoss.org)  
 206-767-0432    [www.ecoss.org](http://www.ecoss.org)

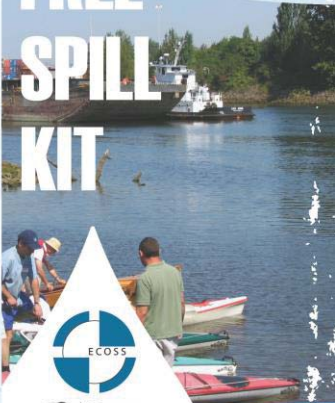
**Remember: Only Rain Down the Drain!**

Photo on front courtesy of the Duwamish River Cleanup Coalition



## FREE SPILL KIT

Stormwater Resources for Businesses





A pollution prevention partnership between ECOSS, businesses, and local agencies of Central Puget Sound.

### Prevent Pollution & Save Money

You can **save money and reduce liability** by preventing pollution problems before they start.

#### Avoid clean up costs and fines:

- 50% of businesses surveyed had spills
- Catch basin cleanup costs average \$2,700
- Regulatory fines can be over \$10,000

#### In case of an outdoor spill:

- Use the Spill Kit to clean it up
- Dispose of the used materials properly
- Replenish your kit (cost of replacing materials typically ranges from \$20-60)

By using best practices, you will also be helping improve water quality in our lakes, streams, rivers, and Puget Sound.



Services are available in multiple languages, including Amharic, Arabic, Chinese, Korean, Somali, Spanish, Tigrigna, and Vietnamese.




### ECOSS Provides Free Environmental Services to Eligible Businesses

- Spill kit
- Spill plan and drainage map for your site
- Training for your employees
- Best Management Practices for your activities
- Assistance with permits and regulations
- Water, energy, and resource conservation recommendations



### Free and Confidential Services

As a non-profit organization, our services are always free and confidential, and that's why **businesses trust us**. ECOSS has helped thousands of businesses improve their environmental performance since 1994.

If you appreciate the work we do, please let others know about our services. Businesses and individuals also support our work by becoming ECOSS members, visit [www.ecoss.org](http://www.ecoss.org) or call 206-767-0432.



The Spill Kit program was created by ECOSS and Seattle Public Utilities in 2004. ECOSS is currently partnering with over 25 cities and counties around Puget Sound to provide spill kits to businesses.

*"Our staff are now prepared to respond to a spill and understand the importance of protecting our local waterways."*

— Michael Nguyen, Business Owner

# HOW TO CLEAN A SPILL






Stormwater is the leading source of pollution in the Puget Sound area. Small amounts of contamination can add up. By cleaning up spills before they reach our local lakes, rivers, and Puget Sound you can:

- Avoid fines
- Avoid expensive clean up costs
- Protect local waterways



**1. Evaluate the situation. Put on protective equipment. Follow your spill plan.**



**2. Stop the source of the spill.**



**3. Protect the storm drain. If material has entered a storm drain, notify agencies listed on your spill plan.**



**4. Use kit materials to stop spill.**



**5. Clean up and dispose of used spill kit materials appropriately. For help call ECOSS: 206-767-0432**



**6. Restock the spill kit.**

## Remember: Only Rain Down the Drain!

For more information visit [www.ecoss.org](http://www.ecoss.org) or contact ECOSS at 206-767-0432

Adapted from Seattle Public Utilities.








The Puget Sound Spill Kit Program has been funded by the US Environmental Protection Agency (EPA) under assistance from agreement G331003 to the Puget Sound Partnership (PSP). Washington State Department of Ecology, public and private bodies identified herein and others. The contents of this document are for informational purposes only and do not constitute an offer of insurance or any other financial product. For more information on environmental protection products and services, please contact your insurance broker.

## Appendix D: Spill Plan

### SPILL PREVENTION AND CLEANUP PLAN



|                                   |  |       |
|-----------------------------------|--|-------|
| Business Name                     |  |       |
| Site Address                      |  | Phone |
| Run-off from this site drains to: |  | Date  |

#### SPILL PLANNING AND PREVENTION:

- ☒ Take inventory of chemicals and materials on site – *use less toxic materials where available.*
- ☒ Obtain appropriate spill response materials and personal protective equipment (PPE)
- ☒ Designate and train spill cleanup coordinator
- ☒ Train staff, at least once annually. Document your training

#### IN CASE OF A SPILL, CONTACT THE FOLLOWING:

|                                                                                                                                  | CONTACT NAMES                   | CONTACT PHONE NUMBERS   |
|----------------------------------------------------------------------------------------------------------------------------------|---------------------------------|-------------------------|
| Business Owner, or Site Manager                                                                                                  |                                 |                         |
| Onsite Spill Cleanup Coordinator                                                                                                 |                                 |                         |
| REQUIRED PHONE CALLS to make if a spill that is too large to control reaches a catch basin, water-body, or exceeds kit capacity. | City of Snohomish Spill Hotline | (360) 568-3115          |
|                                                                                                                                  | WA State Dept of Ecology        | (425) 649-7000 24 hours |

#### SPILL CLEAN-UP:

- ☒ Evaluate situation, including safety considerations; notify owner/manager of spill
- ☒ Put On Personal Protective Equipment (PPE)
- ☒ Stop the source of the spill
- ☒ Protect the drain(s)
- ☒ Clean up spill by applying spill kit materials
- ☒ Dispose of clean up materials properly and restock the kit

#### FACILITY ACTIVITIES WITH POTENTIAL TO CONTAMINATE RUN-OFF

| Activities                                       | check all that apply | Activities                             | check all that apply |
|--------------------------------------------------|----------------------|----------------------------------------|----------------------|
| Fueling and fuel transfer                        |                      | Loading/unloading of products          |                      |
| Outdoor manufacturing                            |                      | Landscape construction/maintenance     |                      |
| Outdoor equipment/vehicle maintenance and repair |                      | Outside storage of uncovered materials |                      |
| Outside drum or container storage                |                      | Customer and employee vehicles         |                      |
| Vehicle, equipment, and building washing         |                      | Others:                                |                      |

#### EQUIPMENT AND MATERIALS STORED ON SITE (>1 GALLON) WITH POTENTIAL TO CONTAMINATE RUN-OFF

| Equipment              | check all that apply | Vehicle Fluids                  | check all that apply | Misc. Chemicals        | check all that apply |
|------------------------|----------------------|---------------------------------|----------------------|------------------------|----------------------|
| Forklifts              |                      | Antifreeze                      |                      | Acid                   |                      |
| Trucks                 |                      | Brake fluid, transmission fluid |                      | Ammonia                |                      |
| Cranes                 |                      | Gasoline                        |                      | Caustic, bases, lye    |                      |
| Other:                 |                      | Motor oil                       |                      | Photographic chemicals |                      |
| Cleaning Products      | check all that apply | Other fluids:                   |                      | Pesticides, herbicides |                      |
| Liquids                |                      | Solvents, Paints, Lubricants    | check all that apply | Other                  | check all that apply |
| Solids                 |                      | Parts washer                    |                      | Fertilizers            |                      |
| Food Preparation/Waste | check all that apply | Dry cleaning fluids             |                      | Inks, dyes             |                      |
| Cooking oil            |                      | Paint thinner, turpentine       |                      | Others:                |                      |
| Grease (new or used)   |                      | Paint, coatings; oil based      |                      |                        |                      |
| Dumpster               |                      | Paint, latex                    |                      |                        |                      |
| Trash compactor        |                      | Machine oil/coolant             |                      |                        |                      |
| Other liquids:         |                      | Hydraulic fluid                 |                      |                        |                      |
|                        |                      | Others:                         |                      |                        |                      |

Need help developing your spill plan?

