

Final Report

Company Lake Early Remedial Action



Reynolds Metals Company
TROUTDALE FACILITY

CH2MHILL

February 2006



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SECTION 1

Introduction

This final report documents the removal of contaminated process residue (PR) and underlying soil from Company Lake at the Reynolds Metals Company/Alcoa, Inc. (RMC/Alcoa) facility in Troutdale, Oregon. During 2005, final soil cap and habitat restoration activities were completed. All work was conducted in accordance with the U.S. Environmental Protection Agency's (EPA) *Unilateral Administrative Order for Remedial Design and Remedial Action* (2003b); *Record of Decision for Interim Remedial Action* (2002); *Scope of Work for Early Remedial Action Reynolds Metals Superfund Site* (2003a); and CH2M HILL's *Memorandum WP No. 55: Company Lake Early Remedial Action Work Plan* (May 12, 2003).

The 2005 remedial actions involved placing a soil cap along the north face of the U.S. Army Corps of Engineers (COE) dike near the east end of Company Lake and placing downed trees along the north side of Company Lake for habitat restoration. Past remedial actions accomplished in 2001, 2003, and 2004 included excavation of contaminated soil, confirmation sampling, offsite transport and disposal of the excavated material, and site restoration activities.

Early remedial action objectives (RAOs) for Company Lake included:

- Preventing human exposure through direct contact (ingestion, inhalation, and dermal contact) with contaminated soil and debris that would result in unacceptable excess lifetime cancer risk or exceed a hazard index of 1.
- Reducing exposure of ecological receptors to contaminants at concentrations that pose unacceptable risk.
- Reducing or controlling the migration of contaminants from waste and soils to groundwater.

The following site-specific cleanup goals were identified for the Company Lake early remedial action:

- Excavate (and remove for offsite disposal) waste material and underlying soil, as needed to achieve total fluoride concentration levels of less than 1,000 milligrams per kilogram (mg/kg).
- Excavate (and remove for offsite disposal) waste material and underlying soil, as needed, to achieve total polynuclear aromatic hydrocarbon (PAH) concentration levels of less than 36 mg/kg.

This final report presents background information on the site; details of the 2005 remedial action; a summary of the 2003 and 2004 remedial actions; and results of site confirmation sampling. The report also includes a description of the quantities of material removed in 2001, 2003, and 2004 and the ultimate destination of the removed materials.

This final report is organized into the following sections:

- Section 1: Introduction
- Section 2: Background
- Section 3: Company Lake Early Remedial Action
- Section 4: Sampling and Analysis
- Section 5: Costs
- Section 6: Certification
- Section 7: References
- Appendixes

SECTION 2

Background

This section describes the Company Lake area and previous site investigations.

2.1 Area Description

Company Lake is approximately 16 acres in size with a normal surface water elevation of 15.5 feet (National Geodetic Vertical Datum [NGVD]). It is located north of the COE dike, as shown on Figure 2-1. Historically, plant process water and stormwater were collected in South Ditch prior to discharge into Company Lake. Company Lake became a permitted component of the Troutdale plant's National Pollutant Discharge Elimination System (NPDES) wastewater treatment system in 1965 and was used until November 2002, when flow was bypassed around Company Lake directly to the outfall ditch (CH2M HILL, March 2004). The outfall ditch flows north through a Parshall flume and discharges into the Columbia River.

Process residue from carbon bake electrostatic precipitator (ESP) bleed streams was directly discharged to South Ditch and ultimately to Company Lake between 1977 and 1989. PR thickness in Company Lake varied from 0.1 to approximately 4 feet.

Constituents detected in samples collected from Company Lake prior to implementation of the early remedial action included fluoride, metals, polychlorinated biphenyls (PCBs), PAHs, total petroleum hydrocarbons (TPH), and cyanide. A summary of historical analytical data for Company Lake is included in *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004).

2.2 Previous Investigations

Site investigations took place at Company Lake in 1994, 1996, 1997, 1999, and 2000. Investigation activities completed during this period included collection and analysis of sediment, surface and subsurface soil sampling, bathymetric surveying and topographic mapping, vegetation surveying, evaluation of potential flood impacts, permeability testing, PR solubility testing, water quality monitoring, groundwater sampling, and pilot testing of potential dredging and dewatering methods. Detailed analytical data from these investigations can be found in the following documents:

- *Removal Site Assessment Report* (CH2M HILL, January 1995)
- *Draft Current Situation Summary* (CH2M HILL, April 5, 1996)
- *Technical Memorandum DS No. 15: Company Lake Supplemental Data Summary* (CH2M HILL, March 26, 1997)
- *Technical Memorandum DS No. 17: Data Summary for the Wastewater Discharge Areas Addendum to the RI/FS, Part 1* (CH2M HILL, December 12, 1997)

- *Technical Memorandum DS No. 18: Data Summary for the Wastewater Discharge Areas Addendum to the RI/FS Work Plan, Part 2* (CH2M HILL, June 17, 1998)
- *Draft Groundwater Remedial Investigation Report* (CH2M HILL, June 1999)
- *Draft Nongroundwater Remedial Investigation Report* (CH2M HILL, August 1999)
- *Draft Final Focused Feasibility Study* (CH2M HILL, June 2000)

Between August and October 2001, RMC/Alcoa completed an early action pilot study at Company Lake to test the feasibility of dewatering and removing PR and underlying soil using conventional dry excavation techniques. Approximately 3,780 tons of PR were successfully removed from the “thumb” area of Company Lake and transported offsite for disposal. A detailed description of the 2001 early action and results is available in the *Company Lake Early Action Report* (CH2M HILL, March 2002).

RMC/Alcoa completed installation of a permanent bypass pipeline and temporary dewatering system at the site between October 10 and November 4, 2002. This work was completed to facilitate future remedial actions at Company Lake. A detailed description of the 2002 work scope is available in *Final Report: Company Lake Bypass Pipeline and Dewatering System Installation* (CH2M HILL, April 2003).

2.3 Cultural Resources

CH2M HILL completed a pedestrian survey of the Company Lake work area and reviewed proposed plans for potential impacts to area cultural resources in June 2003. On the basis of available information, no additional cultural resources testing or monitoring was recommended for the Company Lake work area. For the cultural resources monitoring report, see *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004). No cultural deposits were encountered during site construction and restoration activities in 2003, 2004, or 2005.

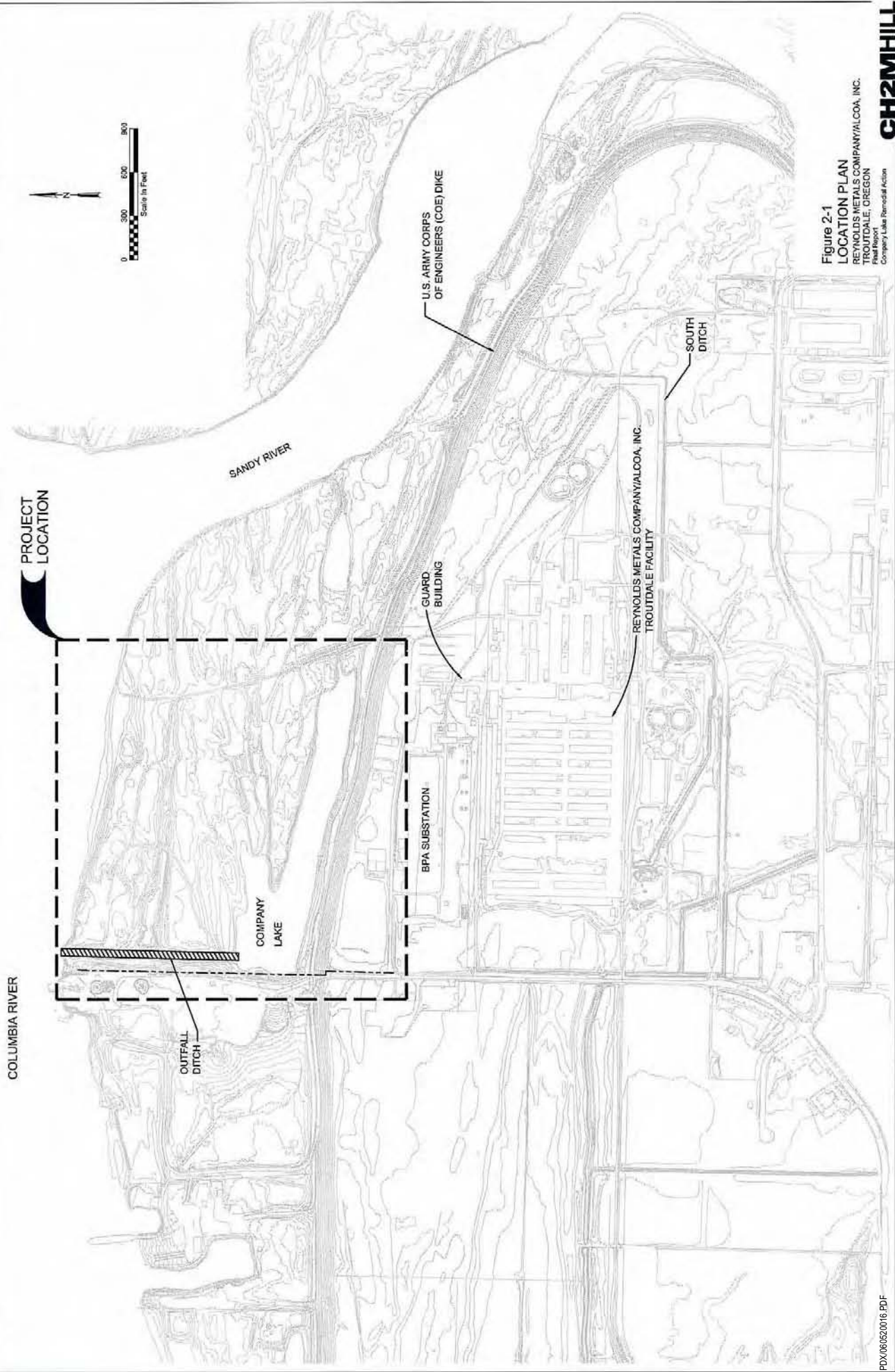


Figure 2-1
LOCATION PLAN
REYNOLDS METALS COMPANY/ALCOA, INC.
TROUTDALE, OREGON
Final Report
Company Lake Remedial Action

SECTION 3

Company Lake Early Remedial Action

Company Lake remedial actions for 2005 involved the installation of a soil cap along the north face of the COE dike near the east end of Company Lake and placement of downed trees along the north side of Company Lake for habitat restoration. Clean soil obtained from the City of Troutdale wastewater treatment plant (WWTP) upgrade project was used to provide a minimum 3-foot cover at the toe of the COE dike. The soil cap was placed using a bulldozer at the lake level in 2004 and was completed using an articulating belt conveyor to place soil from the top of the COE dike in 2005. Approximately 200 lineal feet of dike toe was covered.

Additional remedial actions occurred at Company Lake in 2003 and 2004. Approximately 59,902 and 30,223 tons of waste material and underlying soil were removed from Company Lake in 2003 and 2004, respectively. Details of these removal actions can be found in *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004) and *Company Lake Remedial Action 2004 and Early 2005 Interim Report Letter* (CH2M HILL, April 2005). Confirmation soil samples were collected from areas where PR was removed after excavation activities were completed. Photographs documenting 2004 field activities are contained in Appendix A.

The following subsections describe the major work components involved in the 2003, 2004, and 2005 remedial action at Company Lake.

3.1 Site Preparation/Traffic Management

Site preparation work in 2003 and 2004 included wetlands delineation, brush and tree removal, installation of site access controls and signage, utility locates, and coordination with the Bonneville Power Administration (BPA) for access road improvements or relocation. Additional site preparation and traffic management requirements are outlined in *Specifications for Excavation and Transportation of Company Lake Process Residue* (CH2M HILL, April 2003b) and *Memorandum No. 20: Addendum No. 1 to Specifications for Excavation and Transportation of Company Lake Process Residue* (CH2M HILL, May 1, 2003).

The designated routes for vehicular traffic at Company Lake in 2003 can be found in *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004). No changes in vehicular traffic routes occurred during the 2004 and 2005 construction activities.

3.2 Dust Monitoring

CH2M HILL and BBL Environmental Services, Inc. (BBLES), conducted dust monitoring using an MIE Mini RAM air monitoring device to provide real-time total airborne dust concentrations at the work site. Measurements were taken at different work areas several times a day on dry days. No measurements were taken on rainy days or when the ground surface was wet. If dry conditions were encountered or dust was detected, a water truck

was used to wet the roads and work areas. The results for the 2003 dust monitoring can be found in *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004). For 2004, a summary of air monitoring results is presented in Appendix B. No air monitoring was accomplished in 2005.

3.3 Offsite Transportation and Disposal

A summary of offsite transportation and disposal activities for the 2003 remedial action can be found in *Company Lake Early Remedial Action Interim Report* (CH2M HILL, April 2004). In 2004, waste material was loaded into trucks and hauled offsite for disposal from August 31, through December 22, 2004. Waste material was transported by Celorie Bros. Trucking to the Wasco County Landfill for disposal under waste profile permit number 2042-04-057. Company Lake PR often required stabilization with other additives to aid material handling and transport to the landfill. A combination of 18,372 tons of dry soils from south landfill, 11,328 tons from the south scrap yard, and 1,205 tons of wood by-product clarifier waste material was used to reduce PR moisture content.

Table 3-1 shows a weekly summary of tonnage hauled from Company Lake to the landfill in 2004. Copies of 2004 waste manifests are provided in Appendix C.

Week	Number of Loads	Weekly Total
09/04/2004	87	2,780.12
09/11/2004	105	3,431.29
09/18/2004	172	5,648.88
09/25/2004	142	4,651.00
10/02/2004	148	4,818.47
10/09/2004	130	4,270.66
10/16/2004	152	4,948.31
10/23/2004	135	4,379.93
10/30/2004	88	2,889.59
11/06/2004	110	3,596.10
11/13/2004	131	4,241.54
11/20/2004	145	4,639.68
11/27/2004	58	1,875.48
12/04/2004	13	414.32
12/11/2004	121	3,874.36
12/18/2004	126	4,026.08
12/25/2004	20	642.34
Total	1,883	61,128.15

Note: Total reflects total tonnage hauled from Company Lake in 2004.

3.4 Site Restoration

A bulldozer with low-pressure tracks was used to final grade excavated areas within Company Lake. Work areas were generally graded to a slope of 1.5 feet horizontal to 1 foot vertical (1.5H:1V). Slopes greater than 3 to 1 were protected with erosion control matting.

To prevent erosion to the west bank of Company Lake, 4-inch by 8-inch armoring rock was placed along the exposed slope between the excavation toe bottom and a 13-foot elevation. Armoring rock was also placed along the exposed slope beneath the two BPA towers adjacent to the north shore of the lake to prevent future erosion from surface runoff.

Site restoration activities in Company Lake included seeding by Pacific Hydroseed and the installation of jute matting on side slopes greater than 3 horizontal to 1 vertical (3H:1V). Approximately six downed trees were relocated to the "thumb" area to provide additional natural habitat for area wildlife. Additional downed trees were placed along the north shoreline following completion of the 2004 remedial activities. Disturbed areas along the COE dike and at the eastern end of Company Lake were seeded in accordance with contract specifications.

3.5 EPA Oversight

Mr. John Howland, EPA Region X, provided EPA oversight.

SECTION 4

Sampling and Analysis

Sampling and analysis activities associated with the Company Lake early removal actions consisted of collection of confirmation soil samples to demonstrate the effectiveness of the removal effort.

4.1 Confirmation Sampling

In 2003, eight (8) confirmation soil samples plus one duplicate were collected from the excavation area. In 2004, fourteen (14) confirmation soil samples plus one duplicate were collected from the excavation area. Also in 2004, five (5) samples were taken beneath areas used to load out stockpile soils. In February 2005, a reconfirmation sample was taken at sample location CLSS0004 from the 2001 pilot study area. A new sample was collected from this location based on removal activities accomplished in 2003. Confirmation soil samples were analyzed for total fluoride and PAHs in accordance with CH2M HILL's Memorandum No. 23: *Company Lake Field Sampling Plan, RMC-Troutdale* (CH2M HILL, August 11, 2003). Soil samples were collected from a depth interval of 0 to 6 inches below final excavation limits (sample locations are shown on Figure 4-1).

4.2 Sample Analysis and Results

Confirmation soil samples were sent to CH2M HILL's Applied Sciences Laboratory in Corvallis, Oregon, and to Columbia Analytical Services (CAS) Laboratories in Redding, California. A summary of analytical results for 2003, 2004, and February 2005 is presented in Table 4-1. Data usability reviews for samples collected in 2004 and 2005 are included in Appendix D.

Site-specific cleanup goals identified in *Memorandum WP No. 55: Company Lake Early Remedial Action Work Plan* (CH2M HILL, May 12, 2003) for the Company Lake site include:

- Removal and offsite disposal of waste material currently present at the Company Lake area
- Removal of waste material and underlying soil to achieve a total fluoride concentration of less than 1,000 mg/kg
- Removal of waste material and underlying soil to achieve total PAH concentrations of less than 36 mg/kg

All site-specific cleanup goals were met as a result of the removal action. Confirmation soil sample results yielded mean fluoride and total PAH values of 481 and 1.35 mg/kg, respectively. The maximum observed concentrations following removal activities were 995 and 16 mg/kg for fluoride and total PAHs, respectively.