Contact Us! (206) 767-0432 or [SpillKit@ecoss.org](mailto:SpillKit@ecoss.org)



## Appendix E: Site Map

Snohomish 76  
202 Avenue D  
Snohomish, WA 98290



Runoff from this  
business drains to  
Snohomish River Basin

### Legend

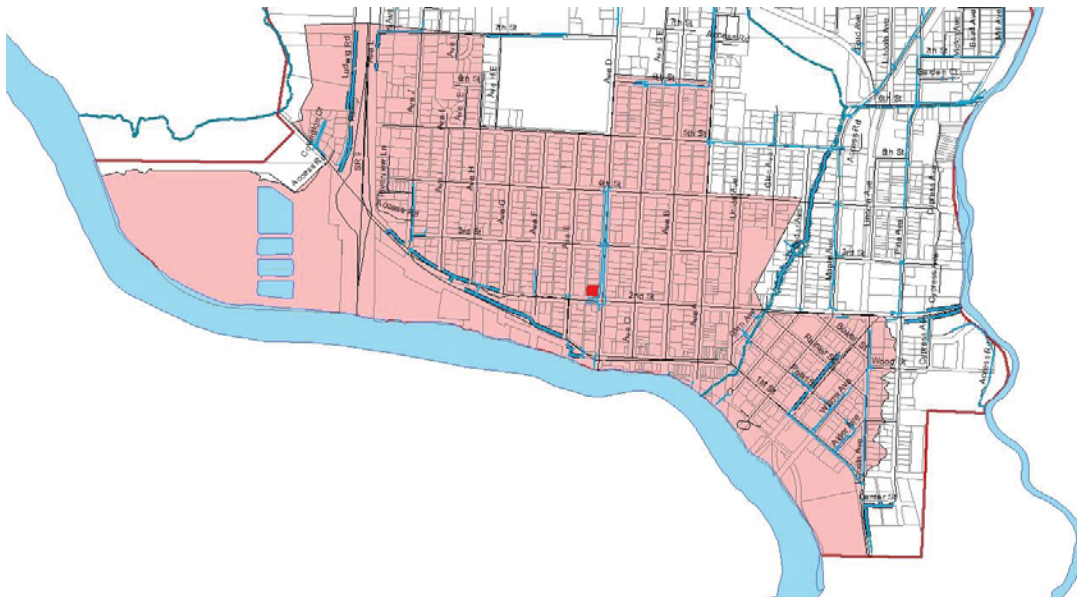
- Catch Basins
- Stormwater Pipes
- Ditches
- Streams
- Roads
- Parcels
- Waterbody

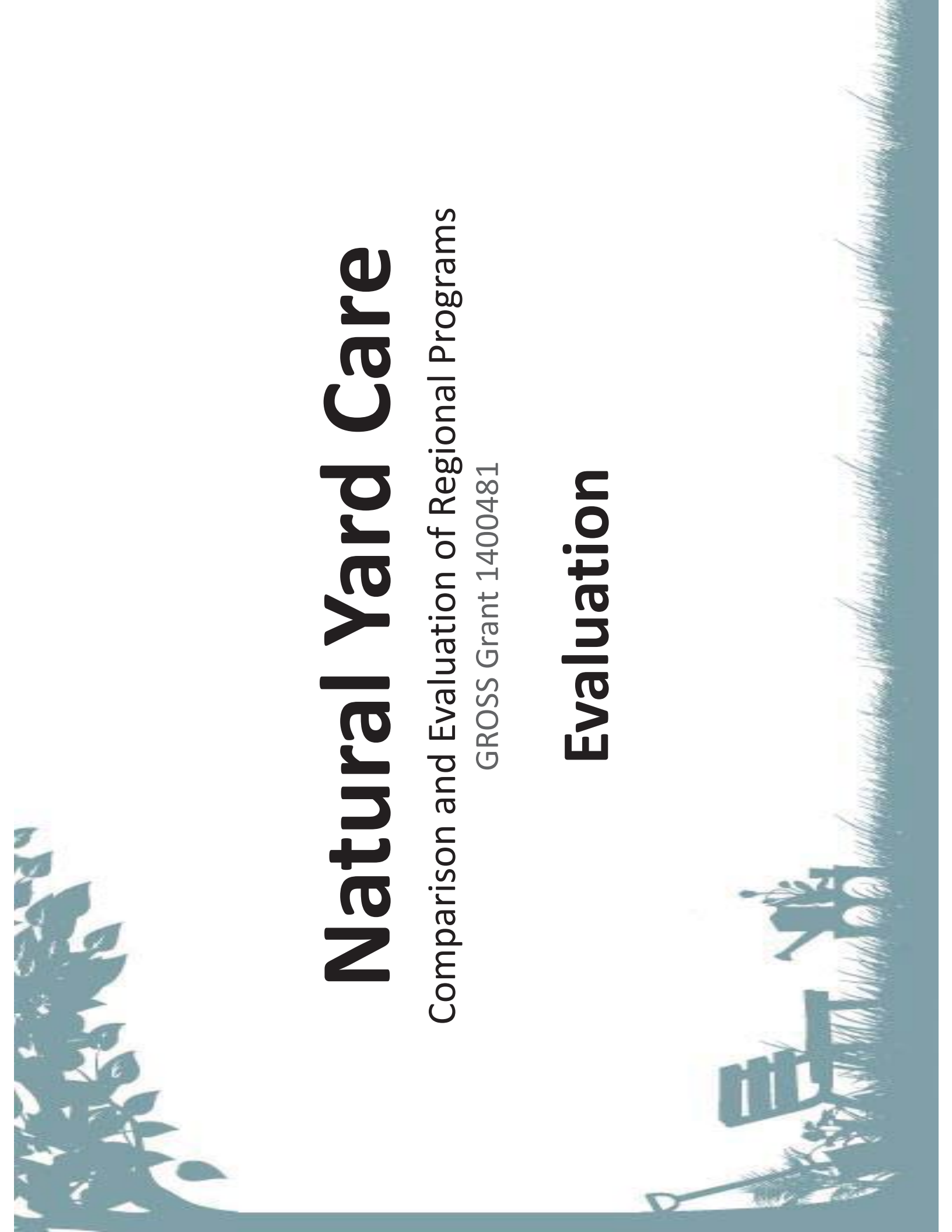


Date created: 11/24/2014

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*For educational purposes only. No warranties of any sort, including accuracy, fitness, or merchantability, accompany this document.*





# Natural Yard Care

Comparison and Evaluation of Regional Programs

GROSS Grant 1400481

## Evaluation

# NYC Project Overview

- 17 NPDES permittees partnered to accomplish S5.C.1.c which requires Permittee to “***measure the understanding and adoption of the targeted behaviors for at least one target audience in at least one subject area.***”
  - Behaviors: Natural Yard Care
  - Target Audience: Single family homes, <1 acre
    - South Sound: those who normally use fertilizer

# Evaluation: Goals

- 1) Achieve 2013-2018 NPDES Permit requirements
  - Phase 1: S5.C.10.c.
  - Phase 2: S5C.1.c.
- 2) Separately evaluate two unique NYC outreach and education program strategies
- 3) ~~Compare and contrast the two NYC outreach and education program strategies~~
- 4) Evaluate each program's strengths and ROI
- 5) Develop recommendations on how to improve and/or streamline NYC programs

| North Sound BMPs                                                                                          |                                                                                   | South Sound BMPs                                                           |                                                                                                        |
|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Natural Lawn Care <ul style="list-style-type: none"><li>• Mowing, fertilizing, liming, aerating</li></ul> | Smart Watering <ul style="list-style-type: none"><li>• Frequency</li></ul>        | Garden Design <ul style="list-style-type: none"><li>• Conditions</li></ul> | Pest, Weed & Disease Control <ul style="list-style-type: none"><li>• Methods, choice factors</li></ul> |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
| Right Plant Right Place <ul style="list-style-type: none"><li>• Selection, how-to</li></ul>               | Growing Healthy Soil <ul style="list-style-type: none"><li>• Composting</li></ul> | Knowledge & Attitudes                                                      | Knowledge & Attitudes                                                                                  |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |
|                                                                                                           |                                                                                   |                                                                            |                                                                                                        |



# Evaluation Activities & Status

|             | Non-Particip. Baseline Survey | Participant Pre-Survey | Participant Post-Survey (immed) | Instructor, coaches & staff surveys | Participant Post-Survey (6-8 mths) | Participant Inter-views | Non-Participant Survey |
|-------------|-------------------------------|------------------------|---------------------------------|-------------------------------------|------------------------------------|-------------------------|------------------------|
| North Sound | X                             | X                      | X                               | X                                   | X                                  | X                       | X                      |
| South Sound | X                             | X                      | X                               | In Process                          | X                                  | X                       | No                     |

# Preliminary Findings:

## North Sound Pre-Surveys

**Self selecting participants may be significantly different than the “average resident”**

Possible statistical differences between Participant Pre-survey and Non-Participant baseline survey

- Lawn Fertilizer Type, Weed & Feed
- Matching plant to location
- Preparing soil for planting
- Using materials to prep soil
- Who performs yard care
- Demographics (time in home, gender, age, educ level)

## North Sound: How often is a “weed and feed” product used when your lawn is fertilized?)

|                       | Pre-Workshop Survey | Non-Participant Survey |
|-----------------------|---------------------|------------------------|
| Never                 | 25%                 | 40%                    |
| Once per year or less | 46%                 | 27%                    |
| 2 to 3 times per year | 23%                 | 25%                    |
| 4 to 5 times per year | 0%                  | 4%                     |
| > 5 times per year    | 0%                  | 0%                     |
| I don't know          | 7%                  | 4%                     |

**Hypothesis: workshop participants and non-participants have the same value but not equal behaviors (particip = “show me group”)**

# North Sound: Who Performs the Following Yard Care Service? - Fertilizing

|                                   | Pre-Workshop Survey | Non-Participant Survey |
|-----------------------------------|---------------------|------------------------|
| I or a household member           | 75%                 | 67%                    |
| Yard care service                 | 3%                  | 11%                    |
| Both household member and service | 4%                  | 6%                     |
| No one does this                  | 18%                 | 20%                    |

**Workshop participants are slightly more likely to be “do it yourself” fertilizers compared to “the average resident”**

# North Sound: Participant & Non-Participant Demographics- Gender

|                      | Pre-Workshop Survey | Non-Participant Survey |
|----------------------|---------------------|------------------------|
| Male                 | 32%                 | 54%                    |
| Female               | 60%                 | 43%                    |
| Other                | 1%                  | 0                      |
| Prefer not to answer | 7%                  | 3%                     |

**Female residents are more likely to participate in a NYC workshop compared to male residents**

**Hypothesis: marketing materials may better target women compared to men**

# North SnoCo vs. South SnoCo

How desirable or undesirable to you is each of the following attributes for fertilizer used on your lawn?  
(Summative responses of anti-BMP and “I don’t care”)

|                         | North SnoCo |                 | South SnoCo |                 |
|-------------------------|-------------|-----------------|-------------|-----------------|
|                         | Participant | Non-Participant | Participant | Non-Participant |
| Labeled as slow release | 55%         | 62%             | 52%         | 55%             |
| Also controls weeds     | 85%         | 82%             | 86%         | 85%             |
| Also controls moss      | 85%         | 82%             | 88%         | 87%             |

# North SnoCo vs. South SnoCo

How often is your property aerated?

|                            | North SnoCo |                 | South SnoCo |                 |
|----------------------------|-------------|-----------------|-------------|-----------------|
|                            | Participant | Non-Participant | Participant | Non-Participant |
| At least once a year       | 9%          | 11%             | 15%         | 13%             |
| Every 2 years              | 6%          | 7%              | 8%          | 9%              |
| Every 3 years              | 6%          | 4%              | 9%          | 6%              |
| No more than every 4 years | 10%         | 7%              | 16%         | 17%             |
| <b>Never</b>               | <b>55%</b>  | <b>60%</b>      | <b>42%</b>  | <b>46%</b>      |
| I don't know               | 14%         | 11%             | 11%         | 10%             |

# North Sound Post-Immediate Surveys

## Summary

- Technical level of the sessions were “about right”
- Techniques seemed practical
- Approx 2/3 respondents said that the sessions gave the knowledge they needed to start practicing BMPs; 1/3 said they still have questions
- Instructors were rated “Very Good” or “Good”
- 90+% would recommend the workshops to others

# **Will you try, or require your yard care service to try, the following practices in your yard?**

| <b>Keep bare soil covered with wood chips, compost, straw or groundcover plants/crops</b> |     |
|-------------------------------------------------------------------------------------------|-----|
| I already do it                                                                           | 27% |
| Yes, I will try it                                                                        | 73% |
| No, I won't try it                                                                        | 0%  |

# Will you try, or require your yard care service to try, the following practices in your yard?

| If I plant a new bed, mix compost 6-8 inches into the soil of an entire area |     |
|------------------------------------------------------------------------------|-----|
| I already do it                                                              | 17% |
| Yes, I will try it                                                           | 82% |
| No, I won't try it                                                           | 1%  |

# Will you try, or require your yard care service to try, the following practices in your yard?

| Adjust watering schedule based on plant needs, soil type and weather |     |
|----------------------------------------------------------------------|-----|
| I already do it                                                      | 23% |
| Yes, I will try it                                                   | 70% |
| No, I won't try it                                                   | 0%  |
| I don't water                                                        | 7%  |