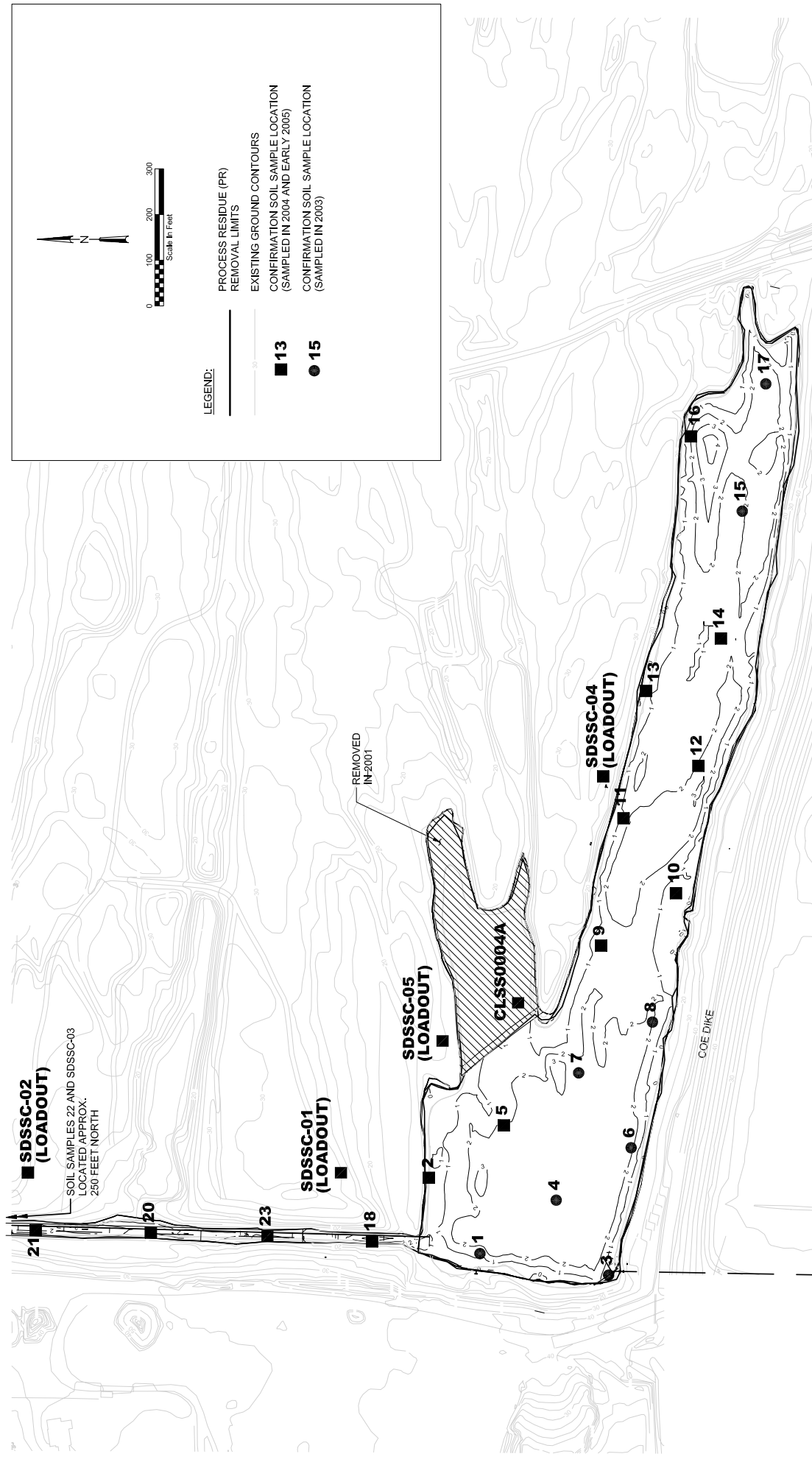


Figure 4-1
 CONFIRMATION SAMPLE LOCATIONS - 2003-2005
 REYNOLDS METALS COMPANY/ALCOA, INC.
 TROUTDALE, OREGON

**Table 4-1
Company Lake Confirmation Soil Sample Results
Reynolds Metals Company/Alcoa, Inc., Troutdale, Oregon**

Sample ID	Date Sampled	Fluoride by 340.2 Mod	Acenaphthene	Acenaphthylene	Anthracene	Benzo (a) anthracene	Benzo (a) pyrene	Benzo (b) fluoranthene	Benzo (g,h,i) perylene	Benzo (k) fluoranthene	Chrysene	Dibenzo (a,h) anthracene	Fluoranthene	Fluorene	Indeno (1,2,3-cd) pyrene	Naphthalene	Phenanthrene	Pyrene	Total PAHs
CL-SC01-005-081203-0	08/12/03	259	0.078 U	0.078 U	0.078 U	0.02 J	0.014 J	0.028 J	0.078 U	0.013 J	0.044 J	0.078 U	0.023 J	0.078 U	0.012 J	0.078 U	0.078 U	0.02 J	0.174
CL-SC03-005-081203-0	08/12/03	214	0.06 U	0.06 U	0.13	1.7	1.4	2.9	0.86	0.68	3.2 D	0.25	2.4	0.025 J	0.85	0.0016 J	0.17	1.5	16.0666
CLCS04-0005-101503-0	10/15/03	684	0.00419 U	0.00419 U	0.00419 U	0.00419 U	0.00523	0.00419 U	0.00881	0.00419 U	0.00419 U	0.0117	0.00419 U	0.00419 U	0.0109	0.00419 U	0.00419 U	0.00419 U	0.03664
CLCS04-0005-101503-1	10/15/03	636	0.00398 U	0.00398 U	0.00398 U	0.00398 U	0.00398 U	0.00398 U	0.00555	0.00398 U	0.00398 U	0.00706	0.00398 U	0.00398 U	0.00678	0.00398 U	0.00398 U	0.00398 U	0.01939
CL-SC06-005-081203-0	08/12/03	425	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.0072 J	0.0072
CLSC07-0005-100203-0	10/02/03	604	0.0078 U	0.0078 U	0.0023 J	0.024	0.039	0.067	0.025	0.018	0.062	0.023	0.007900001	0.0078 U	0.032	0.00046 J	0.0024 J	0.005 J	0.30806
CL-SC08-005-081203-0	08/12/03	581	0.071 U	0.071 U	0.0084 J	0.088	0.14	0.33	0.11	0.089	0.3	0.034 J	0.043 J	0.071 U	0.11	0.071 U	0.0087 J	0.028 J	1.2891
CLCS15-0005-110403-0	11/04/03	497	0.0075 U	0.0075 U	0.0015 J	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0082	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0032 J	0.0129
CLSC17-0005-100803-0	10/08/03	471	0.0069 U	0.0069 U	0.0022 J	0.0016 J	0.0069 U	0.0014 J	0.0015 J	0.0013 J	0.0015 J	0.0014 J	0.0019 J	0.0031 J	0.0014 J	0.0016 J	0.0018 J	0.0016 J	0.0223
CLSC-02-000-122004-0	12/20/04	784	0.00344 U	0.00344 U	0.00344 U	0.0141	0.0177	0.0237	0.0288	0.0159	0.0276	0.00648	0.0153	0.00344 U	0.0232	0.00344 U	0.00522	0.0151	0.1931
CLSC-05-000-122004-0	12/20/04	260	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0.00376 U	0
CLSC-09-000-122004-0	12/20/04	995	0.013	0.00268 U	0.0322	0.291 D	0.451 D	0.622 D	0.593 D	0.452 D	0.577 D	0.136	0.307 D	0.00822	0.487 D	0.00346	0.08769999	0.285 D	4.34557999
CL-SC10-0000-0922040	09/22/04	366	0.0019 J	0.0069 U	0.0069 U	0.005 J	0.0069 U	0.011	0.0043 J	0.0032 J	0.011	0.011	0.003 J	0.0013 J	0.015	0.0069 U	0.0069 U	0.0026 J	0.0693
CLSC11-0000-121304-0	12/13/04	493	0.0226	0.00333 U	0.0336	0.158	0.163	0.138	0.129	0.128	0.199	0.0365	0.201	0.0136	0.112	0.00796	0.108	0.19	1.64026
CLSC12-0005-111104-0	11/11/04	150 U	0.00354 U	0.00354 U	0.00354 U	0.0238	0.0244	0.0342	0.024	0.0202	0.0516	0.007	0.0276	0.00354 U	0.0191	0.00354 U	0.00855	0.0243	0.26475
CLSC12-0005-111104-1	11/11/04	150 U	0.00319 U	0.00319 U	0.00319 U	0.0197	0.0207	0.0265	0.0187	0.0185	0.0404	0.00521	0.0241	0.00319 U	0.015	0.00319 U	0.00751	0.0214	0.21772
CLSC13-0000-121304-0	12/13/04	150 U	0.00313 U	0.00313 U	0.00313 U	0.00688	0.00773	0.00828	0.00646	0.00678	0.0092	0.00313 U	0.0113	0.00313 U	0.00541	0.00313 U	0.00449	0.0103	0.07683
CL-SC14-0000-0920040	09/20/04	657	0.1 U	0.1 U	0.034 J	0.032 J	0.14	0.066 J	0.067 J	0.063 J	0.048 J	0.16	0.081 J	0.1 U	0.2	0.1 U	0.031 J	0.052 J	0.97
CLSC-16-000-122004-0	12/20/04	395	0.00532	0.00297 U	0.0087	0.0543	0.0604	0.0627	0.0463	0.0448	0.0766	0.013	0.0669	0.00297 U	0.0399	0.00297 U	0.0345	0.0664	0.57982
CLSC18-0000-121304-0	12/13/04	342	0.00377 U	0.00377 U	0.00377 U	0.0113	0.0152	0.0272	0.0187	0.0153	0.0254	0.0054	0.0161	0.00377 U	0.0148	0.00377 U	0.00377 U	0.0124	0.1618
CLSC20-0000-121304-0	12/13/04	269	0.00337 U	0.00337 U	0.00337 U	0.00403	0.00575	0.0119	0.00696	0.00717	0.0104	0.00337 U	0.0035	0.00337 U	0.00523	0.00337 U	0.00337 U	0.00337 U	0.05494
CLSC21-0000-121304-0	12/13/04	336	0.00362 U	0.00362 U	0.0039	0.0296	0.042	0.0701	0.0422	0.0427	0.0896	0.0099	0.0514	0.00362 U	0.0338	0.00362 U	0.00492	0.0323	0.45242
CLSC22-0000-121404-0	12/14/04	893	0.0781 U	0.0781 U	0.135	1.02	1.13	1.91	1.8	0.961	3.75	0.606	0.268	0.0781 U	1.59	0.0781 U	0.108	0.225	13.503
CL-SC23-000-122104-0	12/21/04	218	0.00371 U	0.00371 U	0.00575	0.0431	0.0614	0.104	0.08130001	0.0494	0.128	0.0208	0.0236	0.00371 U	0.069	0.00371 U	0.008909999	0.0224	0.61766001
SDSSC-01-00-122004-0	12/20/04	380	0.00323 U	0.00323 U	0.0219	0.254 D	0.215	0.466 D	0.158	0.185	0.702 D	0.0487	0.118	0.00323 U	0.13	0.00323 U	0.0202	0.104	2.4228
SDSSC-02-00-122004-0	12/20/04	324	0.00352 U	0.00352 U	0.06659999	0.801 D	0.788 D	1.3 D	0.543 D	0.561 D	2.05 D	0.153	0.47 D	0.00352 U	0.449 D	0.00352 U	0.0463	0.382 D	7.60989999
SDSSC-03-00-122004-0	12/20/04	322	0.028	0.0047	0.0746	0.694 D	0.805 D	1.09 D	0.609 D	0.521 D	1.53 D	0.169	0.588 D	0.0176	0.5 D	0.00417	0.154	0.557 D	7.34607
SDSSC-04-00-122004-0	12/20/04	150 U	0.00302 U	0.00302 U	0.00302 U	0.00442	0.00389	0.0051	0.00302 U	0.00348	0.00762	0.00302 U	0.00475	0.00302 U	0.00302 U	0.00302 U	0.00302 U	0.0045	0.03376
SDS-SC05-00-122104-0	12/21/04	539	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0.00408 U	0
CLSS0004A	02/16/05	280	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0.00359 U	0

Notes:
 Results reported in milligrams per kilograms (mg/kg).
 D = This qualifier is used for all compounds identified in an analysis at a secondary dilution factor.
 J = Indicates an estimated value.
 U = indicates the compounds was analyzed for but not detected.

Waste material thickness ranged from 0.5 to 6 feet. Waste material and approximately 0.5 foot of underlying soil were removed and disposed of offsite under this project. On the basis of average historical fluoride concentrations, approximately 4,215,000 pounds of total fluoride mass was removed under all remedial action.

Analytical results were also used to estimate the risk to human health receptors after the removal actions were implemented. The estimated risk was calculated by using the exposure scenarios presented in *Draft Baseline Risk Assessment, Part 1 – Nongroundwater Media* (May 1999). Appendix E provides risk calculations for the trespasser scenario.

The risk estimates for the above exposure scenarios before and after implementation of the early removal actions (2001 through 2005) are summarized in Table 4-2. Estimated risks are below EPA's target risk levels of 1×10^{-4} excess lifetime cancer risk and below EPA's hazard index of 1 for all three exposure scenarios. In addition, estimated risks are below the Oregon Department of Environmental Quality's (DEQ) target risk level of 1×10^{-5} for cumulative contaminant exposure and 1×10^{-6} for individual contaminants of potential concern.

Table 4-2 Summary of Risk Estimates for Company Lake		
Scenario	Reasonable Maximum Exposure (RME) Trespasser Scenario	
	Total Excess Lifetime Cancer Risk (ELCR)	Noncancer Hazard Index (HI)
Prior to Excavation	4.48×10^{-5}	0.4
After Excavation	1.47×10^{-7}	3.8×10^{-3}
Risk Reduction	99.8%	99.1%

SECTION 5

Costs

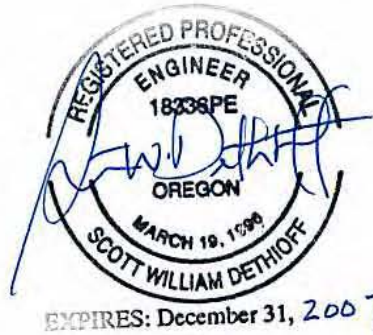
Costs for the early removal action at Company Lake are summarized in Table 5-1. Included in the table are costs for CH2M HILL, the analytical laboratories, and the transportation and disposal contractors. Costs incurred by EPA and RMC/Alcoa are not included.

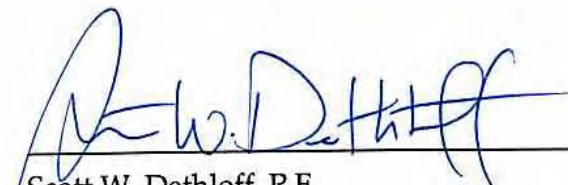
Table 5-1 Summary of Costs for Early Removal Action at Company Lake		
Contractor	Description of Work	Cost*
CH2M HILL, URS	Work planning, engineering support, waste profile sampling, agency submittals, design and specification preparation, services during bidding, cultural resource investigations, owner construction oversight, confirmation sampling, laboratory analysis, data validation, and reporting	\$755,569.78
Envirocon, BBLES, Entact, and TTFW	Excavation, transportation, pipeline installation, COE dike soil cap, and site restoration	\$3,031,316.23
Hillsboro Landfill and Wasco County Landfill	Waste material disposal	\$1,309,498.33
Total		\$5,096,384.34
*EPA oversight and RMC/Alcoa costs not included.		

SECTION 6

Certification

Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is 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.




 Scott W. Dethloff, P.E.
 Oregon Professional Engineer 18336 PE
 CH2M HILL, Inc.

02/20/06
 Date


 Steven M. Shaw
 Troutdale Superfund Project Coordinator
 Reynolds Metals Company/Alcoa

February 14, 2006
 Date

SECTION 7

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APPENDIX A
2004 Photo Log of Company Lake Remedial Effort



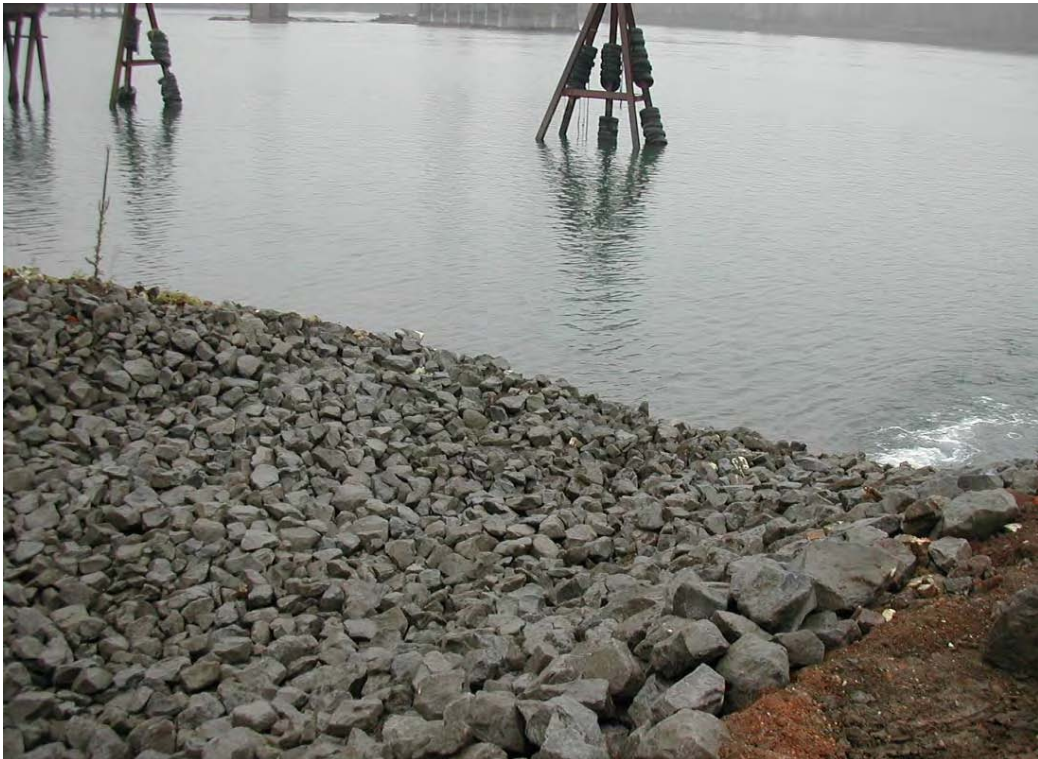














APPENDIX B
2004 Dust Monitoring Results

pDR-1000 S/N: 04051

Tag Number: 05

Number of logged points: 483

Start time and date: 11:00:18 09-Aug

Elapsed time: 08:03:00

Logging period (sec): 60

Calibration Factor (%): 100

Max Display Concentration: 3.694 mg/m³

Time at maximum: 13:19:44 Aug 09

Max STEL Concentration: 0.100 mg/m³

Time at max STEL: 12:09:18 Aug 09

Overall Avg Conc: 0.039 mg/m³

Logged Data:

Point	Date	Time	Avg.(mg/m ³)
1	9-Aug	11:01:18	0.058
2	9-Aug	11:02:18	0.026
3	9-Aug	11:03:18	0.051
4	9-Aug	11:04:18	0.031
5	9-Aug	11:05:18	0.026
6	9-Aug	11:06:18	0.024
7	9-Aug	11:07:18	0.023
8	9-Aug	11:08:18	0.021
9	9-Aug	11:09:18	0.024
10	9-Aug	11:10:18	0.035
11	9-Aug	11:11:18	0.025
12	9-Aug	11:12:18	0.042
13	9-Aug	11:13:18	0.076
14	9-Aug	11:14:18	0.029
15	9-Aug	11:15:18	0.023
16	9-Aug	11:16:18	0.024
17	9-Aug	11:17:18	0.03
18	9-Aug	11:18:18	0.021
19	9-Aug	11:19:18	0.021
20	9-Aug	11:20:18	0.023
21	9-Aug	11:21:18	0.116
22	9-Aug	11:22:18	0.028
23	9-Aug	11:23:18	0.033
24	9-Aug	11:24:18	0.07
25	9-Aug	11:25:18	0.041
26	9-Aug	11:26:18	0.024
27	9-Aug	11:27:18	0.027
28	9-Aug	11:28:18	0.026
29	9-Aug	11:29:18	0.028
30	9-Aug	11:30:18	0.551
31	9-Aug	11:31:18	0.032
32	9-Aug	11:32:18	0.088
33	9-Aug	11:33:18	0.081
34	9-Aug	11:34:18	0.075
35	9-Aug	11:35:18	0.035
36	9-Aug	11:36:18	0.027
37	9-Aug	11:37:18	0.028
38	9-Aug	11:38:18	0.024
39	9-Aug	11:39:18	0.037
40	9-Aug	11:40:18	0.026