# Will you try, or require your yard care service to try, the following practices in your yard?

| Use soaker hoses or drip irrigation on most planting beds |     |
|-----------------------------------------------------------|-----|
| I already do it                                           | 21% |
| Yes, I will try it                                        | 56% |
| No, I won't try it                                        | 17% |
| I don't water                                             | 6%  |

# Will you try, or require your yard care service to try, the following practices in your yard?

| Identify pests, weeds and diseases before taking action |     |
|---------------------------------------------------------|-----|
| I already do it                                         | 16% |
| Yes, I will try it                                      | 82% |
| No, I won't try it                                      | 2%  |

# South Sound

- City of Olympia
- Thurston County
- City of Tumwater
- Focused primarily on lawn care
- Participant and Non-Participant surveys were potentially different audiences due to screening process of participants

# South Sound- Fertilizer

Participants were required to be fertilizer users

**How many times is fertilizer applied to your lawn, in a year when your lawn is fertilized?**

|                           | Participant<br>(front lawn) | Participant<br>(back lawn) | Non-<br>Participant |
|---------------------------|-----------------------------|----------------------------|---------------------|
| Once per year             | 32%                         | 30%                        | 43%                 |
| 2 to 3 times/yr           | 56%                         | 49%                        | 47%                 |
| 4 to 5 times/yr           | 5%                          | 6%                         | 6%                  |
| 6+ times/ yr              | 2%                          | 1%                         | 0%                  |
| I don't know              | 1%                          | 1%                         | 3%                  |
| No lawn/not<br>fertilized | 4%                          | 13%                        | n/a                 |

# Comparing North Sound & South Sound Programs

- We have not compared North Sound to South Sound
  - target audiences are different
- We hope to make qualitative comparisons, but quantitative comparisons has limitations
  - See examples on next slides

# How often is your property aerated?

|                                  | South Sound |                 | North Sound |                 |
|----------------------------------|-------------|-----------------|-------------|-----------------|
|                                  | Participant | Non-Participant | Participant | Non-Participant |
| At least once a year             | 14%         | 12%             | 9%          | 11%             |
| Every 2 yrs                      | 17%         | 11%             | 6%          | 7%              |
| Every 3 yrs                      | 9%          | 10%             | 6%          | 4%              |
| No more than every 4 years       | 14%         | 22%             | 10%         | 7%              |
| <b>Never</b>                     | <b>34%</b>  | <b>33%</b>      | <b>55%</b>  | <b>60%</b>      |
| I don't know                     | 7%          | 4%              | 14%         | 11%             |
| I haven't lived here long enough | 5%          | 7%              | n/a         | n/a             |

## How often is a “weed and feed” product used when your lawn is fertilized?)

|                       | South Sound  |                 | North Sound  |                 |
|-----------------------|--------------|-----------------|--------------|-----------------|
|                       | Pre-Outreach | Non-Participant | Pre-Outreach | Non-Participant |
| Never                 | <b>27%</b>   | <b>10%</b>      | <b>25%</b>   | <b>40%</b>      |
| Once per year or less | <b>46%</b>   | <b>65%</b>      | <b>46%</b>   | <b>27%</b>      |
| 2 to 3 times per year | 17%          | 21%             | 23%          | 25%             |
| 4 to 5 times per year | 2%           | 1%              | 0%           | 4%              |
| > 5 times/yr          | 1%           | 0%              | 0%           | 0%              |
| I don't know          | 8%           | 3%              | 7%           | 4%              |

# Next Steps: Evaluation

## 2015

- May-July: Post program surveys & interviews
- Aug-Sep: Data analyses
- Oct- Dec: Draft, review and finalize consultant report & recommendations

## 2016

- Jan-Feb 2: Each jurisdiction drafts plan for future NYC programs

# Consultant Report

## For South Sound & North Sound Programs

- Assess audience's level of understanding of targeted behaviors
- Determine each program's effectiveness at encouraging participants to adopt NYC BMPs
- Strengths, limitations & ROI of each program
- Possible comparison of urban vs rural audiences
- Recommendations for future programming

# Next Steps: Future Plans

## 2016

- Jan-Feb 2: Each jurisdiction drafts plan for future NYC programs

## Possible Option

NYC partners work collaboratively to develop future plans

# Evaluation: Recommendations

## NYC Evaluation- Beyond this Contract

- Continue to use online registration linked with a short pre-survey of priority BMP questions
- Post-Immediate Surveys- use to gauge intent to change behaviors
- Conduct long-term post surveys if funding is available

# Thank You! Questions?

## Snohomish County

**Suzi Wong Swint** 425-388-6476, [swswint@snoco.org](mailto:swswint@snoco.org)

**Peggy Campbell** 425-388-6497, [peggy.campbell@snoco.org](mailto:peggy.campbell@snoco.org)

**Stef Frenzl** 425-388-6466, [stef.frenzl@snoco.org](mailto:stef.frenzl@snoco.org)

## South Sound

**Chris Maun** (360) 754-3355 x 6377, [maunc@co.thurston.wa.us](mailto:maunc@co.thurston.wa.us)

**Ann Marie Pearce** (360) 754-3355 x 6857 [pearcea@co.thurston.wa.us](mailto:pearcea@co.thurston.wa.us)

**Debbie Smith** (360) 754-4148, [dmsmith@ci.tumwater.wa.us](mailto:dmsmith@ci.tumwater.wa.us)



# **STORMWATER MANAGEMENT PROGRAM**



**CITY OF SNOHOMISH**

**2015**

## **1.0 INTRODUCTION**

This document has been prepared to meet the Western Washington Phase II Municipal Stormwater Permit (Permit) requirement for the continued development and updating of a Stormwater Management Program (SWMP). The purpose of the SWMP is to reduce the discharge of pollutants from the municipal stormwater system to the maximum extent practicable and to protect water quality.

The National Pollutant Discharge Elimination System (NPDES) Permit is a federal permit that regulates stormwater and wastewater discharges to waters of the State. While it is a federal permit, the regulatory authority was passed on to the Washington State Department of Ecology (Ecology). In response, Ecology developed and issued the Western Washington Phase II Municipal Stormwater Permit. The Permit was issued by Ecology on January 17, 2007 and was modified in 2009 and 2012. A new permit was issued August 1, 2013 and will extend until July 31, 2018. It is the intent of this SWMP to recognize the current permit requirements and to plan for these requirements where appropriate.

All municipalities affected by the permit must create and implement a SWMP which addresses the following required program elements:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Controlling Run-Off from New Development, Redevelopment and Construction Sites
- Municipal Operations and Maintenance
- Total Maximum Daily Loads (TMDLs), if applicable to the jurisdiction

The City of Snohomish SWMP will be updated annually and submitted with the City's Annual Report to Ecology. The City of Snohomish is posting this document on the City web site (<http://www.ci.snohomish.wa.us/213/Stormwater>) so it can be viewed by the public. Comments on the City's SWMP can be made by submitting comments in writing to City of Snohomish. Comments can be delivered or mailed to City of Snohomish, 116 Union Ave., Snohomish, WA 98290 ATTN: Max Selin, Project Engineer. Email comments may be sent to: [selin@ci.snohomish.wa.us](mailto:selin@ci.snohomish.wa.us).