Point	Date	Time	Avg.(mg/m ³)
41	9-Aug	11:41:18	0.027
42	9-Aug	11:42:18	0.033
43	9-Aug	11:43:18	0.181
44	9-Aug	11:44:18	0.075
45	9-Aug	11:45:18	0.076
46	9-Aug	11:46:18	0.023
47	9-Aug	11:47:18	0.027
48	9-Aug	11:48:18	0.037
49	9-Aug	11:49:18	0.03
50	9-Aug	11:50:18	0.029
51	9-Aug	11:51:18	0.022
52	9-Aug	11:52:18	0.033
53	9-Aug	11:53:18	0.026
54	9-Aug	11:54:18	0.023
55	9-Aug	11:55:18	0.184
56	9-Aug	11:56:18	0.134
57	9-Aug	11:57:18	0.212
58	9-Aug	11:58:18	0.055
59	9-Aug	11:59:18	0.042
60	9-Aug	12:00:18	0.023
61	9-Aug	12:01:18	0.026
62	9-Aug	12:02:18	0.073
63	9-Aug	12:03:18	0.035
64	9-Aug	12:04:18	0.079
65	9-Aug	12:05:18	0.098
66	9-Aug	12:06:18	0.268
67	9-Aug	12:07:18	0.196
68	9-Aug	12:08:18	0.043
69	9-Aug	12:09:18	0.025
70	9-Aug	12:10:18	0.021
71	9-Aug	12:11:18	0.025
72	9-Aug	12:12:18	0.024
73	9-Aug	12:13:18	0.022
74	9-Aug	12:14:18	0.216
75	9-Aug	12:15:18	0.028
76	9-Aug	12:16:18	0.039
77	9-Aug	12:17:18	0.177
78	9-Aug	12:18:18	0.216
79	9-Aug	12:19:18	0.058
80	9-Aug	12:20:18	0.036
81	9-Aug	12:21:18	0.052
82	9-Aug	12:22:18	0.114
83	9-Aug	12:23:18	0.073
84	9-Aug	12:24:18	0.029
85	9-Aug	12:25:18	0.116
86	9-Aug	12:26:18	0.031
87	9-Aug	12:27:18	0.031
88	9-Aug	12:28:18	0.026
89	9-Aug	12:29:18	0.024
90	9-Aug	12:30:18	0.024
91	9-Aug	12:31:18	0.028
92	9-Aug	12:32:18	0.027
93	9-Aug	12:33:18	0.023

Point	Date	Time	Avg.(mg/m ³)
94	9-Aug	12:34:18	0.025
95	9-Aug	12:35:18	0.024
96	9-Aug	12:36:18	0.027
97	9-Aug	12:37:18	0.05
98	9-Aug	12:38:18	0.055
99	9-Aug	12:39:18	0.033
100	9-Aug	12:40:18	0.022
101	9-Aug	12:41:18	0.027
102	9-Aug	12:42:18	0.041
103	9-Aug	12:43:18	0.028
104	9-Aug	12:44:18	0.028
105	9-Aug	12:45:18	0.026
106	9-Aug	12:46:18	0.225
107	9-Aug	12:47:18	0.15
108	9-Aug	12:48:18	0.045
109	9-Aug	12:49:18	0.028
110	9-Aug	12:50:18	0.026
111	9-Aug	12:51:18	0.025
112	9-Aug	12:52:18	0.024
113	9-Aug	12:53:18	0.029
114	9-Aug	12:54:18	0.059
115	9-Aug	12:55:18	0.061
116	9-Aug	12:56:18	0.025
117	9-Aug	12:57:18	0.08
118	9-Aug	12:58:18	0.149
119	9-Aug	12:59:18	0.031
120	9-Aug	13:00:18	0.029
121	9-Aug	13:01:18	0.025
122	9-Aug	13:02:18	0.028
123	9-Aug	13:03:18	0.048
124	9-Aug	13:04:18	0.028
125	9-Aug	13:05:18	0.03
126	9-Aug	13:06:18	0.025
127	9-Aug	13:07:18	0.025
128	9-Aug	13:08:18	0.106
129	9-Aug	13:09:18	0.031
130	9-Aug	13:10:18	0.026
131	9-Aug	13:11:18	0.021
132	9-Aug	13:12:18	0.208
133	9-Aug	13:13:18	0.026
134	9-Aug	13:14:18	0.023
135	9-Aug	13:15:18	0.024
136	9-Aug	13:16:18	0.023
137	9-Aug	13:17:18	0.021
138	9-Aug	13:18:18	0.025
139	9-Aug	13:19:18	0.026
140	9-Aug	13:20:18	0.75
141	9-Aug	13:21:18	0.028
142	9-Aug	13:22:18	0.023
143	9-Aug	13:23:18	0.025
144	9-Aug	13:24:18	0.028
145	9-Aug	13:25:18	0.091
146	9-Aug	13:26:18	0.037

Point	Date	Time	Avg.(mg/m ³)
147	9-Aug	13:27:18	0.03
148	9-Aug	13:28:18	0.088
149	9-Aug	13:29:18	0.088
150	9-Aug	13:30:18	0.028
151	9-Aug	13:31:18	0.027
152	9-Aug	13:32:18	0.024
153	9-Aug	13:33:18	0.022
154	9-Aug	13:34:18	0.025
155	9-Aug	13:35:18	0.025
156	9-Aug	13:36:18	0.032
157	9-Aug	13:37:18	0.024
158	9-Aug	13:38:18	0.023
159	9-Aug	13:39:18	0.022
160	9-Aug	13:40:18	0.024
161	9-Aug	13:41:18	0.557
162	9-Aug	13:42:18	0.06
163	9-Aug	13:43:18	0.022
164	9-Aug	13:44:18	0.024
165	9-Aug	13:45:18	0.109
166	9-Aug	13:46:18	0.026
167	9-Aug	13:47:18	0.022
168	9-Aug	13:48:18	0.133
169	9-Aug	13:49:18	0.06
170	9-Aug	13:50:18	0.041
171	9-Aug	13:51:18	0.027
172	9-Aug	13:52:18	0.024
173	9-Aug	13:53:18	0.022
174	9-Aug	13:54:18	0.022
175	9-Aug	13:55:18	0.024
176	9-Aug	13:56:18	0.024
177	9-Aug	13:57:18	0.026
178	9-Aug	13:58:18	0.022
179	9-Aug	13:59:18	0.023
180	9-Aug	14:00:18	0.025
181	9-Aug	14:01:18	0.031
182	9-Aug	14:02:18	0.023
183	9-Aug	14:03:18	0.024
184	9-Aug	14:04:18	0.022
185	9-Aug	14:05:18	0.049
186	9-Aug	14:06:18	0.028
187	9-Aug	14:07:18	0.033
188	9-Aug	14:08:18	0.024
189	9-Aug	14:09:18	0.073
190	9-Aug	14:10:18	0.061
191	9-Aug	14:11:18	0.083
192	9-Aug	14:12:18	0.038
193	9-Aug	14:13:18	0.038
194	9-Aug	14:14:18	0.047
195	9-Aug	14:15:18	0.023
196	9-Aug	14:16:18	0.027
197	9-Aug	14:17:18	0.024
198	9-Aug	14:18:18	0.041
199	9-Aug	14:19:18	0.048

Point	Date	Time	Avg.(mg/m ³)
200	9-Aug	14:20:18	0.023
201	9-Aug	14:21:18	0.026
202	9-Aug	14:22:18	0.022
203	9-Aug	14:23:18	0.023
204	9-Aug	14:24:18	0.021
205	9-Aug	14:25:18	0.021
206	9-Aug	14:26:18	0.033
207	9-Aug	14:27:18	0.023
208	9-Aug	14:28:18	0.023
209	9-Aug	14:29:18	0.022
210	9-Aug	14:30:18	0.106
211	9-Aug	14:31:18	0.055
212	9-Aug	14:32:18	0.032
213	9-Aug	14:33:18	0.026
214	9-Aug	14:34:18	0.579
215	9-Aug	14:35:18	0.023
216	9-Aug	14:36:18	0.042
217	9-Aug	14:37:18	0.025
218	9-Aug	14:38:18	0.029
219	9-Aug	14:39:18	0.022
220	9-Aug	14:40:18	0.021
221	9-Aug	14:41:18	0.021
222	9-Aug	14:42:18	0.021
223	9-Aug	14:43:18	0.035
224	9-Aug	14:44:18	0.047
225	9-Aug	14:45:18	0.024
226	9-Aug	14:46:18	0.021
227	9-Aug	14:47:18	0.023
228	9-Aug	14:48:18	0.021
229	9-Aug	14:49:18	0.019
230	9-Aug	14:50:18	0.024
231	9-Aug	14:51:18	0.02
232	9-Aug	14:52:18	0.022
233	9-Aug	14:53:18	0.019
234	9-Aug	14:54:18	0.024
235	9-Aug	14:55:18	0.024
236	9-Aug	14:56:18	0.025
237	9-Aug	14:57:18	0.023
238	9-Aug	14:58:18	0.021
239	9-Aug	14:59:18	0.02
240	9-Aug	15:00:18	0.021
241	9-Aug	15:01:18	0.022
242	9-Aug	15:02:18	0.022
243	9-Aug	15:03:18	0.021
244	9-Aug	15:04:18	0.019
245	9-Aug	15:05:18	0.019
246	9-Aug	15:06:18	0.019
247	9-Aug	15:07:18	0.021
248	9-Aug	15:08:18	0.023
249	9-Aug	15:09:18	0.02
250	9-Aug	15:10:18	0.022
251	9-Aug	15:11:18	0.029
252	9-Aug	15:12:18	0.017

Point	Date	Time	Avg.(mg/m ³)
253	9-Aug	15:13:18	0.02
254	9-Aug	15:14:18	0.019
255	9-Aug	15:15:18	0.022
256	9-Aug	15:16:18	0.019
257	9-Aug	15:17:18	0.022
258	9-Aug	15:18:18	0.021
259	9-Aug	15:19:18	0.022
260	9-Aug	15:20:18	0.022
261	9-Aug	15:21:18	0.022
262	9-Aug	15:22:18	0.02
263	9-Aug	15:23:18	0.019
264	9-Aug	15:24:18	0.02
265	9-Aug	15:25:18	0.032
266	9-Aug	15:26:18	0.023
267	9-Aug	15:27:18	0.021
268	9-Aug	15:28:18	0.023
269	9-Aug	15:29:18	0.02
270	9-Aug	15:30:18	0.021
271	9-Aug	15:31:18	0.018
272	9-Aug	15:32:18	0.018
273	9-Aug	15:33:18	0.022
274	9-Aug	15:34:18	0.02
275	9-Aug	15:35:18	0.019
276	9-Aug	15:36:18	0.016
277	9-Aug	15:37:18	0.021
278	9-Aug	15:38:18	0.02
279	9-Aug	15:39:18	0.019
280	9-Aug	15:40:18	0.018
281	9-Aug	15:41:18	0.022
282	9-Aug	15:42:18	0.018
283	9-Aug	15:43:18	0.02
284	9-Aug	15:44:18	0.02
285	9-Aug	15:45:18	0.025
286	9-Aug	15:46:18	0.021
287	9-Aug	15:47:18	0.02
288	9-Aug	15:48:18	0.021
289	9-Aug	15:49:18	0.02
290	9-Aug	15:50:18	0.02
291	9-Aug	15:51:18	0.019
292	9-Aug	15:52:18	0.025
293	9-Aug	15:53:18	0.027
294	9-Aug	15:54:18	0.022
295	9-Aug	15:55:18	0.018
296	9-Aug	15:56:18	0.016
297	9-Aug	15:57:18	0.019
298	9-Aug	15:58:18	0.027
299	9-Aug	15:59:18	0.02
300	9-Aug	16:00:18	0.021
301	9-Aug	16:01:18	0.021
302	9-Aug	16:02:18	0.022
303	9-Aug	16:03:18	0.025
304	9-Aug	16:04:18	0.019
305	9-Aug	16:05:18	0.021

Point	Date	Time	Avg.(mg/m ³)
306	9-Aug	16:06:18	0.018
307	9-Aug	16:07:18	0.019
308	9-Aug	16:08:18	0.016
309	9-Aug	16:09:18	0.02
310	9-Aug	16:10:18	0.02
311	9-Aug	16:11:18	0.018
312	9-Aug	16:12:18	0.018
313	9-Aug	16:13:18	0.018
314	9-Aug	16:14:18	0.021
315	9-Aug	16:15:18	0.02
316	9-Aug	16:16:18	0.02
317	9-Aug	16:17:18	0.02
318	9-Aug	16:18:18	0.019
319	9-Aug	16:19:18	0.021
320	9-Aug	16:20:18	0.019
321	9-Aug	16:21:18	0.022
322	9-Aug	16:22:18	0.025
323	9-Aug	16:23:18	0.021
324	9-Aug	16:24:18	0.022
325	9-Aug	16:25:18	0.02
326	9-Aug	16:26:18	0.021
327	9-Aug	16:27:18	0.024
328	9-Aug	16:28:18	0.019
329	9-Aug	16:29:18	0.016
330	9-Aug	16:30:18	0.018
331	9-Aug	16:31:18	0.019
332	9-Aug	16:32:18	0.017
333	9-Aug	16:33:18	0.02
334	9-Aug	16:34:18	0.019
335	9-Aug	16:35:18	0.018
336	9-Aug	16:36:18	0.019
337	9-Aug	16:37:18	0.02
338	9-Aug	16:38:18	0.071
339	9-Aug	16:39:18	0.021
340	9-Aug	16:40:18	0.014
341	9-Aug	16:41:18	0.03
342	9-Aug	16:42:18	0.052
343	9-Aug	16:43:18	0.023
344	9-Aug	16:44:18	0.018
345	9-Aug	16:45:18	0.02
346	9-Aug	16:46:18	0.023
347	9-Aug	16:47:18	0.02
348	9-Aug	16:48:18	0.02
349	9-Aug	16:49:18	0.02
350	9-Aug	16:50:18	0.024
351	9-Aug	16:51:18	0.019
352	9-Aug	16:52:18	0.017
353	9-Aug	16:53:18	0.02
354	9-Aug	16:54:18	0.019
355	9-Aug	16:55:18	0.02
356	9-Aug	16:56:18	0.02
357	9-Aug	16:57:18	0.14
358	9-Aug	16:58:18	0.02

Point	Date	Time	Avg.(mg/m ³)
359	9-Aug	16:59:18	0.019
360	9-Aug	17:00:18	0.122
361	9-Aug	17:01:18	0.055
362	9-Aug	17:02:18	0.027
363	9-Aug	17:03:18	0.027
364	9-Aug	17:04:18	0.022
365	9-Aug	17:05:18	0.025
366	9-Aug	17:06:18	0.023
367	9-Aug	17:07:18	0.022
368	9-Aug	17:08:18	0.089
369	9-Aug	17:09:18	0.027
370	9-Aug	17:10:18	0.019
371	9-Aug	17:11:18	0.019
372	9-Aug	17:12:18	0.021
373	9-Aug	17:13:18	0.02
374	9-Aug	17:14:18	0.018
375	9-Aug	17:15:18	0.018
376	9-Aug	17:16:18	0.016
377	9-Aug	17:17:18	0.026
378	9-Aug	17:18:18	0.077
379	9-Aug	17:19:18	0.023
380	9-Aug	17:20:18	0.02
381	9-Aug	17:21:18	0.02
382	9-Aug	17:22:18	0.029
383	9-Aug	17:23:18	0.017
384	9-Aug	17:24:18	0.023
385	9-Aug	17:25:18	0.111
386	9-Aug	17:26:18	0.026
387	9-Aug	17:27:18	0.016
388	9-Aug	17:28:18	0.021
389	9-Aug	17:29:18	0.02
390	9-Aug	17:30:18	0.154
391	9-Aug	17:31:18	0.036
392	9-Aug	17:32:18	0.017
393	9-Aug	17:33:18	0.02
394	9-Aug	17:34:18	0.02
395	9-Aug	17:35:18	0.017
396	9-Aug	17:36:18	0.02
397	9-Aug	17:37:18	0.029
398	9-Aug	17:38:18	0.031
399	9-Aug	17:39:18	0.021
400	9-Aug	17:40:18	0.02
401	9-Aug	17:41:18	0.019
402	9-Aug	17:42:18	0.025
403	9-Aug	17:43:18	0.023
404	9-Aug	17:44:18	0.024
405	9-Aug	17:45:18	0.021
406	9-Aug	17:46:18	0.11
407	9-Aug	17:47:18	0.021
408	9-Aug	17:48:18	0.022
409	9-Aug	17:49:18	0.111
410	9-Aug	17:50:18	0.07
411	9-Aug	17:51:18	0.015

Point	Date	Time	Avg.(mg/m ³)
412	9-Aug	17:52:18	0.021
413	9-Aug	17:53:18	0.019
414	9-Aug	17:54:18	0.024
415	9-Aug	17:55:18	0.019
416	9-Aug	17:56:18	0.023
417	9-Aug	17:57:18	0.017
418	9-Aug	17:58:18	0.015
419	9-Aug	17:59:18	0.061
420	9-Aug	18:00:18	0.023
421	9-Aug	18:01:18	0.014
422	9-Aug	18:02:18	0.02
423	9-Aug	18:03:18	0.019
424	9-Aug	18:04:18	0.023
425	9-Aug	18:05:18	0.123
426	9-Aug	18:06:18	0.027
427	9-Aug	18:07:18	0.025
428	9-Aug	18:08:18	0.017
429	9-Aug	18:09:18	0.021
430	9-Aug	18:10:18	0.041
431	9-Aug	18:11:18	0.022
432	9-Aug	18:12:18	0.021
433	9-Aug	18:13:18	0.02
434	9-Aug	18:14:18	0.02
435	9-Aug	18:15:18	0.019
436	9-Aug	18:16:18	0.016
437	9-Aug	18:17:18	0.018
438	9-Aug	18:18:18	0.019
439	9-Aug	18:19:18	0.023
440	9-Aug	18:20:18	0.018
441	9-Aug	18:21:18	0.17
442	9-Aug	18:22:18	0.025
443	9-Aug	18:23:18	0.023
444	9-Aug	18:24:18	0.02
445	9-Aug	18:25:18	0.022
446	9-Aug	18:26:18	0.02
447	9-Aug	18:27:18	0.029
448	9-Aug	18:28:18	0.019
449	9-Aug	18:29:18	0.021
450	9-Aug	18:30:18	0.018
451	9-Aug	18:31:18	0.033
452	9-Aug	18:32:18	0.022
453	9-Aug	18:33:18	0.016
454	9-Aug	18:34:18	0.021
455	9-Aug	18:35:18	0.027
456	9-Aug	18:36:18	0.021
457	9-Aug	18:37:18	0.022
458	9-Aug	18:38:18	0.019
459	9-Aug	18:39:18	0.022
460	9-Aug	18:40:18	0.02
461	9-Aug	18:41:18	0.017
462	9-Aug	18:42:18	0.021
463	9-Aug	18:43:18	0.017
464	9-Aug	18:44:18	0.027

Point	Date	Time	Avg.(mg/m ³)
465	9-Aug	18:45:18	0.021
466	9-Aug	18:46:18	0.018
467	9-Aug	18:47:18	0.013
468	9-Aug	18:48:18	0.017
469	9-Aug	18:49:18	0.021
470	9-Aug	18:50:18	0.016
471	9-Aug	18:51:18	0.026
472	9-Aug	18:52:18	0.083
473	9-Aug	18:53:18	0.016
474	9-Aug	18:54:18	0.016
475	9-Aug	18:55:18	0.015
476	9-Aug	18:56:18	0.018
477	9-Aug	18:57:18	0.023
478	9-Aug	18:58:18	0.021
479	9-Aug	18:59:18	0.015
480	9-Aug	19:00:18	0.021
481	9-Aug	19:01:18	0.022
482	9-Aug	19:02:18	0.02
483	9-Aug	19:03:18	0.016

00043230300004000501}

pDR-1000 S/N: 04051

Tag Number: 06

Number of logged points: 566

Start time and date: 10:46:09 17-Aug

Elapsed time: 09:26:00

Logging period (sec): 60

Calibration Factor (%): 100

Max Display Concentration: 0.393 mg/m³

Time at maximum: 12:41:57 Aug 17

Max STEL Concentration: 0.056 mg/m³

Time at max STEL: 12:43:09 Aug 17

Overall Avg Conc: 0.040 mg/m³

Logged Data:

Point	Date	Time	Avg.(mg/m ³)
1	17-Aug	10:47:09	0.049
2	17-Aug	10:48:09	0.045
3	17-Aug	10:49:09	0.045
4	17-Aug	10:50:09	0.046
5	17-Aug	10:51:09	0.046
6	17-Aug	10:52:09	0.056
7	17-Aug	10:53:09	0.045
8	17-Aug	10:54:09	0.044
9	17-Aug	10:55:09	0.048
10	17-Aug	10:56:09	0.047
11	17-Aug	10:57:09	0.046
12	17-Aug	10:58:09	0.047
13	17-Aug	10:59:09	0.047
14	17-Aug	11:00:09	0.046
15	17-Aug	11:01:09	0.049
16	17-Aug	11:02:09	0.051
17	17-Aug	11:03:09	0.047
18	17-Aug	11:04:09	0.049
19	17-Aug	11:05:09	0.049
20	17-Aug	11:06:09	0.045
21	17-Aug	11:07:09	0.051
22	17-Aug	11:08:09	0.049
23	17-Aug	11:09:09	0.051
24	17-Aug	11:10:09	0.052
25	17-Aug	11:11:09	0.047
26	17-Aug	11:12:09	0.052
27	17-Aug	11:13:09	0.051
28	17-Aug	11:14:09	0.056
29	17-Aug	11:15:09	0.055
30	17-Aug	11:16:09	0.06
31	17-Aug	11:17:09	0.044
32	17-Aug	11:18:09	0.046
33	17-Aug	11:19:09	0.047
34	17-Aug	11:20:09	0.047
35	17-Aug	11:21:09	0.047
36	17-Aug	11:22:09	0.045
37	17-Aug	11:23:09	0.042
38	17-Aug	11:24:09	0.046
39	17-Aug	11:25:09	0.042
40	17-Aug	11:26:09	0.045

Point	Date	Time	Avg.(mg/m ³)
41	17-Aug	11:27:09	0.041
42	17-Aug	11:28:09	0.043
43	17-Aug	11:29:09	0.041
44	17-Aug	11:30:09	0.046
45	17-Aug	11:31:09	0.043
46	17-Aug	11:32:09	0.042
47	17-Aug	11:33:09	0.042
48	17-Aug	11:34:09	0.052
49	17-Aug	11:35:09	0.047
50	17-Aug	11:36:09	0.047
51	17-Aug	11:37:09	0.042
52	17-Aug	11:38:09	0.042
53	17-Aug	11:39:09	0.043
54	17-Aug	11:40:09	0.042
55	17-Aug	11:41:09	0.044
56	17-Aug	11:42:09	0.07
57	17-Aug	11:43:09	0.048
58	17-Aug	11:44:09	0.046
59	17-Aug	11:45:09	0.042
60	17-Aug	11:46:09	0.042
61	17-Aug	11:47:09	0.049
62	17-Aug	11:48:09	0.044
63	17-Aug	11:49:09	0.046
64	17-Aug	11:50:09	0.04
65	17-Aug	11:51:09	0.04
66	17-Aug	11:52:09	0.042
67	17-Aug	11:53:09	0.039
68	17-Aug	11:54:09	0.044
69	17-Aug	11:55:09	0.04
70	17-Aug	11:56:09	0.042
71	17-Aug	11:57:09	0.043
72	17-Aug	11:58:09	0.043
73	17-Aug	11:59:09	0.043
74	17-Aug	12:00:09	0.043
75	17-Aug	12:01:09	0.043
76	17-Aug	12:02:09	0.048
77	17-Aug	12:03:09	0.044
78	17-Aug	12:04:09	0.046
79	17-Aug	12:05:09	0.05
80	17-Aug	12:06:09	0.057
81	17-Aug	12:07:09	0.045
82	17-Aug	12:08:09	0.046
83	17-Aug	12:09:09	0.044
84	17-Aug	12:10:09	0.049
85	17-Aug	12:11:09	0.044
86	17-Aug	12:12:09	0.044
87	17-Aug	12:13:09	0.048
88	17-Aug	12:14:09	0.043
89	17-Aug	12:15:09	0.043
90	17-Aug	12:16:09	0.044
91	17-Aug	12:17:09	0.078
92	17-Aug	12:18:09	0.041
93	17-Aug	12:19:09	0.058

Point	Date	Time	Avg.(mg/m ³)
94	17-Aug	12:20:09	0.069
95	17-Aug	12:21:09	0.044
96	17-Aug	12:22:09	0.044
97	17-Aug	12:23:09	0.043
98	17-Aug	12:24:09	0.044
99	17-Aug	12:25:09	0.043
100	17-Aug	12:26:09	0.053
101	17-Aug	12:27:09	0.044
102	17-Aug	12:28:09	0.036
103	17-Aug	12:29:09	0.041
104	17-Aug	12:30:09	0.044
105	17-Aug	12:31:09	0.041
106	17-Aug	12:32:09	0.041
107	17-Aug	12:33:09	0.049
108	17-Aug	12:34:09	0.055
109	17-Aug	12:35:09	0.059
110	17-Aug	12:36:09	0.042
111	17-Aug	12:37:09	0.046
112	17-Aug	12:38:09	0.053
113	17-Aug	12:39:09	0.053
114	17-Aug	12:40:09	0.045
115	17-Aug	12:41:09	0.05
116	17-Aug	12:42:09	0.13
117	17-Aug	12:43:09	0.085
118	17-Aug	12:44:09	0.053
119	17-Aug	12:45:09	0.043
120	17-Aug	12:46:09	0.042
121	17-Aug	12:47:09	0.042
122	17-Aug	12:48:09	0.041
123	17-Aug	12:49:09	0.045
124	17-Aug	12:50:09	0.049
125	17-Aug	12:51:09	0.05
126	17-Aug	12:52:09	0.043
127	17-Aug	12:53:09	0.044
128	17-Aug	12:54:09	0.044
129	17-Aug	12:55:09	0.048
130	17-Aug	12:56:09	0.045
131	17-Aug	12:57:09	0.045
132	17-Aug	12:58:09	0.052
133	17-Aug	12:59:09	0.048
134	17-Aug	13:00:09	0.046
135	17-Aug	13:01:09	0.046
136	17-Aug	13:02:09	0.049
137	17-Aug	13:03:09	0.048
138	17-Aug	13:04:09	0.046
139	17-Aug	13:05:09	0.046
140	17-Aug	13:06:09	0.045
141	17-Aug	13:07:09	0.045
142	17-Aug	13:08:09	0.066
143	17-Aug	13:09:09	0.063
144	17-Aug	13:10:09	0.049
145	17-Aug	13:11:09	0.061
146	17-Aug	13:12:09	0.048

Point	Date	Time	Avg.(mg/m ³)
147	17-Aug	13:13:09	0.048
148	17-Aug	13:14:09	0.045
149	17-Aug	13:15:09	0.046
150	17-Aug	13:16:09	0.047
151	17-Aug	13:17:09	0.048
152	17-Aug	13:18:09	0.046
153	17-Aug	13:19:09	0.043
154	17-Aug	13:20:09	0.044
155	17-Aug	13:21:09	0.044
156	17-Aug	13:22:09	0.045
157	17-Aug	13:23:09	0.048
158	17-Aug	13:24:09	0.049
159	17-Aug	13:25:09	0.061
160	17-Aug	13:26:09	0.048
161	17-Aug	13:27:09	0.046
162	17-Aug	13:28:09	0.044
163	17-Aug	13:29:09	0.047
164	17-Aug	13:30:09	0.049
165	17-Aug	13:31:09	0.043
166	17-Aug	13:32:09	0.047
167	17-Aug	13:33:09	0.051
168	17-Aug	13:34:09	0.052
169	17-Aug	13:35:09	0.053
170	17-Aug	13:36:09	0.047
171	17-Aug	13:37:09	0.045
172	17-Aug	13:38:09	0.045
173	17-Aug	13:39:09	0.048
174	17-Aug	13:40:09	0.061
175	17-Aug	13:41:09	0.051
176	17-Aug	13:42:09	0.045
177	17-Aug	13:43:09	0.04
178	17-Aug	13:44:09	0.042
179	17-Aug	13:45:09	0.041
180	17-Aug	13:46:09	0.042
181	17-Aug	13:47:09	0.043
182	17-Aug	13:48:09	0.048
183	17-Aug	13:49:09	0.043
184	17-Aug	13:50:09	0.069
185	17-Aug	13:51:09	0.054
186	17-Aug	13:52:09	0.047
187	17-Aug	13:53:09	0.043
188	17-Aug	13:54:09	0.043
189	17-Aug	13:55:09	0.046
190	17-Aug	13:56:09	0.054
191	17-Aug	13:57:09	0.044
192	17-Aug	13:58:09	0.038
193	17-Aug	13:59:09	0.044
194	17-Aug	14:00:09	0.041
195	17-Aug	14:01:09	0.056
196	17-Aug	14:02:09	0.059
197	17-Aug	14:03:09	0.055
198	17-Aug	14:04:09	0.118
199	17-Aug	14:05:09	0.053

Point	Date	Time	Avg.(mg/m ³)
200	17-Aug	14:06:09	0.046
201	17-Aug	14:07:09	0.039
202	17-Aug	14:08:09	0.048
203	17-Aug	14:09:09	0.042
204	17-Aug	14:10:09	0.04
205	17-Aug	14:11:09	0.049
206	17-Aug	14:12:09	0.04
207	17-Aug	14:13:09	0.045
208	17-Aug	14:14:09	0.036
209	17-Aug	14:15:09	0.042
210	17-Aug	14:16:09	0.056
211	17-Aug	14:17:09	0.055
212	17-Aug	14:18:09	0.031
213	17-Aug	14:19:09	0.039
214	17-Aug	14:20:09	0.06
215	17-Aug	14:21:09	0.054
216	17-Aug	14:22:09	0.04
217	17-Aug	14:23:09	0.049
218	17-Aug	14:24:09	0.044
219	17-Aug	14:25:09	0.041
220	17-Aug	14:26:09	0.042
221	17-Aug	14:27:09	0.036
222	17-Aug	14:28:09	0.041
223	17-Aug	14:29:09	0.042
224	17-Aug	14:30:09	0.045
225	17-Aug	14:31:09	0.043
226	17-Aug	14:32:09	0.053
227	17-Aug	14:33:09	0.037
228	17-Aug	14:34:09	0.033
229	17-Aug	14:35:09	0.037
230	17-Aug	14:36:09	0.046
231	17-Aug	14:37:09	0.059
232	17-Aug	14:38:09	0.048
233	17-Aug	14:39:09	0.055
234	17-Aug	14:40:09	0.044
235	17-Aug	14:41:09	0.045
236	17-Aug	14:42:09	0.034
237	17-Aug	14:43:09	0.039
238	17-Aug	14:44:09	0.042
239	17-Aug	14:45:09	0.053
240	17-Aug	14:46:09	0.049
241	17-Aug	14:47:09	0.035
242	17-Aug	14:48:09	0.036
243	17-Aug	14:49:09	0.045
244	17-Aug	14:50:09	0.046
245	17-Aug	14:51:09	0.059
246	17-Aug	14:52:09	0.037
247	17-Aug	14:53:09	0.04
248	17-Aug	14:54:09	0.039
249	17-Aug	14:55:09	0.039
250	17-Aug	14:56:09	0.034
251	17-Aug	14:57:09	0.036
252	17-Aug	14:58:09	0.05

Point	Date	Time	Avg.(mg/m ³)
253	17-Aug	14:59:09	0.037
254	17-Aug	15:00:09	0.034
255	17-Aug	15:01:09	0.032
256	17-Aug	15:02:09	0.037
257	17-Aug	15:03:09	0.035
258	17-Aug	15:04:09	0.039
259	17-Aug	15:05:09	0.031
260	17-Aug	15:06:09	0.033
261	17-Aug	15:07:09	0.043
262	17-Aug	15:08:09	0.034
263	17-Aug	15:09:09	0.032
264	17-Aug	15:10:09	0.037
265	17-Aug	15:11:09	0.038
266	17-Aug	15:12:09	0.041
267	17-Aug	15:13:09	0.037
268	17-Aug	15:14:09	0.037
269	17-Aug	15:15:09	0.039
270	17-Aug	15:16:09	0.048
271	17-Aug	15:17:09	0.034
272	17-Aug	15:18:09	0.031
273	17-Aug	15:19:09	0.038
274	17-Aug	15:20:09	0.038
275	17-Aug	15:21:09	0.037
276	17-Aug	15:22:09	0.037
277	17-Aug	15:23:09	0.046
278	17-Aug	15:24:09	0.038
279	17-Aug	15:25:09	0.03
280	17-Aug	15:26:09	0.035
281	17-Aug	15:27:09	0.041
282	17-Aug	15:28:09	0.033
283	17-Aug	15:29:09	0.043
284	17-Aug	15:30:09	0.033
285	17-Aug	15:31:09	0.031
286	17-Aug	15:32:09	0.03
287	17-Aug	15:33:09	0.035
288	17-Aug	15:34:09	0.043
289	17-Aug	15:35:09	0.059
290	17-Aug	15:36:09	0.035
291	17-Aug	15:37:09	0.032
292	17-Aug	15:38:09	0.029
293	17-Aug	15:39:09	0.033
294	17-Aug	15:40:09	0.031
295	17-Aug	15:41:09	0.084
296	17-Aug	15:42:09	0.028
297	17-Aug	15:43:09	0.029
298	17-Aug	15:44:09	0.027
299	17-Aug	15:45:09	0.034
300	17-Aug	15:46:09	0.033
301	17-Aug	15:47:09	0.031
302	17-Aug	15:48:09	0.028
303	17-Aug	15:49:09	0.031
304	17-Aug	15:50:09	0.027
305	17-Aug	15:51:09	0.033

Point	Date	Time	Avg.(mg/m ³)
306	17-Aug	15:52:09	0.038
307	17-Aug	15:53:09	0.036
308	17-Aug	15:54:09	0.028
309	17-Aug	15:55:09	0.032
310	17-Aug	15:56:09	0.04
311	17-Aug	15:57:09	0.034
312	17-Aug	15:58:09	0.033
313	17-Aug	15:59:09	0.031
314	17-Aug	16:00:09	0.036
315	17-Aug	16:01:09	0.037
316	17-Aug	16:02:09	0.039
317	17-Aug	16:03:09	0.034
318	17-Aug	16:04:09	0.026
319	17-Aug	16:05:09	0.026
320	17-Aug	16:06:09	0.029
321	17-Aug	16:07:09	0.028
322	17-Aug	16:08:09	0.03
323	17-Aug	16:09:09	0.029
324	17-Aug	16:10:09	0.03
325	17-Aug	16:11:09	0.03
326	17-Aug	16:12:09	0.034
327	17-Aug	16:13:09	0.029
328	17-Aug	16:14:09	0.043
329	17-Aug	16:15:09	0.042
330	17-Aug	16:16:09	0.034
331	17-Aug	16:17:09	0.043
332	17-Aug	16:18:09	0.029
333	17-Aug	16:19:09	0.033
334	17-Aug	16:20:09	0.04
335	17-Aug	16:21:09	0.039
336	17-Aug	16:22:09	0.039
337	17-Aug	16:23:09	0.03
338	17-Aug	16:24:09	0.032
339	17-Aug	16:25:09	0.029
340	17-Aug	16:26:09	0.027
341	17-Aug	16:27:09	0.035
342	17-Aug	16:28:09	0.054
343	17-Aug	16:29:09	0.028
344	17-Aug	16:30:09	0.029
345	17-Aug	16:31:09	0.03
346	17-Aug	16:32:09	0.035
347	17-Aug	16:33:09	0.028
348	17-Aug	16:34:09	0.028
349	17-Aug	16:35:09	0.026
350	17-Aug	16:36:09	0.025
351	17-Aug	16:37:09	0.026
352	17-Aug	16:38:09	0.025
353	17-Aug	16:39:09	0.027
354	17-Aug	16:40:09	0.041
355	17-Aug	16:41:09	0.027
356	17-Aug	16:42:09	0.027
357	17-Aug	16:43:09	0.027
358	17-Aug	16:44:09	0.027

Point	Date	Time	Avg.(mg/m ³)
359	17-Aug	16:45:09	0.031
360	17-Aug	16:46:09	0.041
361	17-Aug	16:47:09	0.033
362	17-Aug	16:48:09	0.042
363	17-Aug	16:49:09	0.036
364	17-Aug	16:50:09	0.058
365	17-Aug	16:51:09	0.026
366	17-Aug	16:52:09	0.031
367	17-Aug	16:53:09	0.032
368	17-Aug	16:54:09	0.028
369	17-Aug	16:55:09	0.039
370	17-Aug	16:56:09	0.034
371	17-Aug	16:57:09	0.054
372	17-Aug	16:58:09	0.03
373	17-Aug	16:59:09	0.029
374	17-Aug	17:00:09	0.031
375	17-Aug	17:01:09	0.028
376	17-Aug	17:02:09	0.024
377	17-Aug	17:03:09	0.024
378	17-Aug	17:04:09	0.024
379	17-Aug	17:05:09	0.026
380	17-Aug	17:06:09	0.023
381	17-Aug	17:07:09	0.036
382	17-Aug	17:08:09	0.026
383	17-Aug	17:09:09	0.033
384	17-Aug	17:10:09	0.032
385	17-Aug	17:11:09	0.037
386	17-Aug	17:12:09	0.04
387	17-Aug	17:13:09	0.036
388	17-Aug	17:14:09	0.044
389	17-Aug	17:15:09	0.158
390	17-Aug	17:16:09	0.041
391	17-Aug	17:17:09	0.025
392	17-Aug	17:18:09	0.022
393	17-Aug	17:19:09	0.022
394	17-Aug	17:20:09	0.023
395	17-Aug	17:21:09	0.021
396	17-Aug	17:22:09	0.068
397	17-Aug	17:23:09	0.036
398	17-Aug	17:24:09	0.027
399	17-Aug	17:25:09	0.022
400	17-Aug	17:26:09	0.027
401	17-Aug	17:27:09	0.026
402	17-Aug	17:28:09	0.029
403	17-Aug	17:29:09	0.024
404	17-Aug	17:30:09	0.031
405	17-Aug	17:31:09	0.023
406	17-Aug	17:32:09	0.022
407	17-Aug	17:33:09	0.025
408	17-Aug	17:34:09	0.032
409	17-Aug	17:35:09	0.023
410	17-Aug	17:36:09	0.026
411	17-Aug	17:37:09	0.037