## **2.0 PUBLIC EDUCATION AND OUTREACH PROGRAM**

The following section describes the Permit requirements related to Public Education and Outreach and the planned activities the City intends to conduct to meet these requirements.

### **2.1 Permit Requirements**

The 2013 Permit (Section S5.C.1) requires the City to:

- Include an education and outreach program designed to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts

- and encourages public participation. The target audiences include the general public, engineers/contractors/developers/land use planners/, residents, landscapers and property managers/owners.
- Create stewardship opportunities to participate in such activities as stream teams, storm drain marking, volunteer monitoring, education, and riparian plantings.
  - Measure the understanding and adoption of the targeted behaviors for at least one target audience no later than February 2, 2016.

## 2.2 Planned Activities

Future activities planned to meet the Public Education and Outreach requirement of the permit are listed in Table 2-1.

**Table 2-1**

### **Planned Activities for Public Education and Outreach Program**

| <b>Task ID</b> | <b>Task Description</b>                                                                                                                      | <b>Schedule</b>                            |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| EDUC-1         | Engineers/Contractors/Developers/Land Use Planners – Stormwater treatment and flow control BMPs/facilities: Pamphlet passed out with permits | Ongoing                                    |
| EDUC-2         | General public – pet waste handling facilities/education located at parks                                                                    | Ongoing                                    |
| EDUC-3         | General public – general impacts of stormwater: Utility bill insert on stormwater topics                                                     | Annually                                   |
| EDUC-9         | General public – use and storage of automotive chemicals, etc.: Review info on City website and update if necessary                          | December 2015                              |
| EDUC-10        | General public – impacts of IDDE: Review and publish new posters at library/city hall and post items to website                              | January 2015                               |
| EDUC-11        | Measure and evaluate understanding of targeted behavior for at least one targeted audience in at least one subject.                          | October 2015                               |
| EDUC-12        | Redirect education if necessary based upon measured results in EDUC-11                                                                       | January 2016<br>(required by Feb. 2, 2016) |

## 3.0 PUBLIC INVOLVEMENT AND PARTICIPATION PROGRAM

The following section describes the Permit requirements related to Public Involvement and Participation and the planned activities the City intends to conduct to meet these requirements.

### 3.1 Permit Requirements

The 2013 Permit (Section S5.C.2) requires the City to:

- Provide ongoing opportunities for public involvement through advisory councils, public hearings, watershed committees, participation in developing rate structures or other similar activities.
- Provide the opportunity for the public to participate in the decision making processes involving the SWMP.
- The SWMP and Annual Report shall be posted to the City's website no later than May 31<sup>st</sup> of each year.

### 3.2 Planned Activities

Future activities planned to meet the Public Involvement and Participation requirement of the permit are listed in Table 3-1.

**Table 3-1**

#### **Planned Activities for Public Involvement and Participation**

| <b>Task ID</b> | <b>Task Description</b>                                                                                                  | <b>Schedule</b>                       |
|----------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| PI-1           | Hold public meeting on the Annual Stormwater Management Program via the City Council                                     | Early March (each year)               |
| PI-2           | Post final SWMP and Annual Report to City Website                                                                        | By April 30th (each year)             |
| PI-3           | Post final SWMP in local library                                                                                         | By April 30 <sup>th</sup> (each year) |
| PI-4           | Post public opportunities to get involved on City website (i.e. links to Sound Salmon Solutions, Snohomish County, etc.) | Ongoing                               |

## **4.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION**

The following section describes the Permit requirements related to Illicit Discharge Detection and Elimination (IDDE) and the planned activities the City intends to conduct to meet these requirements.

### **4.1 Permit Requirements**

The 2013 Permit (Section S5.C.3) requires the City to:

- Provide ongoing program designed to prevent, detect, characterize, trace and eliminate illicit connections and illicit discharges.
- Field assess at least one high priority waterbody in 2013 for IDDE purposes.
- Update City stormwater basemap which shall include all known outfalls, receiving waters, stormwater treatment and flow control facilities, conveyances where the outfall is 24-inches in diameter (or larger), and land use.
- Maintain an ordinance that effectively prohibits non-stormwater, illicit discharges into the storm system to the maximum extent allowable under state and federal law. The ordinance shall describe the allowable discharges and shall have an escalating enforcement procedure. This ordinance shall be reviewed and revised (if necessary) by February 2, 2018. The City shall have a compliance strategy to enforce the ordinance such as public education, technical assistance, source control and/or maintenance of stormwater facilities.
- Implement IDDE program that includes field screening of the system for illicit discharges/connections (40% of the system to be inspected no later than December 31, 2017 and then an average of 12% each year thereafter), procedures for detecting illicit discharges/connection and related enforcement, training for City staff, and informing businesses of hazards with illicit discharges,
- Publicize hotline for public reporting of spills and illicit discharges.

### **4.2 Planned Activities**

Future activities planned to meet the Illicit Discharge and Detection and Elimination requirement of the permit are listed in Table 4-1.

**Table 4-1**

**Planned Activities for Illicit Discharge Detection and Elimination**

| <b>Task ID</b>   | <b>Task Description</b>                                                                                                                                                                   | <b>Schedule</b>                                                                                                                                                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IDDE-1 / EDUC-9  | Provide general public with information related to IDDE including hotline on City website                                                                                                 | Ongoing                                                                                                                                                                                                                                               |
| IDDE-2           | Maintain stormwater basemap                                                                                                                                                               | Ongoing                                                                                                                                                                                                                                               |
| IDDE-3           | Review IDDE ordinance for compliance with the Permit and effectiveness                                                                                                                    | <ul style="list-style-type: none"> <li>▪ November 2017 (<i>needs to be adopted by Feb. 2, 2018</i>)</li> </ul>                                                                                                                                        |
| IDDE-4           | Field Screen 10% of system for IDDE each year through 2017 and then 12% of the system each year thereafter (Maintain records of which areas have been field screened and date inspected). | <ul style="list-style-type: none"> <li>▪ August 2015 (Next 10%)</li> <li>▪ August 2016 (Next 10%)</li> <li>▪ August 2017 (Next 10% <i>so that 40% of total system inspected by Dec. 31, 2017</i>)</li> <li>▪ August 2018 (<i>Next 12%</i>)</li> </ul> |
| IDDE-5           | Renew IDDE training for field staff and public employees (Track each training session with names of employees and date)                                                                   | <ul style="list-style-type: none"> <li>▪ June 2015</li> <li>▪ June 2017</li> <li>▪</li> </ul>                                                                                                                                                         |
| IDDE-6 / EDUC- 9 | Provide businesses with brochures related to IDDE (track number of brochures and date delivered).                                                                                         | <ul style="list-style-type: none"> <li>▪ Businesses: 2015 and ongoing</li> <li>▪ Construction: Ongoing with permit handouts</li> </ul>                                                                                                                |

## 5.0 CONTROLLING RUNOFF FROM NEW DEVELOPMENT, REDEVELOPMENT, AND CONSTRUCTION SITES

The following section describes the Permit requirements related to controlling runoff from new development, redevelopment and construction sites. It also describes the planned activities the City intends to conduct to meet these requirements.