Point	Date	Time	Avg.(mg/m ³)
412	17-Aug	17:38:09	0.033
413	17-Aug	17:39:09	0.03
414	17-Aug	17:40:09	0.031
415	17-Aug	17:41:09	0.029
416	17-Aug	17:42:09	0.027
417	17-Aug	17:43:09	0.026
418	17-Aug	17:44:09	0.026
419	17-Aug	17:45:09	0.025
420	17-Aug	17:46:09	0.025
421	17-Aug	17:47:09	0.023
422	17-Aug	17:48:09	0.029
423	17-Aug	17:49:09	0.022
424	17-Aug	17:50:09	0.022
425	17-Aug	17:51:09	0.024
426	17-Aug	17:52:09	0.029
427	17-Aug	17:53:09	0.027
428	17-Aug	17:54:09	0.041
429	17-Aug	17:55:09	0.039
430	17-Aug	17:56:09	0.035
431	17-Aug	17:57:09	0.03
432	17-Aug	17:58:09	0.052
433	17-Aug	17:59:09	0.023
434	17-Aug	18:00:09	0.027
435	17-Aug	18:01:09	0.032
436	17-Aug	18:02:09	0.027
437	17-Aug	18:03:09	0.023
438	17-Aug	18:04:09	0.024
439	17-Aug	18:05:09	0.026
440	17-Aug	18:06:09	0.023
441	17-Aug	18:07:09	0.033
442	17-Aug	18:08:09	0.027
443	17-Aug	18:09:09	0.026
444	17-Aug	18:10:09	0.038
445	17-Aug	18:11:09	0.041
446	17-Aug	18:12:09	0.037
447	17-Aug	18:13:09	0.03
448	17-Aug	18:14:09	0.027
449	17-Aug	18:15:09	0.024
450	17-Aug	18:16:09	0.026
451	17-Aug	18:17:09	0.034
452	17-Aug	18:18:09	0.043
453	17-Aug	18:19:09	0.023
454	17-Aug	18:20:09	0.022
455	17-Aug	18:21:09	0.025
456	17-Aug	18:22:09	0.024
457	17-Aug	18:23:09	0.081
458	17-Aug	18:24:09	0.023
459	17-Aug	18:25:09	0.035
460	17-Aug	18:26:09	0.052
461	17-Aug	18:27:09	0.044
462	17-Aug	18:28:09	0.03
463	17-Aug	18:29:09	0.024
464	17-Aug	18:30:09	0.024

Point	Date	Time	Avg.(mg/m ³)
465	17-Aug	18:31:09	0.029
466	17-Aug	18:32:09	0.033
467	17-Aug	18:33:09	0.035
468	17-Aug	18:34:09	0.034
469	17-Aug	18:35:09	0.033
470	17-Aug	18:36:09	0.034
471	17-Aug	18:37:09	0.023
472	17-Aug	18:38:09	0.031
473	17-Aug	18:39:09	0.024
474	17-Aug	18:40:09	0.023
475	17-Aug	18:41:09	0.028
476	17-Aug	18:42:09	0.027
477	17-Aug	18:43:09	0.028
478	17-Aug	18:44:09	0.029
479	17-Aug	18:45:09	0.027
480	17-Aug	18:46:09	0.026
481	17-Aug	18:47:09	0.026
482	17-Aug	18:48:09	0.025
483	17-Aug	18:49:09	0.027
484	17-Aug	18:50:09	0.027
485	17-Aug	18:51:09	0.027
486	17-Aug	18:52:09	0.026
487	17-Aug	18:53:09	0.026
488	17-Aug	18:54:09	0.028
489	17-Aug	18:55:09	0.029
490	17-Aug	18:56:09	0.029
491	17-Aug	18:57:09	0.029
492	17-Aug	18:58:09	0.031
493	17-Aug	18:59:09	0.026
494	17-Aug	19:00:09	0.027
495	17-Aug	19:01:09	0.031
496	17-Aug	19:02:09	0.033
497	17-Aug	19:03:09	0.035
498	17-Aug	19:04:09	0.043
499	17-Aug	19:05:09	0.039
500	17-Aug	19:06:09	0.029
501	17-Aug	19:07:09	0.04
502	17-Aug	19:08:09	0.032
503	17-Aug	19:09:09	0.033
504	17-Aug	19:10:09	0.06
505	17-Aug	19:11:09	0.069
506	17-Aug	19:12:09	0.047
507	17-Aug	19:13:09	0.064
508	17-Aug	19:14:09	0.049
509	17-Aug	19:15:09	0.092
510	17-Aug	19:16:09	0.053
511	17-Aug	19:17:09	0.035
512	17-Aug	19:18:09	0.039
513	17-Aug	19:19:09	0.047
514	17-Aug	19:20:09	0.037
515	17-Aug	19:21:09	0.037
516	17-Aug	19:22:09	0.042
517	17-Aug	19:23:09	0.034

Point	Date	Time	Avg.(mg/m ³)
518	17-Aug	19:24:09	0.05
519	17-Aug	19:25:09	0.034
520	17-Aug	19:26:09	0.048
521	17-Aug	19:27:09	0.045
522	17-Aug	19:28:09	0.053
523	17-Aug	19:29:09	0.03
524	17-Aug	19:30:09	0.029
525	17-Aug	19:31:09	0.03
526	17-Aug	19:32:09	0.029
527	17-Aug	19:33:09	0.028
528	17-Aug	19:34:09	0.028
529	17-Aug	19:35:09	0.028
530	17-Aug	19:36:09	0.029
531	17-Aug	19:37:09	0.029
532	17-Aug	19:38:09	0.039
533	17-Aug	19:39:09	0.034
534	17-Aug	19:40:09	0.027
535	17-Aug	19:41:09	0.027
536	17-Aug	19:42:09	0.025
537	17-Aug	19:43:09	0.027
538	17-Aug	19:44:09	0.026
539	17-Aug	19:45:09	0.025
540	17-Aug	19:46:09	0.029
541	17-Aug	19:47:09	0.03
542	17-Aug	19:48:09	0.08
543	17-Aug	19:49:09	0.027
544	17-Aug	19:50:09	0.028
545	17-Aug	19:51:09	0.026
546	17-Aug	19:52:09	0.029
547	17-Aug	19:53:09	0.026
548	17-Aug	19:54:09	0.028
549	17-Aug	19:55:09	0.032
550	17-Aug	19:56:09	0.033
551	17-Aug	19:57:09	0.032
552	17-Aug	19:58:09	0.032
553	17-Aug	19:59:09	0.035
554	17-Aug	20:00:09	0.037
555	17-Aug	20:01:09	0.036
556	17-Aug	20:02:09	0.049
557	17-Aug	20:03:09	0.037
558	17-Aug	20:04:09	0.032
559	17-Aug	20:05:09	0.029
560	17-Aug	20:06:09	0.031
561	17-Aug	20:07:09	0.028
562	17-Aug	20:08:09	0.026
563	17-Aug	20:09:09	0.029
564	17-Aug	20:10:09	0.076
565	17-Aug	20:11:09	0.04
566	17-Aug	20:12:09	0.035

00043230300004000501}

pDR-1000 S/N: 04051
Tag Number: 07
Number of logged points: 1363
Start time and date: 11:35:49 31-Aug
Elapsed time: 22:43:00
Logging period (sec): 60
Calibration Factor (%): 100
Max Display Concentration: 148.540 mg/m³
Time at maximum: 08:57:29 Sep 01
Max STEL Concentration: 3.982 mg/m³
Time at max STEL: 09:06:51 Sep 01
Overall Avg Conc: 0.055 mg/m³

Logged Data:

Point	Date	Time	Avg.(mg/m ³)
1	31-Aug	11:36:49	0.01
2	31-Aug	11:37:49	0.009
3	31-Aug	11:38:49	0.011
4	31-Aug	11:39:49	0.018
5	31-Aug	11:40:49	0.015
6	31-Aug	11:41:49	0.015
7	31-Aug	11:42:49	0.02
8	31-Aug	11:43:49	0.03
9	31-Aug	11:44:49	0.023
10	31-Aug	11:45:49	0.025
11	31-Aug	11:46:49	0.029
12	31-Aug	11:47:49	0.025
13	31-Aug	11:48:49	0.028
14	31-Aug	11:49:49	0.021
15	31-Aug	11:50:49	0.034
16	31-Aug	11:51:49	0.034
17	31-Aug	11:52:49	0.044
18	31-Aug	11:53:49	0.065
19	31-Aug	11:54:49	0.071
20	31-Aug	11:55:49	0.081
21	31-Aug	11:56:49	0.079
22	31-Aug	11:57:49	0.07
23	31-Aug	11:58:49	0.061
24	31-Aug	11:59:49	0.057
25	31-Aug	12:00:49	0.065
26	31-Aug	12:01:49	0.039
27	31-Aug	12:02:49	0.041
28	31-Aug	12:03:49	0.049
29	31-Aug	12:04:49	0.029
30	31-Aug	12:05:49	0.015
31	31-Aug	12:06:49	0.027
32	31-Aug	12:07:49	0.061
33	31-Aug	12:08:49	0.02
34	31-Aug	12:09:49	0.012
35	31-Aug	12:10:49	0.01
36	31-Aug	12:11:49	0.015
37	31-Aug	12:12:49	0.021
38	31-Aug	12:13:49	0.022
39	31-Aug	12:14:49	0.037
40	31-Aug	12:15:49	0.026

Point	Date	Time	Avg.(mg/m ³)
41	31-Aug	12:16:49	0.016
42	31-Aug	12:17:49	0.013
43	31-Aug	12:18:49	0.016
44	31-Aug	12:19:49	0.01
45	31-Aug	12:20:49	0.019
46	31-Aug	12:21:49	0.023
47	31-Aug	12:22:49	0.016
48	31-Aug	12:23:49	0.021
49	31-Aug	12:24:49	0.056
50	31-Aug	12:25:49	0.199
51	31-Aug	12:26:49	0.047
52	31-Aug	12:27:49	0.022
53	31-Aug	12:28:49	0.023
54	31-Aug	12:29:49	0.034
55	31-Aug	12:30:49	0.02
56	31-Aug	12:31:49	0.023
57	31-Aug	12:32:49	0.02
58	31-Aug	12:33:49	0.017
59	31-Aug	12:34:49	0.025
60	31-Aug	12:35:49	0.034
61	31-Aug	12:36:49	0.022
62	31-Aug	12:37:49	0.025
63	31-Aug	12:38:49	0.023
64	31-Aug	12:39:49	0.022
65	31-Aug	12:40:49	0.016
66	31-Aug	12:41:49	0.027
67	31-Aug	12:42:49	0.021
68	31-Aug	12:43:49	0.021
69	31-Aug	12:44:49	0.039
70	31-Aug	12:45:49	0.033
71	31-Aug	12:46:49	0.022
72	31-Aug	12:47:49	0.016
73	31-Aug	12:48:49	0.014
74	31-Aug	12:49:49	0.023
75	31-Aug	12:50:49	0.019
76	31-Aug	12:51:49	0.04
77	31-Aug	12:52:49	0.039
78	31-Aug	12:53:49	0.035
79	31-Aug	12:54:49	0.037
80	31-Aug	12:55:49	0.023
81	31-Aug	12:56:49	0.009
82	31-Aug	12:57:49	0.011
83	31-Aug	12:58:49	0.015
84	31-Aug	12:59:49	0.014
85	31-Aug	13:00:49	0.06
86	31-Aug	13:01:49	0.02
87	31-Aug	13:02:49	0.049
88	31-Aug	13:03:49	0.025
89	31-Aug	13:04:49	0.018
90	31-Aug	13:05:49	0.022
91	31-Aug	13:06:49	0.055
92	31-Aug	13:07:49	0.045
93	31-Aug	13:08:49	0.018

Point	Date	Time	Avg.(mg/m ³)
94	31-Aug	13:09:49	0.015
95	31-Aug	13:10:49	0.025
96	31-Aug	13:11:49	0.015
97	31-Aug	13:12:49	0.011
98	31-Aug	13:13:49	0.012
99	31-Aug	13:14:49	0.013
100	31-Aug	13:15:49	0.014
101	31-Aug	13:16:49	0.014
102	31-Aug	13:17:49	0.013
103	31-Aug	13:18:49	0.01
104	31-Aug	13:19:49	0.012
105	31-Aug	13:20:49	0.015
106	31-Aug	13:21:49	0.015
107	31-Aug	13:22:49	0.013
108	31-Aug	13:23:49	0.017
109	31-Aug	13:24:49	0.015
110	31-Aug	13:25:49	0.016
111	31-Aug	13:26:49	0.016
112	31-Aug	13:27:49	0.021
113	31-Aug	13:28:49	0.023
114	31-Aug	13:29:49	0.024
115	31-Aug	13:30:49	0.066
116	31-Aug	13:31:49	0.024
117	31-Aug	13:32:49	0.027
118	31-Aug	13:33:49	0.028
119	31-Aug	13:34:49	0.022
120	31-Aug	13:35:49	0.021
121	31-Aug	13:36:49	0.029
122	31-Aug	13:37:49	0.038
123	31-Aug	13:38:49	0.03
124	31-Aug	13:39:49	0.021
125	31-Aug	13:40:49	0.032
126	31-Aug	13:41:49	0.04
127	31-Aug	13:42:49	0.047
128	31-Aug	13:43:49	0.032
129	31-Aug	13:44:49	0.032
130	31-Aug	13:45:49	0.032
131	31-Aug	13:46:49	0.043
132	31-Aug	13:47:49	0.038
133	31-Aug	13:48:49	0.041
134	31-Aug	13:49:49	0.023
135	31-Aug	13:50:49	0.022
136	31-Aug	13:51:49	0.051
137	31-Aug	13:52:49	0.046
138	31-Aug	13:53:49	0.048
139	31-Aug	13:54:49	0.023
140	31-Aug	13:55:49	0.044
141	31-Aug	13:56:49	0.028
142	31-Aug	13:57:49	0.039
143	31-Aug	13:58:49	0.036
144	31-Aug	13:59:49	0.04
145	31-Aug	14:00:49	0.045
146	31-Aug	14:01:49	0.032

Point	Date	Time	Avg.(mg/m ³)
147	31-Aug	14:02:49	0.047
148	31-Aug	14:03:49	0.043
149	31-Aug	14:04:49	0.045
150	31-Aug	14:05:49	0.062
151	31-Aug	14:06:49	0.043
152	31-Aug	14:07:49	0.093
153	31-Aug	14:08:49	0.053
154	31-Aug	14:09:49	0.056
155	31-Aug	14:10:49	0.118
156	31-Aug	14:11:49	0.041
157	31-Aug	14:12:49	0.029
158	31-Aug	14:13:49	0.049
159	31-Aug	14:14:49	0.201
160	31-Aug	14:15:49	0.084
161	31-Aug	14:16:49	0.045
162	31-Aug	14:17:49	0.083
163	31-Aug	14:18:49	0.057
164	31-Aug	14:19:49	0.332
165	31-Aug	14:20:49	0.039
166	31-Aug	14:21:49	0.034
167	31-Aug	14:22:49	0.026
168	31-Aug	14:23:49	0.092
169	31-Aug	14:24:49	0.062
170	31-Aug	14:25:49	0.047
171	31-Aug	14:26:49	0.046
172	31-Aug	14:27:49	0.07
173	31-Aug	14:28:49	0.085
174	31-Aug	14:29:49	0.139
175	31-Aug	14:30:49	0.037
176	31-Aug	14:31:49	0.034
177	31-Aug	14:32:49	0.029
178	31-Aug	14:33:49	0.042
179	31-Aug	14:34:49	0.036
180	31-Aug	14:35:49	0.031
181	31-Aug	14:36:49	0.031
182	31-Aug	14:37:49	0.052
183	31-Aug	14:38:49	0.044
184	31-Aug	14:39:49	0.035
185	31-Aug	14:40:49	0.036
186	31-Aug	14:41:49	0.078
187	31-Aug	14:42:49	0.044
188	31-Aug	14:43:49	0.031
189	31-Aug	14:44:49	0.032
190	31-Aug	14:45:49	0.048
191	31-Aug	14:46:49	0.033
192	31-Aug	14:47:49	0.033
193	31-Aug	14:48:49	0.076
194	31-Aug	14:49:49	0.153
195	31-Aug	14:50:49	0.038
196	31-Aug	14:51:49	0.033
197	31-Aug	14:52:49	0.022
198	31-Aug	14:53:49	0.051
199	31-Aug	14:54:49	0.024

Point	Date	Time	Avg.(mg/m ³)
200	31-Aug	14:55:49	0.039
201	31-Aug	14:56:49	0.032
202	31-Aug	14:57:49	0.026
203	31-Aug	14:58:49	0.029
204	31-Aug	14:59:49	0.084
205	31-Aug	15:00:49	0.058
206	31-Aug	15:01:49	0.018
207	31-Aug	15:02:49	0.017
208	31-Aug	15:03:49	0.019
209	31-Aug	15:04:49	0.017
210	31-Aug	15:05:49	0.016
211	31-Aug	15:06:49	0.018
212	31-Aug	15:07:49	0.024
213	31-Aug	15:08:49	0.31
214	31-Aug	15:09:49	0.111
215	31-Aug	15:10:49	0.075
216	31-Aug	15:11:49	0.016
217	31-Aug	15:12:49	0.032
218	31-Aug	15:13:49	0.018
219	31-Aug	15:14:49	0.017
220	31-Aug	15:15:49	0.025
221	31-Aug	15:16:49	0.027
222	31-Aug	15:17:49	0.021
223	31-Aug	15:18:49	0.021
224	31-Aug	15:19:49	0.071
225	31-Aug	15:20:49	0.015
226	31-Aug	15:21:49	0.012
227	31-Aug	15:22:49	0.013
228	31-Aug	15:23:49	0.035
229	31-Aug	15:24:49	0.015
230	31-Aug	15:25:49	0.018
231	31-Aug	15:26:49	0.021
232	31-Aug	15:27:49	0.01
233	31-Aug	15:28:49	0.02
234	31-Aug	15:29:49	0.039
235	31-Aug	15:30:49	0.032
236	31-Aug	15:31:49	0.007
237	31-Aug	15:32:49	0.004
238	31-Aug	15:33:49	0.005
239	31-Aug	15:34:49	0.009
240	31-Aug	15:35:49	0.005
241	31-Aug	15:36:49	0.004
242	31-Aug	15:37:49	0.093
243	31-Aug	15:38:49	0.216
244	31-Aug	15:39:49	0.023
245	31-Aug	15:40:49	0.006
246	31-Aug	15:41:49	0.004
247	31-Aug	15:42:49	0.003
248	31-Aug	15:43:49	0.004
249	31-Aug	15:44:49	0.001
250	31-Aug	15:45:49	0.002
251	31-Aug	15:46:49	0.234
252	31-Aug	15:47:49	0.607

Point	Date	Time	Avg.(mg/m ³)
253	31-Aug	15:48:49	0.091
254	31-Aug	15:49:49	0.007
255	31-Aug	15:50:49	0.002
256	31-Aug	15:51:49	0.004
257	31-Aug	15:52:49	0.004
258	31-Aug	15:53:49	0.004
259	31-Aug	15:54:49	0.003
260	31-Aug	15:55:49	0.005
261	31-Aug	15:56:49	0.108
262	31-Aug	15:57:49	0.009
263	31-Aug	15:58:49	0.003
264	31-Aug	15:59:49	0.001
265	31-Aug	16:00:49	0.003
266	31-Aug	16:01:49	0.003
267	31-Aug	16:02:49	0.005
268	31-Aug	16:03:49	0.025
269	31-Aug	16:04:49	0.017
270	31-Aug	16:05:49	0.01
271	31-Aug	16:06:49	0.011
272	31-Aug	16:07:49	0.011
273	31-Aug	16:08:49	0.095
274	31-Aug	16:09:49	0.082
275	31-Aug	16:10:49	0.015
276	31-Aug	16:11:49	0.005
277	31-Aug	16:12:49	0.008
278	31-Aug	16:13:49	0.095
279	31-Aug	16:14:49	0.012
280	31-Aug	16:15:49	0.007
281	31-Aug	16:16:49	0.002
282	31-Aug	16:17:49	0.004
283	31-Aug	16:18:49	0.006
284	31-Aug	16:19:49	0.008
285	31-Aug	16:20:49	0.006
286	31-Aug	16:21:49	0.004
287	31-Aug	16:22:49	0.006
288	31-Aug	16:23:49	0.006
289	31-Aug	16:24:49	0.009
290	31-Aug	16:25:49	0.009
291	31-Aug	16:26:49	0.01
292	31-Aug	16:27:49	0.006
293	31-Aug	16:28:49	0.013
294	31-Aug	16:29:49	0.008
295	31-Aug	16:30:49	0.012
296	31-Aug	16:31:49	0.018
297	31-Aug	16:32:49	0.024
298	31-Aug	16:33:49	0.033
299	31-Aug	16:34:49	0.03
300	31-Aug	16:35:49	0.036
301	31-Aug	16:36:49	0.021
302	31-Aug	16:37:49	0.03
303	31-Aug	16:38:49	0.03
304	31-Aug	16:39:49	0.018
305	31-Aug	16:40:49	0.031