### 5.1 Permit Requirements

The 2013 Permit (Section S5.C.4) requires the City to:

- Implement and enforce a program to reduce pollutants in stormwater runoff from new development, redevelopment and construction site activities.
- Implement an ordinance to address runoff from these activities to be effective no later than December 31, 2016.
  - The ordinance addressing specific requirements in S5.C5.a(i) through (iii) shall apply to all applications submitted on or after January 1, 2017 and shall apply to projects approved prior to January 1, 2017 which have not started construction by January 1, 2022.
  - Include legal authority to inspect and enforce maintenance standards for private facilities for new development or redevelopment.
  - Include provision to verify adequate long-term operation and maintenance of stormwater treatment and flow control BMPs/facilities. The ordinance must:
    - Clearly identify the party responsible for maintenance
    - Establish maintenance standards as protective as Chapter 4, Volume V of the *Stormwater Management Manual for Western Washington*.
    - Address annual inspections of all permitted stormwater treatment and flow control BMPs/Facilities unless there are maintenance records to justify a different frequency.
    - Address inspections of all permitted stormwater treatment and flow control BMPs/Facilities and catch basins in new residential developments every six months until 90% of the lots are constructed (or when construction is stopped and the site is fully stabilized).
- At least 80% of scheduled inspections need to be completed to be in compliance with the permit.
- Adopt Minimum Requirements, thresholds and definitions in Appendix 1 of the Permit.
- Implement a site plan review process, inspection and enforcement to meet development standards for both private and public projects.
  - Review all stormwater site plans.
  - Inspect all permitted sites that have a high potential for sediment transport.

- Prior to clearing and construction
- During construction (for erosion control)
- After construction (permanent stormwater facilities; maintenance plan in place for treatment/flow control BMPs/facilities). If an inspection identifies an exceedence of the maintenance standard, then the following maintenance should be performed:
  - Inspections to be held within 1 year for typical maintenance, except catch basins
  - Within 6 months for catch basins
  - Within 2 years for maintenance that requires capital construction of less than \$25,000.
- Maintain records of all inspections, warning letters, notices of violations, and other enforcement records.
- Make available the “Notice of Intent for Construction Activity” and “Notice of Intent for Industrial Activity” to developers.
- Train staff in the site plan review process, inspections, and enforcement. Maintain records of this training and names of staff trained.
- Implement low impact development (LID) code no later than December 31, 2016.
  - Conduct review of LID codes using Integrating LID into *Local Codes: A Guidebook for Local Governments* (Puget Sound Partnership).
  - Submit summary of the review with annual report by March 31, 2017. The summary is to include existing LID requirements, a list of participants (job title, brief job description, department represented), the codes, rules, standards, and revisions made which incorporate LID principles and LID BMPs. It shall be organized into a) measures to minimize impervious surfaces, (b) measures to minimize loss of native vegetation and c) other measures to minimize stormwater runoff.
- Watershed-scale stormwater planning (i.e. provide support to Pierce County if the County chooses a watershed that includes the City of Snohomish).

## 5.2 Planned Activities

Future activities planned to meet the Control Runoff from New Development, Redevelopment and Construction Sites requirement of the permit are listed in Table 5-1.

**Table 5-1**

### **Planned Activities for Controlling Runoff from New Development, Redevelopment and Construction Sites**

| <b>Task ID</b> | <b>Task Description</b>                                                                       | <b>Schedule</b> |
|----------------|-----------------------------------------------------------------------------------------------|-----------------|
| CTRL-1         | Review site plans for compliance with City Code (Keep track of number of site plans reviewed) | Ongoing         |

| <b>Task ID</b> | <b>Task Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <b>Schedule</b>                                                                                      |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------|
| CTRL-2         | Provide post construction inspections prior to approval for compliance with City Code (Maintain inspection records; see CTRL-4).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Ongoing                                                                                              |
| CTRL-3         | Inspect constructions sites prior to and during construction for erosion control (Maintain inspection records; see CTRL-4).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Ongoing                                                                                              |
| CTRL-4         | Maintain records of inspections (Include name of inspector, date, findings, warning letters, notices of violations, enforcement actions).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Ongoing<br><i>(Need to complete 80% of scheduled inspections)</i>                                    |
| CTRL-5         | Provide annual inspections of all stormwater treatment and flow control BMPs/facilities. <ul style="list-style-type: none"> <li>▪ Maintain inspection records; see CTRL-4.</li> <li>▪ Document if a reduced inspection frequency is used.</li> <li>▪ If inspection reveals that a maintenance standard is not being maintained, need to perform maintenance: <ul style="list-style-type: none"> <li>○ within 1 year (all facilities except catch basins)</li> <li>○ within 6 months (catch basins) or</li> <li>○ within 2 years (maintenance that requires capital construction of less than \$25,000).</li> </ul> </li> </ul> | Ongoing<br><i>(Need to complete 80% of scheduled inspections)</i>                                    |
| CTRL-6         | Train staff in the site plan review process, inspections, and enforcement. Maintain records of this training and names of staff trained.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Ongoing/New Hires <ul style="list-style-type: none"> <li>▪ June 2016</li> <li>▪ June 2018</li> </ul> |
| CTRL-7         | Make available the “Notice of Intent for Construction Activity” and “Notice of Intent for Industrial Activity” to developers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Ongoing                                                                                              |
| CTRL-8         | Review and revise ordinance for maintenance standard compliance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | May 2015<br><i>(Due Dec. 31, 2016)</i>                                                               |
| CTRL-9         | Implement new LID codes (per LID Guidebook):<br>Step 1 (assemble team), Step 2 ( understand general topics to address), and Step 3 (review existing codes and standards)                                                                                                                                                                                                                                                                                                                                                                                                                                                       | April 2015                                                                                           |
| CTRL-10        | Implement new LID codes (per LID Guidebook):<br>Step 4 (amend existing code and develop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | May 2015 – July 2015                                                                                 |

| Task ID | Task Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Schedule                                                                           |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|         | new code)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                    |
| CTRL-11 | Implement new LID codes (per LID Guidebook):<br>Step 5 (public review and adoption process)                                                                                                                                                                                                                                                                                                                                                                                                                                | July 2015 – November 2015                                                          |
| CTRL-12 | Implement new LID codes:<br>Step 6 (implementation per LID Guidebook)                                                                                                                                                                                                                                                                                                                                                                                                                                                      | January 2016 through December 2016<br><i>[Implementation due by Dec. 31, 2016]</i> |
| CTRL-13 | Summary Report (per Permit requirement).<br>Report to include: <ul style="list-style-type: none"> <li>Existing LID requirements</li> <li>A list of participants (job title, brief job description, department represented),</li> <li>The codes, rules, standards, and revisions made which incorporate LID principles and LID BMPs.</li> <li>Organized into a) measures to minimize impervious surfaces, (b) measures to minimize loss of native vegetation and c) other measures to minimize stormwater runoff</li> </ul> | December 2016<br><i>[Due with March 31, 2017 annual report]</i>                    |

## 6.0 MUNICIPAL OPERATIONS AND MAINTENANCE

The following section describes the Permit requirements related to the City's stormwater operation and maintenance practices. It also describes the planned activities the City intends to conduct to meet these requirements.