Point	Date	Time	Avg.(mg/m ³)
306	31-Aug	16:41:49	0.016
307	31-Aug	16:42:49	0.014
308	31-Aug	16:43:49	0.017
309	31-Aug	16:44:49	0.104
310	31-Aug	16:45:49	0.075
311	31-Aug	16:46:49	0.033
312	31-Aug	16:47:49	0.007
313	31-Aug	16:48:49	0.025
314	31-Aug	16:49:49	0.016
315	31-Aug	16:50:49	0.033
316	31-Aug	16:51:49	0.048
317	31-Aug	16:52:49	0.029
318	31-Aug	16:53:49	0.017
319	31-Aug	16:54:49	0.01
320	31-Aug	16:55:49	0.01
321	31-Aug	16:56:49	0.012
322	31-Aug	16:57:49	0.013
323	31-Aug	16:58:49	0.012
324	31-Aug	16:59:49	0.035
325	31-Aug	17:00:49	0.027
326	31-Aug	17:01:49	0.017
327	31-Aug	17:02:49	0.059
328	31-Aug	17:03:49	0.04
329	31-Aug	17:04:49	0.032
330	31-Aug	17:05:49	0.029
331	31-Aug	17:06:49	0.031
332	31-Aug	17:07:49	0.015
333	31-Aug	17:08:49	0.013
334	31-Aug	17:09:49	0.051
335	31-Aug	17:10:49	0.033
336	31-Aug	17:11:49	0.013
337	31-Aug	17:12:49	0.02
338	31-Aug	17:13:49	0.025
339	31-Aug	17:14:49	0.016
340	31-Aug	17:15:49	0.008
341	31-Aug	17:16:49	0.03
342	31-Aug	17:17:49	0.017
343	31-Aug	17:18:49	0.017
344	31-Aug	17:19:49	0.007
345	31-Aug	17:20:49	0.016
346	31-Aug	17:21:49	0.004
347	31-Aug	17:22:49	0.009
348	31-Aug	17:23:49	0.005
349	31-Aug	17:24:49	0.011
350	31-Aug	17:25:49	0.012
351	31-Aug	17:26:49	0.017
352	31-Aug	17:27:49	0.027
353	31-Aug	17:28:49	0.011
354	31-Aug	17:29:49	0.015
355	31-Aug	17:30:49	0.019
356	31-Aug	17:31:49	0.064
357	31-Aug	17:32:49	0.019
358	31-Aug	17:33:49	0.011

Point	Date	Time	Avg.(mg/m ³)
359	31-Aug	17:34:49	0.013
360	31-Aug	17:35:49	0.014
361	31-Aug	17:36:49	0.017
362	31-Aug	17:37:49	0.011
363	31-Aug	17:38:49	0.019
364	31-Aug	17:39:49	0.014
365	31-Aug	17:40:49	0.031
366	31-Aug	17:41:49	0.039
367	31-Aug	17:42:49	0.067
368	31-Aug	17:43:49	0.024
369	31-Aug	17:44:49	0.058
370	31-Aug	17:45:49	0.029
371	31-Aug	17:46:49	0.018
372	31-Aug	17:47:49	0.013
373	31-Aug	17:48:49	0.036
374	31-Aug	17:49:49	0.023
375	31-Aug	17:50:49	0.051
376	31-Aug	17:51:49	0.019
377	31-Aug	17:52:49	0.01
378	31-Aug	17:53:49	0.037
379	31-Aug	17:54:49	0.045
380	31-Aug	17:55:49	0.023
381	31-Aug	17:56:49	0.3
382	31-Aug	17:57:49	0.023
383	31-Aug	17:58:49	0.031
384	31-Aug	17:59:49	0.01
385	31-Aug	18:00:49	0.026
386	31-Aug	18:01:49	0.012
387	31-Aug	18:02:49	0.023
388	31-Aug	18:03:49	0.009
389	31-Aug	18:04:49	0.007
390	31-Aug	18:05:49	0.01
391	31-Aug	18:06:49	0.011
392	31-Aug	18:07:49	2.832
393	31-Aug	18:08:49	0.028
394	31-Aug	18:09:49	0.012
395	31-Aug	18:10:49	0.006
396	31-Aug	18:11:49	0.01
397	31-Aug	18:12:49	0.424
398	31-Aug	18:13:49	0.435
399	31-Aug	18:14:49	0.007
400	31-Aug	18:15:49	0.009
401	31-Aug	18:16:49	0.011
402	31-Aug	18:17:49	0.005
403	31-Aug	18:18:49	0.011
404	31-Aug	18:19:49	0.009
405	31-Aug	18:20:49	0.013
406	31-Aug	18:21:49	0.02
407	31-Aug	18:22:49	0.007
408	31-Aug	18:23:49	0.013
409	31-Aug	18:24:49	0.011
410	31-Aug	18:25:49	0.617
411	31-Aug	18:26:49	0.109

Point	Date	Time	Avg.(mg/m ³)
412	31-Aug	18:27:49	0.012
413	31-Aug	18:28:49	0.208
414	31-Aug	18:29:49	0.007
415	31-Aug	18:30:49	0.011
416	31-Aug	18:31:49	0.013
417	31-Aug	18:32:49	0.015
418	31-Aug	18:33:49	0.001
419	31-Aug	18:34:49	0.001
420	31-Aug	18:35:49	0.003
421	31-Aug	18:36:49	0.006
422	31-Aug	18:37:49	0.001
423	31-Aug	18:38:49	0.003
424	31-Aug	18:39:49	0.005
425	31-Aug	18:40:49	0.004
426	31-Aug	18:41:49	0.003
427	31-Aug	18:42:49	0.002
428	31-Aug	18:43:49	0.002
429	31-Aug	18:44:49	0.002
430	31-Aug	18:45:49	0.198
431	31-Aug	18:46:49	0.184
432	31-Aug	18:47:49	0.014
433	31-Aug	18:48:49	0.01
434	31-Aug	18:49:49	0.007
435	31-Aug	18:50:49	0.002
436	31-Aug	18:51:49	0.001
437	31-Aug	18:52:49	0.004
438	31-Aug	18:53:49	0.002
439	31-Aug	18:54:49	0.004
440	31-Aug	18:55:49	0.002
441	31-Aug	18:56:49	0.021
442	31-Aug	18:57:49	0.026
443	31-Aug	18:58:49	0.079
444	31-Aug	18:59:49	0.006
445	31-Aug	19:00:49	0
446	31-Aug	19:01:49	0
447	31-Aug	19:02:49	0.011
448	31-Aug	19:03:49	0.004
449	31-Aug	19:04:49	0
450	31-Aug	19:05:49	0.002
451	31-Aug	19:06:49	0.028
452	31-Aug	19:07:49	0.004
453	31-Aug	19:08:49	0.016
454	31-Aug	19:09:49	0.001
455	31-Aug	19:10:49	0.002
456	31-Aug	19:11:49	0
457	31-Aug	19:12:49	0.183
458	31-Aug	19:13:49	0.295
459	31-Aug	19:14:49	0.003
460	31-Aug	19:15:49	0.004
461	31-Aug	19:16:49	0.001
462	31-Aug	19:17:49	0.009
463	31-Aug	19:18:49	0.017
464	31-Aug	19:19:49	0.022

Point	Date	Time	Avg.(mg/m ³)
465	31-Aug	19:20:49	0.01
466	31-Aug	19:21:49	0.07
467	31-Aug	19:22:49	0.039
468	31-Aug	19:23:49	0.01
469	31-Aug	19:24:49	0.408
470	31-Aug	19:25:49	0.026
471	31-Aug	19:26:49	0.008
472	31-Aug	19:27:49	0.002
473	31-Aug	19:28:49	0
474	31-Aug	19:29:49	0
475	31-Aug	19:30:49	0.002
476	31-Aug	19:31:49	0.008
477	31-Aug	19:32:49	0.124
478	31-Aug	19:33:49	0.011
479	31-Aug	19:34:49	0.001
480	31-Aug	19:35:49	0
481	31-Aug	19:36:49	0
482	31-Aug	19:37:49	0.002
483	31-Aug	19:38:49	0
484	31-Aug	19:39:49	0
485	31-Aug	19:40:49	0.068
486	31-Aug	19:41:49	0.003
487	31-Aug	19:42:49	0.003
488	31-Aug	19:43:49	0
489	31-Aug	19:44:49	0
490	31-Aug	19:45:49	0
491	31-Aug	19:46:49	0.031
492	31-Aug	19:47:49	0.074
493	31-Aug	19:48:49	0.001
494	31-Aug	19:49:49	0
495	31-Aug	19:50:49	0
496	31-Aug	19:51:49	0
497	31-Aug	19:52:49	0
498	31-Aug	19:53:49	0
499	31-Aug	19:54:49	0
500	31-Aug	19:55:49	0
501	31-Aug	19:56:49	0
502	31-Aug	19:57:49	0
503	31-Aug	19:58:49	0.001
504	31-Aug	19:59:49	0.002
505	31-Aug	20:00:49	0
506	31-Aug	20:01:49	0.002
507	31-Aug	20:02:49	0.001
508	31-Aug	20:03:49	0.001
509	31-Aug	20:04:49	0
510	31-Aug	20:05:49	0
511	31-Aug	20:06:49	0.004
512	31-Aug	20:07:49	0.003
513	31-Aug	20:08:49	0
514	31-Aug	20:09:49	0
515	31-Aug	20:10:49	0.001
516	31-Aug	20:11:49	0
517	31-Aug	20:12:49	0

Point	Date	Time	Avg.(mg/m ³)
518	31-Aug	20:13:49	0
519	31-Aug	20:14:49	0
520	31-Aug	20:15:49	0.009
521	31-Aug	20:16:49	0
522	31-Aug	20:17:49	0
523	31-Aug	20:18:49	0.001
524	31-Aug	20:19:49	0.002
525	31-Aug	20:20:49	0.005
526	31-Aug	20:21:49	0
527	31-Aug	20:22:49	0
528	31-Aug	20:23:49	0.005
529	31-Aug	20:24:49	0
530	31-Aug	20:25:49	0.004
531	31-Aug	20:26:49	0.002
532	31-Aug	20:27:49	0.006
533	31-Aug	20:28:49	0
534	31-Aug	20:29:49	0
535	31-Aug	20:30:49	0.001
536	31-Aug	20:31:49	0.001
537	31-Aug	20:32:49	0
538	31-Aug	20:33:49	0.001
539	31-Aug	20:34:49	0
540	31-Aug	20:35:49	0
541	31-Aug	20:36:49	0
542	31-Aug	20:37:49	0
543	31-Aug	20:38:49	0
544	31-Aug	20:39:49	0.001
545	31-Aug	20:40:49	0
546	31-Aug	20:41:49	0
547	31-Aug	20:42:49	0
548	31-Aug	20:43:49	0.01
549	31-Aug	20:44:49	0.001
550	31-Aug	20:45:49	0
551	31-Aug	20:46:49	0.001
552	31-Aug	20:47:49	0
553	31-Aug	20:48:49	0
554	31-Aug	20:49:49	0
555	31-Aug	20:50:49	0.013
556	31-Aug	20:51:49	0.002
557	31-Aug	20:52:49	0
558	31-Aug	20:53:49	0
559	31-Aug	20:54:49	0
560	31-Aug	20:55:49	0.003
561	31-Aug	20:56:49	0.004
562	31-Aug	20:57:49	0.003
563	31-Aug	20:58:49	0.004
564	31-Aug	20:59:49	0.001
565	31-Aug	21:00:49	0
566	31-Aug	21:01:49	0.002
567	31-Aug	21:02:49	0.007
568	31-Aug	21:03:49	0
569	31-Aug	21:04:49	0.046
570	31-Aug	21:05:49	0.003

Point	Date	Time	Avg.(mg/m ³)
571	31-Aug	21:06:49	0
572	31-Aug	21:07:49	0
573	31-Aug	21:08:49	0.006
574	31-Aug	21:09:49	0.001
575	31-Aug	21:10:49	0.001
576	31-Aug	21:11:49	0.004
577	31-Aug	21:12:49	0
578	31-Aug	21:13:49	0
579	31-Aug	21:14:49	0.02
580	31-Aug	21:15:49	0.026
581	31-Aug	21:16:49	0.001
582	31-Aug	21:17:49	0.001
583	31-Aug	21:18:49	0
584	31-Aug	21:19:49	0.003
585	31-Aug	21:20:49	0.001
586	31-Aug	21:21:49	0.026
587	31-Aug	21:22:49	0.002
588	31-Aug	21:23:49	0.003
589	31-Aug	21:24:49	0
590	31-Aug	21:25:49	0.031
591	31-Aug	21:26:49	0.003
592	31-Aug	21:27:49	0
593	31-Aug	21:28:49	0.009
594	31-Aug	21:29:49	0.001
595	31-Aug	21:30:49	0.003
596	31-Aug	21:31:49	0
597	31-Aug	21:32:49	0.001
598	31-Aug	21:33:49	0.001
599	31-Aug	21:34:49	0.003
600	31-Aug	21:35:49	0.002
601	31-Aug	21:36:49	0.006
602	31-Aug	21:37:49	0
603	31-Aug	21:38:49	0.005
604	31-Aug	21:39:49	0
605	31-Aug	21:40:49	0
606	31-Aug	21:41:49	0.006
607	31-Aug	21:42:49	0.001
608	31-Aug	21:43:49	0
609	31-Aug	21:44:49	0
610	31-Aug	21:45:49	0.002
611	31-Aug	21:46:49	0.008
612	31-Aug	21:47:49	0
613	31-Aug	21:48:49	0
614	31-Aug	21:49:49	0.003
615	31-Aug	21:50:49	0.003
616	31-Aug	21:51:49	0.002
617	31-Aug	21:52:49	0
618	31-Aug	21:53:49	0
619	31-Aug	21:54:49	0
620	31-Aug	21:55:49	0
621	31-Aug	21:56:49	0.001
622	31-Aug	21:57:49	0.003
623	31-Aug	21:58:49	0.001

Point	Date	Time	Avg.(mg/m ³)
624	31-Aug	21:59:49	0.003
625	31-Aug	22:00:49	0.001
626	31-Aug	22:01:49	0
627	31-Aug	22:02:49	0.002
628	31-Aug	22:03:49	0
629	31-Aug	22:04:49	0.004
630	31-Aug	22:05:49	0.003
631	31-Aug	22:06:49	0.001
632	31-Aug	22:07:49	0.002
633	31-Aug	22:08:49	0
634	31-Aug	22:09:49	0.006
635	31-Aug	22:10:49	0.004
636	31-Aug	22:11:49	0.002
637	31-Aug	22:12:49	0.001
638	31-Aug	22:13:49	0
639	31-Aug	22:14:49	0.001
640	31-Aug	22:15:49	0
641	31-Aug	22:16:49	0.013
642	31-Aug	22:17:49	0.005
643	31-Aug	22:18:49	0
644	31-Aug	22:19:49	0
645	31-Aug	22:20:49	0
646	31-Aug	22:21:49	0
647	31-Aug	22:22:49	0.013
648	31-Aug	22:23:49	0.007
649	31-Aug	22:24:49	0.001
650	31-Aug	22:25:49	0.024
651	31-Aug	22:26:49	0.01
652	31-Aug	22:27:49	0
653	31-Aug	22:28:49	0
654	31-Aug	22:29:49	0.015
655	31-Aug	22:30:49	0.002
656	31-Aug	22:31:49	0.013
657	31-Aug	22:32:49	0.006
658	31-Aug	22:33:49	0.003
659	31-Aug	22:34:49	0.004
660	31-Aug	22:35:49	0.01
661	31-Aug	22:36:49	0.003
662	31-Aug	22:37:49	0.004
663	31-Aug	22:38:49	0.006
664	31-Aug	22:39:49	0.001
665	31-Aug	22:40:49	0
666	31-Aug	22:41:49	0.029
667	31-Aug	22:42:49	0.006
668	31-Aug	22:43:49	0.002
669	31-Aug	22:44:49	0
670	31-Aug	22:45:49	0.002
671	31-Aug	22:46:49	0
672	31-Aug	22:47:49	0.004
673	31-Aug	22:48:49	0.004
674	31-Aug	22:49:49	0.013
675	31-Aug	22:50:49	0.002
676	31-Aug	22:51:49	0.004

Point	Date	Time	Avg.(mg/m ³)
677	31-Aug	22:52:49	0.003
678	31-Aug	22:53:49	0.004
679	31-Aug	22:54:49	0.006
680	31-Aug	22:55:49	0.001
681	31-Aug	22:56:49	0.011
682	31-Aug	22:57:49	0.015
683	31-Aug	22:58:49	0.004
684	31-Aug	22:59:49	0.001
685	31-Aug	23:00:49	0.006
686	31-Aug	23:01:49	0.008
687	31-Aug	23:02:49	0.004
688	31-Aug	23:03:49	0.002
689	31-Aug	23:04:49	0.001
690	31-Aug	23:05:49	0.008
691	31-Aug	23:06:49	0.002
692	31-Aug	23:07:49	0.013
693	31-Aug	23:08:49	0.009
694	31-Aug	23:09:49	0.004
695	31-Aug	23:10:49	0.02
696	31-Aug	23:11:49	0.015
697	31-Aug	23:12:49	0.006
698	31-Aug	23:13:49	0.007
699	31-Aug	23:14:49	0.013
700	31-Aug	23:15:49	0.004
701	31-Aug	23:16:49	0.012
702	31-Aug	23:17:49	0.009
703	31-Aug	23:18:49	0.005
704	31-Aug	23:19:49	0.009
705	31-Aug	23:20:49	0.017
706	31-Aug	23:21:49	0.02
707	31-Aug	23:22:49	0.007
708	31-Aug	23:23:49	0.021
709	31-Aug	23:24:49	0.015
710	31-Aug	23:25:49	0.026
711	31-Aug	23:26:49	0.01
712	31-Aug	23:27:49	0.015
713	31-Aug	23:28:49	0.01
714	31-Aug	23:29:49	0.006
715	31-Aug	23:30:49	0.009
716	31-Aug	23:31:49	0.007
717	31-Aug	23:32:49	0.005
718	31-Aug	23:33:49	0.004
719	31-Aug	23:34:49	0.025
720	31-Aug	23:35:49	0.003
721	31-Aug	23:36:49	0.004
722	31-Aug	23:37:49	0.006
723	31-Aug	23:38:49	0.007
724	31-Aug	23:39:49	0.037
725	31-Aug	23:40:49	0.014
726	31-Aug	23:41:49	0.013
727	31-Aug	23:42:49	0.002
728	31-Aug	23:43:49	0.002
729	31-Aug	23:44:49	0.001

Point	Date	Time	Avg.(mg/m ³)
730	31-Aug	23:45:49	0.002
731	31-Aug	23:46:49	0.005
732	31-Aug	23:47:49	0
733	31-Aug	23:48:49	0.009
734	31-Aug	23:49:49	0.007
735	31-Aug	23:50:49	0.01
736	31-Aug	23:51:49	0.002
737	31-Aug	23:52:49	0.001
738	31-Aug	23:53:49	0.007
739	31-Aug	23:54:49	0.002
740	31-Aug	23:55:49	0.025
741	31-Aug	23:56:49	0.007
742	31-Aug	23:57:49	0.007
743	31-Aug	23:58:49	0.001
744	31-Aug	23:59:49	0.014
745	1-Sep	00:00:49	0.007
746	1-Sep	00:01:49	0.029
747	1-Sep	00:02:49	0.016
748	1-Sep	00:03:49	0.002
749	1-Sep	00:04:49	0.007
750	1-Sep	00:05:49	0.011
751	1-Sep	00:06:49	0.009
752	1-Sep	00:07:49	0.012
753	1-Sep	00:08:49	0.003
754	1-Sep	00:09:49	0
755	1-Sep	00:10:49	0.003
756	1-Sep	00:11:49	0
757	1-Sep	00:12:49	0.005
758	1-Sep	00:13:49	0.003
759	1-Sep	00:14:49	0.007
760	1-Sep	00:15:49	0.002
761	1-Sep	00:16:49	0.006
762	1-Sep	00:17:49	0.023
763	1-Sep	00:18:49	0.009
764	1-Sep	00:19:49	0.011
765	1-Sep	00:20:49	0.011
766	1-Sep	00:21:49	0.011
767	1-Sep	00:22:49	0.013
768	1-Sep	00:23:49	0.008
769	1-Sep	00:24:49	0.017
770	1-Sep	00:25:49	0.005
771	1-Sep	00:26:49	0.019
772	1-Sep	00:27:49	0.012
773	1-Sep	00:28:49	0.011
774	1-Sep	00:29:49	0.007
775	1-Sep	00:30:49	0.011
776	1-Sep	00:31:49	0.01
777	1-Sep	00:32:49	0.002
778	1-Sep	00:33:49	0.003
779	1-Sep	00:34:49	0.004
780	1-Sep	00:35:49	0.001
781	1-Sep	00:36:49	0.006
782	1-Sep	00:37:49	0.002

Point	Date	Time	Avg.(mg/m ³)
783	1-Sep	00:38:49	0.001
784	1-Sep	00:39:49	0.006
785	1-Sep	00:40:49	0.001
786	1-Sep	00:41:49	0
787	1-Sep	00:42:49	0
788	1-Sep	00:43:49	0
789	1-Sep	00:44:49	0
790	1-Sep	00:45:49	0
791	1-Sep	00:46:49	0.001
792	1-Sep	00:47:49	0.001
793	1-Sep	00:48:49	0
794	1-Sep	00:49:49	0
795	1-Sep	00:50:49	0.001
796	1-Sep	00:51:49	0
797	1-Sep	00:52:49	0.007
798	1-Sep	00:53:49	0.001
799	1-Sep	00:54:49	0.002
800	1-Sep	00:55:49	0.001
801	1-Sep	00:56:49	0.005
802	1-Sep	00:57:49	0.006
803	1-Sep	00:58:49	0.005
804	1-Sep	00:59:49	0.007
805	1-Sep	01:00:49	0.009
806	1-Sep	01:01:49	0.008
807	1-Sep	01:02:49	0.007
808	1-Sep	01:03:49	0.009
809	1-Sep	01:04:49	0.014
810	1-Sep	01:05:49	0.003
811	1-Sep	01:06:49	0.008
812	1-Sep	01:07:49	0.002
813	1-Sep	01:08:49	0.003
814	1-Sep	01:09:49	0.005
815	1-Sep	01:10:49	0.003
816	1-Sep	01:11:49	0.005
817	1-Sep	01:12:49	0.016
818	1-Sep	01:13:49	0.007
819	1-Sep	01:14:49	0.001
820	1-Sep	01:15:49	0.004
821	1-Sep	01:16:49	0.004
822	1-Sep	01:17:49	0
823	1-Sep	01:18:49	0.002
824	1-Sep	01:19:49	0
825	1-Sep	01:20:49	0
826	1-Sep	01:21:49	0.004
827	1-Sep	01:22:49	0.003
828	1-Sep	01:23:49	0.02
829	1-Sep	01:24:49	0.001
830	1-Sep	01:25:49	0.001
831	1-Sep	01:26:49	0.023
832	1-Sep	01:27:49	0.012
833	1-Sep	01:28:49	0
834	1-Sep	01:29:49	0.004
835	1-Sep	01:30:49	0.014

Point	Date	Time	Avg.(mg/m ³)
836	1-Sep	01:31:49	0.004
837	1-Sep	01:32:49	0.004
838	1-Sep	01:33:49	0.004
839	1-Sep	01:34:49	0.004
840	1-Sep	01:35:49	0.002
841	1-Sep	01:36:49	0
842	1-Sep	01:37:49	0.003
843	1-Sep	01:38:49	0.002
844	1-Sep	01:39:49	0.012
845	1-Sep	01:40:49	0.005
846	1-Sep	01:41:49	0.01
847	1-Sep	01:42:49	0.022
848	1-Sep	01:43:49	0
849	1-Sep	01:44:49	0.008
850	1-Sep	01:45:49	0.009
851	1-Sep	01:46:49	0.005
852	1-Sep	01:47:49	0.007
853	1-Sep	01:48:49	0.037
854	1-Sep	01:49:49	0.001
855	1-Sep	01:50:49	0.006
856	1-Sep	01:51:49	0.022
857	1-Sep	01:52:49	0.006
858	1-Sep	01:53:49	0.028
859	1-Sep	01:54:49	0.004
860	1-Sep	01:55:49	0.005
861	1-Sep	01:56:49	0.005
862	1-Sep	01:57:49	0.008
863	1-Sep	01:58:49	0.004
864	1-Sep	01:59:49	0.012
865	1-Sep	02:00:49	0.002
866	1-Sep	02:01:49	0.006
867	1-Sep	02:02:49	0.013
868	1-Sep	02:03:49	0.008
869	1-Sep	02:04:49	0
870	1-Sep	02:05:49	0.005
871	1-Sep	02:06:49	0.005
872	1-Sep	02:07:49	0.007
873	1-Sep	02:08:49	0.013
874	1-Sep	02:09:49	0.009
875	1-Sep	02:10:49	0.003
876	1-Sep	02:11:49	0.001
877	1-Sep	02:12:49	0.001
878	1-Sep	02:13:49	0.003
879	1-Sep	02:14:49	0.001
880	1-Sep	02:15:49	0.003
881	1-Sep	02:16:49	0
882	1-Sep	02:17:49	0.004
883	1-Sep	02:18:49	0.006
884	1-Sep	02:19:49	0.003
885	1-Sep	02:20:49	0.004
886	1-Sep	02:21:49	0.005
887	1-Sep	02:22:49	0.004
888	1-Sep	02:23:49	0.003

Point	Date	Time	Avg.(mg/m ³)
889	1-Sep	02:24:49	0.004
890	1-Sep	02:25:49	0.016
891	1-Sep	02:26:49	0.001
892	1-Sep	02:27:49	0.005
893	1-Sep	02:28:49	0.005
894	1-Sep	02:29:49	0.005
895	1-Sep	02:30:49	0.01
896	1-Sep	02:31:49	0.002
897	1-Sep	02:32:49	0.001
898	1-Sep	02:33:49	0.001
899	1-Sep	02:34:49	0.009
900	1-Sep	02:35:49	0.002
901	1-Sep	02:36:49	0
902	1-Sep	02:37:49	0.003
903	1-Sep	02:38:49	0
904	1-Sep	02:39:49	0.004
905	1-Sep	02:40:49	0
906	1-Sep	02:41:49	0.004
907	1-Sep	02:42:49	0
908	1-Sep	02:43:49	0.005
909	1-Sep	02:44:49	0
910	1-Sep	02:45:49	0.001
911	1-Sep	02:46:49	0.003
912	1-Sep	02:47:49	0
913	1-Sep	02:48:49	0.009
914	1-Sep	02:49:49	0
915	1-Sep	02:50:49	0.012
916	1-Sep	02:51:49	0.002
917	1-Sep	02:52:49	0.001
918	1-Sep	02:53:49	0
919	1-Sep	02:54:49	0
920	1-Sep	02:55:49	0
921	1-Sep	02:56:49	0.002
922	1-Sep	02:57:49	0.002
923	1-Sep	02:58:49	0
924	1-Sep	02:59:49	0.008
925	1-Sep	03:00:49	0.006
926	1-Sep	03:01:49	0.001
927	1-Sep	03:02:49	0.005
928	1-Sep	03:03:49	0.001
929	1-Sep	03:04:49	0.008
930	1-Sep	03:05:49	0.006
931	1-Sep	03:06:49	0.002
932	1-Sep	03:07:49	0.003
933	1-Sep	03:08:49	0.005
934	1-Sep	03:09:49	0.001
935	1-Sep	03:10:49	0.002
936	1-Sep	03:11:49	0.021
937	1-Sep	03:12:49	0.002
938	1-Sep	03:13:49	0.002
939	1-Sep	03:14:49	0
940	1-Sep	03:15:49	0.004
941	1-Sep	03:16:49	0.001

Point	Date	Time	Avg.(mg/m ³)
942	1-Sep	03:17:49	0
943	1-Sep	03:18:49	0
944	1-Sep	03:19:49	0
945	1-Sep	03:20:49	0.001
946	1-Sep	03:21:49	0
947	1-Sep	03:22:49	0.002
948	1-Sep	03:23:49	0
949	1-Sep	03:24:49	0.001
950	1-Sep	03:25:49	0.001
951	1-Sep	03:26:49	0
952	1-Sep	03:27:49	0.001
953	1-Sep	03:28:49	0.002
954	1-Sep	03:29:49	0
955	1-Sep	03:30:49	0.003
956	1-Sep	03:31:49	0
957	1-Sep	03:32:49	0
958	1-Sep	03:33:49	0
959	1-Sep	03:34:49	0
960	1-Sep	03:35:49	0
961	1-Sep	03:36:49	0.001
962	1-Sep	03:37:49	0.003
963	1-Sep	03:38:49	0.004
964	1-Sep	03:39:49	0
965	1-Sep	03:40:49	0
966	1-Sep	03:41:49	0.002
967	1-Sep	03:42:49	0
968	1-Sep	03:43:49	0
969	1-Sep	03:44:49	0
970	1-Sep	03:45:49	0.003
971	1-Sep	03:46:49	0
972	1-Sep	03:47:49	0
973	1-Sep	03:48:49	0.006
974	1-Sep	03:49:49	0
975	1-Sep	03:50:49	0.001
976	1-Sep	03:51:49	0.001
977	1-Sep	03:52:49	0
978	1-Sep	03:53:49	0
979	1-Sep	03:54:49	0
980	1-Sep	03:55:49	0
981	1-Sep	03:56:49	0
982	1-Sep	03:57:49	0.001
983	1-Sep	03:58:49	0.005
984	1-Sep	03:59:49	0.001
985	1-Sep	04:00:49	0
986	1-Sep	04:01:49	0
987	1-Sep	04:02:49	0
988	1-Sep	04:03:49	0.001
989	1-Sep	04:04:49	0
990	1-Sep	04:05:49	0
991	1-Sep	04:06:49	0
992	1-Sep	04:07:49	0
993	1-Sep	04:08:49	0
994	1-Sep	04:09:49	0

Point	Date	Time	Avg.(mg/m ³)
995	1-Sep	04:10:49	0
996	1-Sep	04:11:49	0
997	1-Sep	04:12:49	0
998	1-Sep	04:13:49	0
999	1-Sep	04:14:49	0
1000	1-Sep	04:15:49	0
1001	1-Sep	04:16:49	0
1002	1-Sep	04:17:49	0
1003	1-Sep	04:18:49	0.006
1004	1-Sep	04:19:49	0
1005	1-Sep	04:20:49	0.001
1006	1-Sep	04:21:49	0
1007	1-Sep	04:22:49	0
1008	1-Sep	04:23:49	0
1009	1-Sep	04:24:49	0.002
1010	1-Sep	04:25:49	0
1011	1-Sep	04:26:49	0
1012	1-Sep	04:27:49	0.001
1013	1-Sep	04:28:49	0.001
1014	1-Sep	04:29:49	0
1015	1-Sep	04:30:49	0
1016	1-Sep	04:31:49	0
1017	1-Sep	04:32:49	0
1018	1-Sep	04:33:49	0
1019	1-Sep	04:34:49	0
1020	1-Sep	04:35:49	0
1021	1-Sep	04:36:49	0
1022	1-Sep	04:37:49	0
1023	1-Sep	04:38:49	0
1024	1-Sep	04:39:49	0
1025	1-Sep	04:40:49	0
1026	1-Sep	04:41:49	0
1027	1-Sep	04:42:49	0
1028	1-Sep	04:43:49	0
1029	1-Sep	04:44:49	0.002
1030	1-Sep	04:45:49	0
1031	1-Sep	04:46:49	0
1032	1-Sep	04:47:49	0
1033	1-Sep	04:48:49	0
1034	1-Sep	04:49:49	0
1035	1-Sep	04:50:49	0
1036	1-Sep	04:51:49	0
1037	1-Sep	04:52:49	0
1038	1-Sep	04:53:49	0
1039	1-Sep	04:54:49	0
1040	1-Sep	04:55:49	0
1041	1-Sep	04:56:49	0
1042	1-Sep	04:57:49	0.001
1043	1-Sep	04:58:49	0
1044	1-Sep	04:59:49	0
1045	1-Sep	05:00:49	0
1046	1-Sep	05:01:49	0.005
1047	1-Sep	05:02:49	0.001

Point	Date	Time	Avg.(mg/m ³)
1048	1-Sep	05:03:49	0
1049	1-Sep	05:04:49	0
1050	1-Sep	05:05:49	0
1051	1-Sep	05:06:49	0
1052	1-Sep	05:07:49	0
1053	1-Sep	05:08:49	0
1054	1-Sep	05:09:49	0
1055	1-Sep	05:10:49	0
1056	1-Sep	05:11:49	0
1057	1-Sep	05:12:49	0
1058	1-Sep	05:13:49	0
1059	1-Sep	05:14:49	0
1060	1-Sep	05:15:49	0
1061	1-Sep	05:16:49	0
1062	1-Sep	05:17:49	0.002
1063	1-Sep	05:18:49	0
1064	1-Sep	05:19:49	0
1065	1-Sep	05:20:49	0
1066	1-Sep	05:21:49	0.001
1067	1-Sep	05:22:49	0
1068	1-Sep	05:23:49	0
1069	1-Sep	05:24:49	0.001
1070	1-Sep	05:25:49	0
1071	1-Sep	05:26:49	0
1072	1-Sep	05:27:49	0
1073	1-Sep	05:28:49	0
1074	1-Sep	05:29:49	0
1075	1-Sep	05:30:49	0
1076	1-Sep	05:31:49	0
1077	1-Sep	05:32:49	0.002
1078	1-Sep	05:33:49	0
1079	1-Sep	05:34:49	0
1080	1-Sep	05:35:49	0.002
1081	1-Sep	05:36:49	0
1082	1-Sep	05:37:49	0
1083	1-Sep	05:38:49	0
1084	1-Sep	05:39:49	0
1085	1-Sep	05:40:49	0
1086	1-Sep	05:41:49	0
1087	1-Sep	05:42:49	0.001
1088	1-Sep	05:43:49	0
1089	1-Sep	05:44:49	0.001
1090	1-Sep	05:45:49	0
1091	1-Sep	05:46:49	0.001
1092	1-Sep	05:47:49	0
1093	1-Sep	05:48:49	0.003
1094	1-Sep	05:49:49	0.001
1095	1-Sep	05:50:49	0
1096	1-Sep	05:51:49	0
1097	1-Sep	05:52:49	0
1098	1-Sep	05:53:49	0
1099	1-Sep	05:54:49	0
1100	1-Sep	05:55:49	0

Point	Date	Time	Avg.(mg/m ³)
1101	1-Sep	05:56:49	0
1102	1-Sep	05:57:49	0
1103	1-Sep	05:58:49	0
1104	1-Sep	05:59:49	0
1105	1-Sep	06:00:49	0
1106	1-Sep	06:01:49	0
1107	1-Sep	06:02:49	0.004
1108	1-Sep	06:03:49	0
1109	1-Sep	06:04:49	0
1110	1-Sep	06:05:49	0
1111	1-Sep	06:06:49	0.001
1112	1-Sep	06:07:49	0
1113	1-Sep	06:08:49	0
1114	1-Sep	06:09:49	0
1115	1-Sep	06:10:49	0
1116	1-Sep	06:11:49	0
1117	1-Sep	06:12:49	0
1118	1-Sep	06:13:49	0
1119	1-Sep	06:14:49	0
1120	1-Sep	06:15:49	0
1121	1-Sep	06:16:49	0
1122	1-Sep	06:17:49	0
1123	1-Sep	06:18:49	0
1124	1-Sep	06:19:49	0
1125	1-Sep	06:20:49	0.001
1126	1-Sep	06:21:49	0
1127	1-Sep	06:22:49	0
1128	1-Sep	06:23:49	0
1129	1-Sep	06:24:49	0
1130	1-Sep	06:25:49	0
1131	1-Sep	06:26:49	0
1132	1-Sep	06:27:49	0
1133	1-Sep	06:28:49	0
1134	1-Sep	06:29:49	0
1135	1-Sep	06:30:49	0
1136	1-Sep	06:31:49	0
1137	1-Sep	06:32:49	0
1138	1-Sep	06:33:49	0
1139	1-Sep	06:34:49	0
1140	1-Sep	06:35:49	0.001
1141	1-Sep	06:36:49	0
1142	1-Sep	06:37:49	0
1143	1-Sep	06:38:49	0
1144	1-Sep	06:39:49	0
1145	1-Sep	06:40:49	0.002
1146	1-Sep	06:41:49	0.001
1147	1-Sep	06:42:49	0
1148	1-Sep	06:43:49	0
1149	1-Sep	06:44:49	0
1150	1-Sep	06:45:49	0
1151	1-Sep	06:46:49	0.002
1152	1-Sep	06:47:49	0
1153	1-Sep	06:48:49	0

Point	Date	Time	Avg.(mg/m ³)
1154	1-Sep	06:49:49	0.003
1155	1-Sep	06:50:49	0
1156	1-Sep	06:51:49	0
1157	1-Sep	06:52:49	0
1158	1-Sep	06:53:49	0
1159	1-Sep	06:54:49	0
1160	1-Sep	06:55:49	0
1161	1-Sep	06:56:49	0.002
1162	1-Sep	06:57:49	0.002
1163	1-Sep	06:58:49	0
1164	1-Sep	06:59:49	0
1165	1-Sep	07:00:49	0
1166	1-Sep	07:01:49	0.001
1167	1-Sep	07:02:49	0.007
1168	1-Sep	07:03:49	0
1169	1-Sep	07:04:49	0.006
1170	1-Sep	07:05:49	0.002
1171	1-Sep	07:06:49	0.012
1172	1-Sep	07:07:49	0.001
1173	1-Sep	07:08:49	0
1174	1-Sep	07:09:49	0
1175	1-Sep	07:10:49	0
1176	1-Sep	07:11:49	0
1177	1-Sep	07:12:49	0
1178	1-Sep	07:13:49	0
1179	1-Sep	07:14:49	0
1180	1-Sep	07:15:49	0
1181	1-Sep	07:16:49	0
1182	1-Sep	07:17:49	0.001
1183	1-Sep	07:18:49	0.003
1184	1-Sep	07:19:49	0
1185	1-Sep	07:20:49	0
1186	1-Sep	07:21:49	0
1187	1-Sep	07:22:49	0.001
1188	1-Sep	07:23:49	0
1189	1-Sep	07:24:49	0
1190	1-Sep	07:25:49	0.001
1191	1-Sep	07:26:49	0
1192	1-Sep	07:27:49	0
1193	1-Sep	07:28:49	0
1194	1-Sep	07:29:49	0
1195	1-Sep	07:30:49	0.001
1196	1-Sep	07:31:49	0
1197	1-Sep	07:32:49	0.001
1198	1-Sep	07:33:49	0.001
1199	1-Sep	07:34:49	0.001
1200	1-Sep	07:35:49	0.001
1201	1-Sep	07:36:49	0.008
1202	1-Sep	07:37:49	0.007
1203	1-Sep	07:38:49	0
1204	1-Sep	07:39:49	0
1205	1-Sep	07:40:49	0.009
1206	1-Sep	07:41:49	0