### 6.1 Permit Requirements

The 2013 Permit (Section S5.C.5) requires the City to:

- Implement an operations and maintenance (O&M) program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations.
- Establish maintenance standards as protective as Chapter 4, Volume V of the *Stormwater Management Manual for Western Washington*.
- If an inspection identifies an exceedence of the maintenance standard, then the following maintenance should be performed:
  - Inspections to be held within 1 year for typical maintenance, except catch basins
  - Within 6 months for catch basins
  - Within 2 years for maintenance that requires capital construction of less than \$25,000.
- Perform annual inspections and take appropriate maintenance actions of all permitted stormwater treatment and flow control BMPs/Facilities unless there are maintenance records to justify a different frequency.
- Spot check and if necessary, repair potentially damaged permanent stormwater treatment and flow control BMPs/facilities after major storm events (24 hour storm event with a 10 year or greater recurrence interval).
- Inspect (and clean if necessary) all catch basins and inlets owned by the City at least once no later than August 1, 2017 and every two years thereafter.

Alternatives to this schedule include:

- Revised inspection frequency allowed if maintenance records for double the length of the proposed inspection frequency warrant a reduced inspection frequency. If these records are not available, certified (per G19), written statements to document a specific, less frequent inspection schedule may be submitted and shall be based on actual inspection and maintenance experiences.
- Conduct inspections by "circuit basis" whereby 25% of catch basins and inlets within each circuit are inspected. Include an inspection of the catch basin immediately upstream of any system outfall if applicable. Clean all catch basins within a given circuit for which the inspection indicates cleaning is needed.
- Clean all pipes, ditches, catch basins and inlets within a circuit once during the permit term. Circuits selected for this alternative must drain to a single point.

- Implement practices, policies and procedures to reduce stormwater impacts associated with runoff from all lands owned by the City including streets, parking lots, roads highways, buildings, parks, open space, road right-of-ways, maintenance yards, and stormwater treatment and flow control BMPs/facilities.
  - The following activities are to be addressed: pipe cleaning, cleaning of culverts that convey stormwater in ditch systems, ditch maintenance, street cleaning, road repair and resurfacing (including pavement grinding), snow and ice control, utility installation, pavement striping maintenance, maintaining roadside areas, including vegetation management, dust control, applications of fertilizers/pesticides/herbicides (including reducing nutrients and pesticides using alternatives that minimize environmental impacts), sediment and erosion control, landscape maintenance and vegetation disposal, trash and pest waste management, and building exterior cleaning and maintenance.
- Implement training program for employees on O&M practices. Follow up training and documentation of training shall be conducted. A list of trained staff shall be maintained.
- Implement a Stormwater Pollution Prevention Plan (SWPPP) for all heavy equipment maintenance or storage yards and material storage facilities owned by the City. A schedule for implementation of structural BMPs and periodic visual observation of discharges from the facility to evaluate the effectiveness of the BMP shall be included in the SWPPP. Generic SWPPPs applicable to multiple sites may be used.
- Maintain records of inspection and maintenance or repair activities.

## **6.2 Planned Activities**

Future activities planned to meet the Municipal Operations and Maintenance requirement of the permit are listed in Table 6-1.

**Table 6-1**

**Planned Activities for Municipal Operations and Maintenance**

| <b>Task ID</b> | <b>Task Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Schedule</b>                                                                                   |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| O&M-1          | Maintain records of inspections and maintenance activities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Ongoing                                                                                           |
| O&M-2          | Provide annual inspections of all stormwater treatment and flow control BMPs/facilities. <ul style="list-style-type: none"><li>▪ Maintain inspection records; see O&amp;M-1.</li><li>▪ Document if a reduced inspection frequency is used.</li><li>▪ If inspection reveals that a maintenance standard is not being maintained, need to perform maintenance:<ul style="list-style-type: none"><li>○ within 1 year (all facilities except catch basins)</li><li>○ within 6 months (catch basins) or</li><li>○ within 2 years (maintnenace that requires capital construction of less than \$25,000).</li></ul></li></ul> | Ongoing                                                                                           |
| O&M-3          | Spot check treatment and flow control facilities/BMPs and repair if necessary.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | After 24-hour/10-year storms (Ongoing)                                                            |
| O&M-4          | Train staff in O&M operations, inspection procedures, reporting water quality concerns, and on efforts to reduce pollutants to runoff. Maintain records of this training and names of staff trained.                                                                                                                                                                                                                                                                                                                                                                                                                    | Ongoing/New Hires <ul style="list-style-type: none"><li>▪ June 2016</li><li>▪ June 2018</li></ul> |
| O&M-8          | Inspect all catch basins and inlets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | All inspected by Aug 1, 2017                                                                      |

## **7.0 COMPLIANCE WITH TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS**

The following section describes the Permit requirements related to the City's participation associated with the Snohomish River Tributaries' Total Maximum Daily Load (TMDL). It also describes the planned activities the City intends to conduct to meet these requirements.

### **7.1 Permit Requirements**

The 2013 Permit (Appendix 2) requires the City to:

- **Business Inspections:** Inspect commercial animal handling areas (veterinary and pet care/boarding services, animal slaughtering, and support activities for animal production) and commercial composting facilities to ensure implementation of source control BMPs for bacteria by August 1, 2016. Implement an ongoing inspection program to re-inspect facilities with bacteria source control problems a minimum of every three years.
- **Public Education and Outreach:** Conduct public education and outreach activities to increase awareness of bacterial pollution problems and promote proper pet waste management behavior.
- **Operations and Maintenance:** Install and maintain animal waste collection and/or education stations at municipal parks and other City owned lands reasonably expected to have dog and horse use and the potential for pollution of stormwater.
- **IDDE:** During IDDE-related field screening, screen for bacteria sources in any screened MS4 subbasins which discharge to surface waters in the TMDL area.
- **Targeted Source Identification and Elimination:** By February 2, 2014, the City shall review the fecal coliform data collected per approved QAPPs under the 2007 Permit and identify a minimum of one high priority area (such as a tributary or a stream segment) that will be the focus of source identification and elimination efforts. Prepare written documentation of this review and the identified high priority area and submit it with the 2014 Annual Report. The City shall begin to implement source identification and elimination efforts in the MS4 subbasins discharging to the identified high priority area no later than August 1, 2014. Stormwater quality sampling for bacteria sources is required. Each annual report's TMDL summary shall include qualitative and quantitative information about the source identification and elimination activities, including procedures followed and sampling results, implemented in the selected high priority area(s).
- **Surface Water Monitoring:** Review the fecal coliform data collected per approved QAPPs under the 2007 Permit and select surface water monitoring location(s) as appropriate for continued characterization and long term trends evaluation of fecal coliform. Submit a draft revised QAPP to Ecology for review and approval, no later than February 2, 2015. If Ecology does not request changes within 60 days, the draft QAPP is considered approved. At a minimum, the monitoring program shall:

- o Begin by August 1, 2015.
- o Collect 12 samples in at least one location per calendar year.
- o Submit available data to the Environmental Information Management (EIM) database by May 31st of each year.
- o Provide data summaries and narrative evaluation of the data in each annual report's TMDL summary.
- o Be documented in a QAPP which follows Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies, July 2004, Ecology Publication No. 04-03-030.