Point	Date	Time	Avg.(mg/m ³)
1207	1-Sep	07:42:49	0
1208	1-Sep	07:43:49	0.009
1209	1-Sep	07:44:49	0
1210	1-Sep	07:45:49	0
1211	1-Sep	07:46:49	0.002
1212	1-Sep	07:47:49	0
1213	1-Sep	07:48:49	0
1214	1-Sep	07:49:49	0
1215	1-Sep	07:50:49	0.001
1216	1-Sep	07:51:49	0
1217	1-Sep	07:52:49	0
1218	1-Sep	07:53:49	0
1219	1-Sep	07:54:49	0.002
1220	1-Sep	07:55:49	0
1221	1-Sep	07:56:49	0
1222	1-Sep	07:57:49	0.005
1223	1-Sep	07:58:49	0.001
1224	1-Sep	07:59:49	0.001
1225	1-Sep	08:00:49	0
1226	1-Sep	08:01:49	0
1227	1-Sep	08:02:49	0
1228	1-Sep	08:03:49	0
1229	1-Sep	08:04:49	0
1230	1-Sep	08:05:49	0
1231	1-Sep	08:06:49	0.001
1232	1-Sep	08:07:49	0
1233	1-Sep	08:08:49	0
1234	1-Sep	08:09:49	0
1235	1-Sep	08:10:49	0
1236	1-Sep	08:11:49	0
1237	1-Sep	08:12:49	0
1238	1-Sep	08:13:49	0
1239	1-Sep	08:14:49	0
1240	1-Sep	08:15:49	0
1241	1-Sep	08:16:49	0
1242	1-Sep	08:17:49	0
1243	1-Sep	08:18:49	0
1244	1-Sep	08:19:49	0
1245	1-Sep	08:20:49	0
1246	1-Sep	08:21:49	0.002
1247	1-Sep	08:22:49	0
1248	1-Sep	08:23:49	0
1249	1-Sep	08:24:49	0
1250	1-Sep	08:25:49	0
1251	1-Sep	08:26:49	0
1252	1-Sep	08:27:49	0.002
1253	1-Sep	08:28:49	0
1254	1-Sep	08:29:49	0
1255	1-Sep	08:30:49	0
1256	1-Sep	08:31:49	0
1257	1-Sep	08:32:49	0
1258	1-Sep	08:33:49	0
1259	1-Sep	08:34:49	0.003

Point	Date	Time	Avg.(mg/m ³)
1260	1-Sep	08:35:49	0
1261	1-Sep	08:36:49	0
1262	1-Sep	08:37:49	0
1263	1-Sep	08:38:49	0
1264	1-Sep	08:39:49	0
1265	1-Sep	08:40:49	0
1266	1-Sep	08:41:49	0
1267	1-Sep	08:42:49	0.003
1268	1-Sep	08:43:49	0.003
1269	1-Sep	08:44:49	0
1270	1-Sep	08:45:49	0
1271	1-Sep	08:46:49	0
1272	1-Sep	08:47:49	0.001
1273	1-Sep	08:48:49	0
1274	1-Sep	08:49:49	0
1275	1-Sep	08:50:49	0
1276	1-Sep	08:51:49	0
1277	1-Sep	08:52:49	0
1278	1-Sep	08:53:49	0.008
1279	1-Sep	08:54:49	0
1280	1-Sep	08:55:49	0.048
1281	1-Sep	08:56:49	10.86
1282	1-Sep	08:57:49	36.75
1283	1-Sep	08:58:49	0
1284	1-Sep	08:59:49	0.05
1285	1-Sep	09:00:49	12.15
1286	1-Sep	09:01:49	0
1287	1-Sep	09:02:49	0
1288	1-Sep	09:03:49	0
1289	1-Sep	09:04:49	0
1290	1-Sep	09:05:49	0.003
1291	1-Sep	09:06:49	0
1292	1-Sep	09:07:49	0
1293	1-Sep	09:08:49	0
1294	1-Sep	09:09:49	0
1295	1-Sep	09:10:49	0
1296	1-Sep	09:11:49	0
1297	1-Sep	09:12:49	0.002
1298	1-Sep	09:13:49	0
1299	1-Sep	09:14:49	0
1300	1-Sep	09:15:49	0
1301	1-Sep	09:16:49	0
1302	1-Sep	09:17:49	0
1303	1-Sep	09:18:49	0.001
1304	1-Sep	09:19:49	0
1305	1-Sep	09:20:49	0
1306	1-Sep	09:21:49	0
1307	1-Sep	09:22:49	0
1308	1-Sep	09:23:49	0
1309	1-Sep	09:24:49	0
1310	1-Sep	09:25:49	0
1311	1-Sep	09:26:49	0.001
1312	1-Sep	09:27:49	0.001

Point	Date	Time	Avg.(mg/m ³)
1313	1-Sep	09:28:49	0.001
1314	1-Sep	09:29:49	0.001
1315	1-Sep	09:30:49	0.001
1316	1-Sep	09:31:49	0.001
1317	1-Sep	09:32:49	0.002
1318	1-Sep	09:33:49	0.003
1319	1-Sep	09:34:49	0.005
1320	1-Sep	09:35:49	0.003
1321	1-Sep	09:36:49	0.015
1322	1-Sep	09:37:49	0.004
1323	1-Sep	09:38:49	0.01
1324	1-Sep	09:39:49	0
1325	1-Sep	09:40:49	0.001
1326	1-Sep	09:41:49	0.001
1327	1-Sep	09:42:49	0
1328	1-Sep	09:43:49	0.001
1329	1-Sep	09:44:49	0.001
1330	1-Sep	09:45:49	0
1331	1-Sep	09:46:49	0
1332	1-Sep	09:47:49	0
1333	1-Sep	09:48:49	0.002
1334	1-Sep	09:49:49	0.013
1335	1-Sep	09:50:49	0
1336	1-Sep	09:51:49	0
1337	1-Sep	09:52:49	0.001
1338	1-Sep	09:53:49	0
1339	1-Sep	09:54:49	0
1340	1-Sep	09:55:49	0.001
1341	1-Sep	09:56:49	0.004
1342	1-Sep	09:57:49	0
1343	1-Sep	09:58:49	0
1344	1-Sep	09:59:49	0
1345	1-Sep	10:00:49	0
1346	1-Sep	10:01:49	0
1347	1-Sep	10:02:49	0
1348	1-Sep	10:03:49	0.001
1349	1-Sep	10:04:49	0.009
1350	1-Sep	10:05:49	0.006
1351	1-Sep	10:06:49	0.013
1352	1-Sep	10:07:49	0
1353	1-Sep	10:08:49	0.004
1354	1-Sep	10:09:49	0.003
1355	1-Sep	10:10:49	0.001
1356	1-Sep	10:11:49	0.001
1357	1-Sep	10:12:49	0.004
1358	1-Sep	10:13:49	0
1359	1-Sep	10:14:49	0.003
1360	1-Sep	10:15:49	0.001
1361	1-Sep	10:16:49	0
1362	1-Sep	10:17:49	0.013
1363	1-Sep	10:18:49	0.002

00043230300004000501}

APPENDIX C
2004 Waste Manifests

Included Separately on CD

APPENDIX D
Data Usability Reviews

Data Usability Review for Alcoa Sampling

Events – August 12, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of four soil samples collected August 12, 2003 from the Alcoa site. Samples were submitted for fluoride analysis to the Applied Science Laboratory (ASL), located in Corvallis, OR. Data were reported in analytical batch C1837.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – August 12, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 18, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of four soil samples collected August 12, 2003 from the Alcoa site. The samples were submitted for semivolatile organic compounds by SIM method (SVOC-SIM) to the Columbia Analytical Laboratory (CAS), located in Redding, CA. Data were reported in analytical batch DA869.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by CAS laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – October 01-02, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of three soil samples collected October 1, and October 2, 2003 from the Alcoa site. The samples were submitted for semivolatile organic compounds by SIM method (SVOC-SIM) to the Columbia Analytical Service Laboratory (CAS), located in Redding, California. Data were reported in analytical batch DB229.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by CAS laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – October 2, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 18, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected October 2, 2003 from the Alcoa site. The sample was submitted for fluoride analysis to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data were reported in analytical batch C2180.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – October 08, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected October 8, 2003 from the Alcoa site. The sample was submitted for fluoride analysis to the Applied Science Laboratory (ASL), located in Corvallis, OR. Data were reported in analytical batch C2238.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – October 8, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 23, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected October 8, 2003 from the Alcoa site. The sample was submitted for semivolatile organic compounds by SIM method (SVOC-SIM) to the Columbia Analytical Laboratory (CAS), located in Redding, CA. Data were reported in analytical batch DB275.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by CAS laboratories for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – October 15, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analyses of two soil samples collected October 15, 2003 from the Alcoa site. The samples were submitted for semivolatile organic compound by SIM method (SVOC-SIM) and fluoride analyses to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data were reported in analytical batch C2288.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided were provided by ASL laboratories for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – November 4, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected November 4, 2003 from the Alcoa site. The sample was submitted for fluoride analysis to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data were reported in analytical batch C2400.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratory for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – November 4, 2003

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 23, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected November 4, 2003 from the Alcoa site. The sample was submitted for semivolatile organic compounds by SIM method (SVOC-SIM) to the Columbia Analytical Laboratory (CAS), located in Redding, CA. Data were reported in analytical batch DB470.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by CAS laboratories for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by CAS laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for the Company Lake area, Troutdale Sampling Event - September 20 to 22, 2004

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Wendi Gale/CVO

Date: November 8, 2004

Summary

This memorandum summarizes the review of the QA/QC data associated with the analyses of two soil samples collected from September 20 to 22, 2004 from the Company Lake area, Troutdale site. Samples submitted for semivolatile organic compound by SIM method (SVOC-SIM) were performed by the Columbia Analytical Services Lab, located in Redding, California. Samples submitted for fluoride analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data were reported in analytical batches CAS DD040504 and ASL D4185.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by the CAS and ASL laboratories for all sample analyses. The data set is usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed. Extraction and analysis holding times were met for all samples and analytes.

Initial Calibration

Initial calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits, therefore meeting QC acceptance criteria.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Percent recovery and RPD values for the matrix spike (MS) and matrix spike duplicate (MSD) samples met frequency criteria and QC control limits.

Data Usability Review for Alcoa Sampling

Events - November 11, 2004

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 9, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analyses of two soil samples collected November 11, 2004 from the Alcoa site. The samples were submitted for semivolatile organic compounds by SIM method (SVOC-SIM) and fluoride analyses to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data were reported in analytical batch D4471.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by the CAS and ASL laboratories for all sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratories for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events - December 13, 2004 and December 14, 2004

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/HNL

Date: January 11, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analyses of seven soil samples collected December 13, 2004 and one soil sample collected December 14, 2004 from the Alcoa site. Samples submitted for semivolatile organic compound by SIM method (SVOC-SIM) were performed by the Columbia Analytical Services Lab, located in Redding, California. Samples submitted for fluoride analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data were reported in analytical batch D4620 and D4647.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or "usability" of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by the CAS and ASL laboratories for all sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

- Continuing calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events - December 20, 2004 and December 21, 2004

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/HNL

Date: January 12, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analyses of ten soil samples collected December 20, 2004 and two soil samples collected December 21, 2004 from the Alcoa site. Samples submitted for semivolatile organic compound by SIM method (SVOC-SIM) were performed by the Columbia Analytical Services Lab, located in Redding, California. Samples submitted for fluoride analyses were performed by the Applied Sciences Group laboratory, located in Corvallis, Oregon. Data were reported in analytical batches D4675 and D4680.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or "usability" of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information were reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by the CAS and ASL laboratories for all sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

- Continuing calibration data were provided by the CAS and ASL laboratories for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – February 16, 2005

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one soil sample collected February 16, 2005 from the Alcoa site. The sample was submitted for semivolatile organic compounds by SIM method (SVOC-SIM) and fluoride analyses to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data were reported in analytical batch E1232.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratories for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

Data Usability Review for Alcoa Sampling

Events – February 16, 2005

Prepared for: Patrick Heins/PDX
Tina Rice/PDX

Prepared by: Kerry Byun/PDX

Date: March 16, 2005

Summary

This memorandum summarizes the review of the QA/QC data associated with the analysis of one water collected February 16, 2005 from the Alcoa site.

Sample CL-SS0004A collected in March was submitted for semivolatile organic compounds (SVOC), Polycyclic Aromatic Hydrocarbons (PAHs) by SIM and fluoride analyses to the Applied Science Laboratory (ASL), located in Corvallis, Oregon. Data was reported in analytical batch E1232.

EPA Contract Laboratory Program (CLP) *National Functional Guidelines (NFG) for Low Concentration Organic Data Review* (June 2001), *National Functional Guidelines (NFG) for Organic Data Review* (October 1999), and *National Functional Guidelines (NFG) for Inorganic Data Review* (July 2002) provided guidelines for data qualification, where applicable.

The intent of this review was to assess the appropriate use or “usability” of the analytical data based on the QA/QC data reported by the laboratory. This QA review focuses on criteria for the following QA/QC parameters and their overall effect on the data:

- Sample custody, handling, and preservation
- Holding time compliance
- Summary initial and continuing calibration data
- Method blanks
- Surrogate spike recovery
- Precision and Accuracy (laboratory control samples and spike/spike duplicates)

Only summary QA/QC information was reviewed for each analytical parameter. Analytical results and QA/QC summary information were provided by ASL laboratories for the sample analyses. These data sets are usable when used in conjunction with information discussed below and any flags applied to the hard copy data by the laboratory or during this review.

Sample Custody, Handling, and Holding Times

Chain-of-custody (COC) forms and laboratory sample receiving checklists were reviewed and no discrepancies were found.

Initial Calibration

Initial calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met initial calibration QC acceptance criteria.

Continuing Calibration

Continuing calibration data were provided by ASL laboratory for each instrument used for analysis. All target compounds met continuing calibration QC acceptance criteria.

Holding Times

Extraction and analysis holding times were met for all samples and analytes.

Method Blanks

Method blanks were provided for all analyses. All method blanks were contamination-free, therefore meeting QC acceptance criteria.

Surrogate Recovery

All surrogate recoveries were within the specified QC control limits.

Laboratory Control Samples

Percent recovery and relative percent difference (RPD) values for the laboratory control samples (LCS) and LCS duplicates met frequency criteria and QC control limits.

Matrix Spike Samples

Matrix Spike and Matrix Spike Duplicates (MS/MSD) were not requested on either COC. The laboratories do not routinely report MS/MSD pairs when not requested to do so. However, they do routinely run this QA/QC check and inspect them internally.

Other Comments

Some of the samples were run as dilutions to bring high concentration analytes into range of the calibration curves. As the samples are diluted some of the lower concentration analytes become non-detect. All of the runs are presented in this data set. For any one analyte the analysis with the least dilution, and therefore lowest detection limit, that has not been flagged "E" should be used.

APPENDIX E
Risk Estimate Calculation Spreadsheets

**AGGREGATE RISK ESTIMATES
CURRENT AND FUTURE TRESPASSER**

Sediment

Reynolds Metals Company, Company Lake

Chemical	TRESPASSER (AVERAGE)				TRESPASSER (RME)			
	INGESTION	DERMAL	SUM	% of Total ELCR	INGESTION	DERMAL	SUM	% of Total ELCR
Benzo(a)anthracene	2.32E-10	0.00E+00	2.32E-10	4.9%	7.50E-09	0.00E+00	7.50E-09	5.1%
Benzo(a)pyrene	2.87E-09	0.00E+00	2.87E-09	60.7%	8.94E-08	0.00E+00	8.94E-08	60.9%
Benzo(b)fluoranthene	4.88E-10	0.00E+00	4.88E-10	10.3%	1.68E-08	0.00E+00	1.68E-08	11.4%
Benzo(k)fluoranthene	1.83E-11	0.00E+00	1.83E-11	0.4%	5.54E-10	0.00E+00	5.54E-10	0.4%
Chrysene	5.75E-12	0.00E+00	5.75E-12	0.1%	1.87E-10	0.00E+00	1.87E-10	0.1%
Dibenz(a,h)anthracene	9.08E-10	0.00E+00	9.08E-10	19.2%	2.57E-08	0.00E+00	2.57E-08	17.5%
Indeno(1,2,3-cd)pyrene	2.08E-10	0.00E+00	2.08E-10	4.4%	6.59E-09	0.00E+00	6.59E-09	4.5%
SUM OF RISKS	4.7E-09	0.0E+00	4.73E-09		1.5E-07	0.0E+00	1.47E-07	

EXPOSURE ASSUMPTIONS

Exposure Setting	Trespasser	Trespasser
Exposure Case	Average	Reasonable Maximum
Sediment Ingestion Rate - (mg/day)	100	200
Skin Surface Area - (cm ²)	5400	6600
Sediment to Skin Adherence Rate - (mg/cm ² -event)	0.3	0.3
Body Weight - (kilograms)	35	35
Number of Days/Year Exposed	4	26
Number of Years Exposed	5	5
Averaging Time - Cancer (yrs)	70	70

**AGGREGATE HAZARD ESTIMATES
CURRENT AND FUTURE TRESPASSER**

Sediment

Reynolds Metals Company, Company Lake

Chemical	TRESPASSER (AVERAGE)				% of Total HI	TRESPASSER (RME)				% of Total HI
	INGESTION	DERMAL	SUM			INGESTION	DERMAL	SUM		
Acenaphthene	9.17E-09	0.00E+00	9.17E-09		<0.01%	1.76E-07	0.00E+00	1.76E-07		<0.01%
Anthracene	2.53E-09	0.00E+00	2.53E-09		<0.01%	5.86E-08	0.00E+00	5.86E-08		<0.01%
Chromium	1.27E-06	2.06E-07	1.48E-06		0.52%	2.28E-05	2.26E-06	2.51E-05		0.7%
Fluoranthene	8.83E-08	0.00E+00	8.83E-08		0.03%	1.88E-06	0.00E+00	1.88E-06		0.0%
Fluorene	1.32E-08	0.00E+00	1.32E-08		<0.01%	2.58E-07	0.00E+00	2.58E-07		<0.01%
Fluoride	2.42E-04	3.91E-05	2.81E-04		99.40%	3.45E-03	3.41E-04	3.79E-03		99.2%
Pyrene	8.87E-08	0.00E+00	8.87E-08		0.03%	3.09E-06	0.00E+00	3.09E-06		0.1%
SUM OF RISKS	0.00024	0.000039	0.00028			0.0035	0.00034	0.0038		

EXPOSURE ASSUMPTIONS

Exposure Setting	Trespasser	Trespasser
Exposure Case	Average	Reasonable Maximum
Sediment Ingestion Rate - (mg/day)	100	200
Skin Surface Area - (cm ²)	5400	6600
Sediment to Skin Adherence Rate - (mg/cm ² -event)	0.3	0.3
Body Weight - (kilograms)	35	35
Number of Days/Year Exposed	4	26
Number of Years Exposed	5	5
Averaging Time - Noncancer (yrs)	5	5