## 7.2 Planned Activities

Future activities planned to meet the TMDL requirement of the permit are listed in Table 7-1.

**Table 7-1**

### **Planned Activities for TMDL Requirements**

| <b>Task ID</b>    | <b>Task Description</b>                                                                                                                                                          | <b>Schedule</b>                                                                           |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| TMDL-2            | Submit revised QAPP to Ecology showing latest sampling locations                                                                                                                 | January 2015<br>(due Feb. 2, 2015)                                                        |
| TMDL-3/<br>REP-1  | Submit review of past fecal coliform data (TMDL - ) and high priority body w/ 2014 Annual Report                                                                                 | March 2015<br>(by March 31, 2015)                                                         |
| TMDL-4/<br>IDDE-4 | Field screen for bacteria sources during IDDE screenings (i.e. look for fungus, algae, color, rotten egg or musty smell)                                                         | Annually (August)                                                                         |
| TMDL-5            | Continue stormwater sampling for fecal coliform (w/ revised sites)                                                                                                               | Monthly<br>(or frontload toward summer...min. 12 samples per year, begin by Aug. 1, 2015) |
| TMDL-6/<br>REP-2  | Include TMDL Summary with Annual Report regarding source identification and elimination activities (procedures followed, sampling results from TMDL-5, Show figure with results) | March, Annually<br>(Due Mar. 31 <sup>st</sup> , 1 <sup>st</sup> report due in 2015)       |
| TMDL-7            | Submit data to EIM database                                                                                                                                                      | May, Annually<br>(by May 31 <sup>st</sup> )                                               |
| TMDL-8            | Inspect veterinary offices for source control BMPs                                                                                                                               | April 2015<br>April 2018 (re-inspect problem areas)                                       |
| TMDL-9/<br>EDUC-2 | Promote proper pet waste management behavior with pet waste stations at parks                                                                                                    | Ongoing                                                                                   |

## 8.0 MONITORING

The following section describes the Permit requirements related to monitoring. It also describes the planned activities the City intends to conduct to meet these requirements.

### 8.1 Permit Requirements

The 2013 Permit (Section S8) requires the City to:

- Describe any monitoring related studies conducted throughout the year in the Annual Report.
- Reporting involved with the Regional Stormwater Management Program is not necessary as part of the Annual Report. The regional program includes status and trends monitoring, stormwater management program effectiveness studies, and source identification/diagnostic monitoring.

### 8.2 Planned Activities

Future activities planned to meet the monitoring requirement of the permit are listed in Table 8-1.

**Table 8-1**

**Planned Activities for TMDL Requirements**

| <b>Task ID</b> | <b>Task Description</b>                                                                                                                                                                                                                                                                    | <b>Schedule</b>                                              |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| MON-1          | Opt into Regional Stormwater Management Program by paying the following fees: <ul style="list-style-type: none"><li>▪ Status and Trends Monitoring: \$2,276</li><li>▪ Stormwater Program Effectiveness: \$3,792</li><li>▪ Source Identification and Diagnostic Monitoring: \$352</li></ul> | Aug. 15 <sup>th</sup> , each year<br>(Beginning in 2014)     |
| MON-2          | Describe any stormwater monitoring conducted for the year in the Annual Report                                                                                                                                                                                                             | By March 31 <sup>st</sup> , each year<br>(Beginning in 2015) |

## 9.0 REPORTING REQUIREMENTS

The following section describes the Permit requirements related to reporting. It also describes the planned activities the City intends to conduct to meet these requirements.

### 9.1 Permit Requirements

The 2013 Permit (Section S9) requires the City to:

- Submit an Annual Report by March 31<sup>st</sup> of each year with the first reporting period being from January 1, 2014 to December 31, 2014. The report will include:
  - Copy of the current SWMP
  - Annual Report Form (per DOE)
  - Attachments (summaries, descriptions, reports, etc.)
  - Certification and signature
  - Notification of any annexations, incorporations or jurisdictional boundary changes
- Keep all records related to the permit and the SWMP for at least five years.
- All records related to the permit shall be available to the public at reasonable times during business hours.

### 9.2 Planned Activities

Future activities planned to meet the monitoring requirement of the permit are listed in Table 9-1.

**Table 9-1**

**Planned Activities for Reporting Requirements**

| <b>Task ID</b>    | <b>Task Description</b>                                                                                                                                                            | <b>Schedule</b>                                                                   |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| REP-1             | Submit Annual Report                                                                                                                                                               | March 31 <sup>st</sup> , each year<br>(1 <sup>st</sup> report due March 31, 2015) |
| REP-2 /<br>TMDL-6 | Include TMDL Summary with Annual Report regarding source identification and elimination activities (procedures followed, sampling results in TMDL-5, can show figure with results) | March 31 <sup>st</sup> , each year<br>(1 <sup>st</sup> report due March 31, 2015) |

# WATER QUALITY INCIDENT REPORT FORM

(Call Department of Ecology If Spill is Significant)

Today's Date 07 / 25 / 2014 Time Reported 11:30a CORR LOG# \_\_\_\_\_

Call Taker's Name Tim Jackson # \_\_\_\_\_

Date of Incident 07/ 21/ 2014 Time of Occurrence 11:00a

## Caller Information

Name Mike Johnson  
First Middle Last

Business Name City of Snohomish

Street Address 116 Union Avenue

City Snohomish State WA Zip 98290

E-mail \_\_\_\_\_

External Ref. # \_\_\_\_\_

Phone: \_\_\_\_\_ Ext \_\_\_\_\_ Type \_\_\_\_\_

☐ *Caller Requests to Remain Anonymous*

## Incident Description

Matrix Soil ☐ Sediment ☐ Water ☐

Contaminate ☒ Oil/Fuel ☐ Sewage/Septic

☐ Detergents ☐ Other \_\_\_\_\_

Odor: ☐ Sewage ☐ Rancid/sour ☐ Petroleum/gas ☐ Sulfide ☒ Other\* Hydraulic Fluid

Color: ☐ Clear ☐ Brown ☐ Gray ☐ Yellow ☐ Green ☐ Orange ☒ Red ☐ Other\* \_\_\_\_\_

Floatables: ☐ Toilet Paper ☐ Suds ☐ Oil Sheen ☐ Excessive Algae ☐ Other\*

Quantity \_\_\_\_\_ Cause \_\_\_\_\_

## Other Agencies Complainant Contacted:

Agencies Responding \_\_\_ Fire \_\_\_ Police \_\_\_ City Other \_\_\_\_\_

Referred to 911? ☐ YES ☐ NO

## Referred to:

Name \_\_\_\_\_ Phone \_\_\_\_\_ Ext \_\_\_\_\_ Type \_\_\_\_\_

## \*Additional Information

## Location of Incident:

Business or Location Name Snohomish City Hall

Street Address 116 Union Avenue

City Snohomish State WA Zip 98290

County, Region Snohomish County

Land use: Commercial ☐ Residential ☐

Rural ☐ Forest ☐ Shoreline ☐

Park/Open space ☐ Other Roadway

Directions/Landmarks \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_





